Name of the Project : Ganga river pollution

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (DATA SCIENCE)

By

SANKEERTHANA KODURI

21315A0039

Under the esteemed guidance of

Ms. Seema Vishwakarma

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

CERTIFICATE

This is to certify that the project entitled, **"Ganga River Pollution"**, is bonafied work of **Mrunal Gharal** bearing Seat No: ___21315A0048___ submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in DATA SCIENCE in the subject Environmental Science from University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

INDEX
Environmental Science

No.	Title/Aim	Date	Faculty Sign	Grade	Student Sign
1	Topic selection details				
2	Introduction of the topic				
3	Review of Literature of the selected topic				
4	Methodology used for the topic				
5	Video/photos of the Model				
6	Conclusion				
7	References				
8	Model/ Poster Presentation				

Topic selection details

Despite this iconic status and religious heritage, the Ganga today is facing formidable pollution pressures, along with the attendant threats to its biodiversity and environmental sustainability. An ever-growing population, together with inadequately planned urbanization and industrialization, has affected the quality of the river's waters. Today, the Ganga's waters are sullied by the incessant outpouring of sewage, as well as by the large volumes of solid and industrial waste that are churned out by human and economic activity along the river's banks.

Introduction of the topic

INTRODUCTION

India is endowed with rich water resources. Approximately 45,000 km long riverine systems criss-cross the length and breadth of the country. Major 46 medium river basins extending over the states of Uttarakhand, Uttar Pradesh, Haryana, Himachal Pradesh, Delhi, Bihar, Jharkhand, Rajasthan, Madhya Pradesh, Chhattisgarh and West Bengal. Rapidly increasing population, rising standards of living and exponential growth of industrialization and urbanisation have exposed the water resources, in general, and rivers, in particular, to various forms of degradation.

Many Indian rivers, including the Ganga in several stretches, particularly during lean flows, have become unfit even for bathing. Realising that the rivers of the country were in a serious state of degradation, a beginning towards their restoration was made with the launching of the Ganga Action Plan (GAP) in 1985. India is endowed with rich water resources. Approximately 45,000 km long riverine systems criss-cross the length and breadth of the country. These rivers include Himalayan snow fed rivers, peninsular rain fed rivers and coastal short rapids. The total geographical area of 3.29 millon square km of the country has been divided in to 12 major river basins, 46 medium river basins and 14 minor and desert river basins. The major river basins account for 78% of total surface area and serve 80% of the population. The Ganga river basin is the largest of these, extending over the states of Uttarakhand, Uttar Pradesh, Haryana, Himachal Pradesh, Delhi, Bihar, Jharkhand, Rajasthan, Madhya Pradesh, Chhattisgarh and West Bengal. Rapidly increasing population, rising standards of living and exponential growth of industrialisation and urbanisation have exposed the water resources, in general, and rivers, in particular, to various forms of degradation. The deterioration in the water quality of the river impacts the people immediately. Many Indian rivers, including the Ganga in some stretches, particularly during lean flows, have become unfit even for bathing. Realising that the rivers of the country were in a serious state of degradation, a beginning towards their restoration was made with the launching of the Ganga Action Plan in 1985. It was envisaged as a comprehensive programme of river conservation with the objective of improving the water quality. It was visualised that in due course, the programme would be enlarged to cover other major rivers of the country. In order to prepare such a major programme, an exhaustive study of the Ganga Basin arried by the Central Pollution Control Board (CPCB). The study covered all aspects of rivers in the Ganga basin including water quality. The study pointed out that besides pollution from municipal and industrial wastes, non-point sources like run off from rural settlements, pesticides from agricultural fields, open defecation, dumping of carcasses significantly contribute to pollution of the river and render the water unsuitable for its intended use. Equally important is the issue of flow in the River. Dams and barrages for storing and diverting water for irrigation, domestic consumption and industry, affect the flow, particularly during dry months. This has serious implications for water quality and

aquatic life in the river. The GangaAction Plan Phase I (GAP I) was started in 1985 to improve the water quality of river Ganga to acceptable standards by preventing the pollution load reaching the river. The main focus of the Plan was on interception, diversion and treatment of municipal sewage draining into the river, which accounted for about 75% of river pollution. Treatment capacity of 869 million liters per day (MLD) was created in 25 Class-I towns in the three States of Uttar Pradesh, Bihar and West Bengal. In addition to the core works relating to sewerage and sewage treatment, certain non-core works like afforestation, crematoria, low cost sanitation and river front development, were also taken up.

Review of Literature of the selected topic

GANGA ACTION PLAN (GAP)

The Ganga Action Plan was launched in 1985 with the objective of pollution abatement to improve the water quality in the river. The programme included 261 schemes spread over 25 Class I towns of U.P., Bihar and West Bengal. The main focus of the Plan was on Interception & Diversion and treatment of sewage generated from these identified towns. 34 Sewage Treatment Plants (STPs) with a treatment capacity of 869 mld have been set up under the Plan. GAP I was completed in March 2000 at a cost of Rs. 450 crores.

GAP II was started in 1993. It covers 59 towns located along the river in the five states of Uttarakhand, U.P, Jharkhand, Bihar and West Bengal. 319 schemes have been taken up under the Plan, out of which 200 have been completed. An expenditure of Rs. 370.40 crore has been incurred so far and sewage treatment capacity of 130 mld has been created. GAP II was expanded in 1996 into the National River Conservation Plan (NRCP), which presently covers polluted stretches of 36 rivers in 20 States in the country

STATUS OF WATER QUALITY OF GANGA RIVER

The Ganga river water quality evaluated on the basis of pollution indicators (DO, BOD and coliform) indicates that dissolved oxygen levels have improved in the main stem of Ganga. The values are mostly above the recommended value of 5.0 mg/l, except in the stretch between Kannauj and Kanpur where values below 5.0 mg /l have been noticed on several occasions. BOD values are also within

stipulated limits in the upper and lower reaches of the Ganga but tend to be higher than 5.0 mg /l in the middle stretch from Kannauj to Varanasi. This can be described as the critical stretch. The faecal coliform remains the only parameter on which the observed values exceed the permissible limits of 2500 MPN/100 ml at most places except in the upper reaches up to Haridwar. Despite the problems of operation and maintenance, the river water quality shows discernible improvement (in terms of DO and BOD) over the pre-GAP period. This should be seen in the background of a steep increase in population with concomitant increase in organic pollution load.

CRITICAL ANALYSIS OF GAP

The success of GAP has been in preventing further deterioration of water quality, generally maintaining it and improving it in some places, even though the pollution load draining into the river has substantially increased due to population growth, rapid industrialization and urbanization. It can be inferred that if the pollution abatement programme had not been implemented there would have been an inevitable deterioration in the quality of river water posing threat to public health and ecology. A positive outcome of the programme has been an increased public awareness of the need to protect our rivers

FUTURE COURSE OFACTION

Recognising the need to revamp the river conservation strategy, the Central Government has given Ganga the status of a 'National River' andhas set up the National Ganga River Basin Authority (NGRBA) on 20 February 2009. It is an Empowered planning, financing, monitoring and coordinating Authority for effective abatement of pollution and conservation of the river. The Authority would adopt a comprehensive and holistic approach for conserving the river Ganga with river basin as the unit of planning. The Authority would seek to maintain minimum ecological flows besides implementing pollution abatement activities

BACKGROUND

The Himalayas are the source of three major Indian rivers namely the Indus, the Ganga and the Brahmaputra. Ganga drains a basin of extraordinary variation in altitude, climate, land use, flora and fauna, social and cultural life. Ganga has been a cradle of human

civilization since time immemorial. Millions depend on this great river for physical and spiritual sustenance. People have immense faith in the powers of healing and regeneration of the Ganga. It is one of the most sacred rivers in the world and is deeply revered by the people of this country. The River plays a vital role in religious ceremonies and rituals. To bathe in Ganga is a lifelong ambition of many who congregate in large numbers for several river centered festivals such as Kumbh Mela and numerous Snan (bath) festivals.

LOCATION

Ganga basin is the largest river basin in India in terms of catchment area, constituting 26% of the country's land mass (8,61,404 Sq. km) and supporting about 43% of its population (448.3 million as per 2001 census). The basin lies between East longitudes 73°30and 89° 0 and North latitudes of 22°30 and 31°30, covering an area of 1,086,000 sq km, extending over India, Nepal and Bangladesh. About 79% area of Ganga basin is in India. The basin covers 11 states viz., Uttarakhand, U.P., M.P., Rajasthan, Haryana, Himachal Pradesh, Chhattisgarh, Jharkhand, Bihar, West Bengal and Delhi. The drainage area in each state is given in Table 2.1.

CLIMATE

The annual average rainfall in the basin varies between 39 cm to 200 cm, with an average of 110 cm. Eighty percent of the rainfall occurs during the monsoon months i.e. between June and October. Because of large temporal variations in precipitation over the year, there is wide fluctuation in the flow characteristics of the river.

COURSE OF GANGA RIVER

Bhagirathi is the source stream of Ganga. It emanates from Gangotri Glacier at Gaumukh at an elevation of 3,892 m (12,770 feet). Many small streams comprise the headwaters of Ganga. The important among these are Alaknanda, Dhauliganga, Pindar, Mandakini and Bhilangana. At Devprayag, where Alaknanda joins Bhagirathi, the river acquires the name Ganga. It traverses a course of 2525 km before flowing into the Bay of Bengal. It has a large number of tributaries joining it during this journey (Figure 1). In Uttarakhand, near Tehri, a dam, has been built on Bhagirathi for hydropower generation resulting in regulated additional water during the dry months. At Haridwar, Ganga opens to the Gangetic Plains, where a

barrage diverts a large quantity of its waters into the Upper Ganga Canal, to provide water for irrigation. At Bijnore, another barrage diverts water into the Madhya Ganga Canal but only during monsoon months. At Narora, there is further diversion of water into the Lower Ganga Canal. Further down, River Ramganga joins Ganga near Kannauj, adding additional water to the river. Yamuna confluences Ganga at the Sangam in Allahabad, making a major contribution to the river flow. Beyond Allahabad, Ganga is joined by several tributaries, most of which are from the north and a few from the south. In the stretch between Allahabad in U.P. and Malda in West Bengal, Ganga, therefore, has considerable flow. The Farakka barrage in West Bengal regulates the flow of the river, diverting some of the water into a feeder canal linking Hooghly to keep it relatively silt-free. Downstream of this barrage, River Ganga splits into two, Bhagirathi (Hooghly) on the right and Padma on the left. Bhagirathi (Hooghly) meets the Bay of Bengal about 150 km downstream of Kolkata. Padma enters

Bangladesh and meets river Brahmputra and Meghna before finally joining the Bay of Bengal.

HYDROLOGY OF GANGA BASIN

Rainfall, subsurface flows and snow melt from glaciers are the main sources of water in river Ganga. Surface water resources of Ganga have been assessed at 525 billion cubic meter (BCM). Catchment area, annual yield of water and mean flow of tributaries of Ganga are given in . Out of its 17 main tributaries Yamuna, Sone, Ghagra and Kosi contribute over half of the annual water yield of the Ganga. These tributaries meet the Ganga at Allahabad and further downstream. The river has a problem of low flows between the Haridwar – Allahabad stretch, as may be seen from Figures 2 and 3. December to May are the months of lean flow in the Ganga. The lean flow during these months, at some important towns along the river Ganga,

He average annual flow at various gauging stations and in major tributaries is shown in the line diagram in Fig. 5. The tributaries joining Ganga from the south are shown on the left of the diagram and those joining it from the north are shown on the right side. On an average, each square km of the Ganga basin receives a million cubic meter (MCM) of water as rainfall. 30% of this is lost as evaporation, 20% seeps to the subsurface and the remaining 50% is available as surface runoff. The deep channel of the river bounded by high banks

facilitates the passage of ground water as base flow. Annual flooding is the characteristic of all rivers in the Ganga basin. The Ganga rises during the monsoon but the high banks restrict the flood water from spreading. The flood plain is usually 0.5 to 2 km wide. This active flood plain is flooded every year. There are many structures on the Ganga which divert its discharge. Major Water Resources Development Projects on the river are given in . Structurally, the Ganga basin comprises of three large divisions of the Indian subcontinent, namely: the Himalayan fold mountains the Central Indian highlands the Peninsular shield, and the Gangetic plain. The Himalayan Fold Mountains include numerous snow peaks rising above 7000 meters. Each of these peaks is surrounded by snow fields and glaciers. All the tributaries are characterised by well regulated flows and assured

The success of GAP has been in preventing further deterioration of water quality, generally maintaining it and improving it in some places, even though the pollution load draining into the river has substantially increased due to population growth, rapid industrialization and urbanization. It can be inferred that if the pollution abatement programme had not been implemented there would have been an inevitable deterioration in the quality of river water posing threat to public health and ecology. A positive outcome of the programme has been an increased public awareness of the need to protect our rivers

Recognising the need to revamp the river conservation strategy, the Central Government has given Ganga the status of a 'National River' andhas set up the National Ganga River Basin Authority (NGRBA) on 20 February 2009. It is an Empowered planning, financing, monitoring and coordinating Authority for effective abatement of pollution and conservation of the river. The Authority would adopt a comprehensive and holistic approach for conserving the river Ganga with river basin as the unit of planning. The Authority would seek to maintain minimum ecological flows besides implementing pollution abatement activities

Bhagirathi is the source stream of Ganga. It emanates from Gangotri Glacier at Gaumukh at an elevation of 3,892 m (12,770 feet). Many small streams comprise the headwaters of Ganga. The important among these are Alaknanda, Dhauliganga, Pindar, Mandakini and Bhilangana. At Devprayag, where Alaknanda joins Bhagirathi, the river acquires the name Ganga. It traverses a course of 2525 km before flowing into the Bay of Bengal. It has a large number of tributaries joining it during this journey (Figure 1). In Uttarakhand, near Tehri, a dam, has been built on Bhagirathi for hydropower generation resulting in regulated additional water during the dry months. At Haridwar, Ganga opens to the Gangetic Plains, where a barrage diverts a large quantity of its waters into the Upper Ganga

Canal, to provide water for irrigation. At Bijnore, another barrage diverts water into the Madhya Ganga Canal but only during monsoon months. At Narora, there is further diversion of water into the Lower Ganga Canal. Further down, River Ramganga joins Ganga near Kannauj, adding additional water to the river. Yamuna confluences Ganga at the Sangam in Allahabad, making a major contribution to the river flow. Beyond Allahabad, Ganga is joined by several tributaries, most of which are from the north and a few from the south. In the stretch between Allahabad in U.P. and Malda in West Bengal, Ganga, therefore, has considerable flow. The Farakka barrage in West Bengal regulates the flow of the river, diverting some of the water into a feeder canal linking Hooghly to keep it relatively silt-free. Downstream of this barrage, River Ganga splits into two, Bhagirathi (Hooghly) on the right and Padma on the left. Bhagirathi (Hooghly) meets the Bay of Bengal about 150 km downstream of Kolkata. Padma enters

He average annual flow at various gauging stations and in major tributaries is shown in the line diagram in Fig. 5. The tributaries joining Ganga from the south are shown on the left of the diagram and those joining it from the north are shown on the right side. On an average, each square km of the Ganga basin receives a million cubic meter (MCM) of water as rainfall. 30% of this is lost as evaporation, 20% seeps to the subsurface and the remaining 50% is available as surface runoff. The deep channel of the river bounded by high banks facilitates the passage of ground water as base flow. Annual flooding is the characteristic of all rivers in the Ganga basin. The Ganga rises during the monsoon but the high banks restrict the flood water from spreading. The flood plain is usually 0.5 to 2 km wide. This active flood plain is flooded every year. There are many structures on the Ganga which divert its discharge. Major Water Resources Development Projects on the river are given in . Structurally, the Ganga basin comprises of three large divisions of the Indian subcontinent, namely: the Himalayan fold mountains the Central Indian highlands the Peninsular shield, and the Gangetic plain. The Himalayan Fold Mountains include numerous snow peaks rising above 7000 meters. Each of these peaks is surrounded by snow fields and glaciers. All the tributaries are characterised by well regulated flows and assured

The average annual flow at various gauging stations and in major tributaries is shown in the line diagram in Fig. 5. The tributaries joining Ganga from the south are shown on the left of the diagram and those joining it from the north are shown on the right side. On an average, each square km of the Ganga basin receives a million cubic meter (MCM) of water as rainfall. 30% of this is lost as evaporation, 20% seeps to the subsurface and the remaining 50% is available as surface runoff. The deep channel of the river bounded by high banks facilitates the passage of ground water as base flow. Annual flooding

is the characteristic of all rivers in the Ganga basin. The Ganga rises during the monsoon but the high banks restrict the flood water from spreading. The flood plain is usually 0.5 to 2 km wide. This active flood plain is flooded every year. There are many structures on the Ganga which divert its discharge. Major Water Resources Development Projects on the river are given in . Structurally, the Ganga basin comprises of three large divisions of the Indian subcontinent, namely: the Himalayan fold mountains the Central Indian highlands the Peninsular shield, and the Gangetic plain. The Himalayan Fold Mountains include numerous snow peaks rising above 7000 meters. Each of these peaks is surrounded by snow fields and glaciers. All the tributaries are characterised by well regulated flows and assured

The average annual flow at various gauging stations and in major tributaries is shown in the line diagram in Fig. 5. The tributaries joining Ganga from the south are shown on the left of the diagram and those joining it from the north are shown on the right side. On an average, each square km of the Ganga basin receives a million cubic meter (MCM) of water as rainfall. 30% of this is lost as evaporation, 20% seeps to the subsurface and the remaining 50% is available as surface runoff. The deep channel of the river bounded by high banks facilitates the passage of ground water as base flow. Annual flooding is the characteristic of all rivers in the Ganga basin. The Ganga rises during the monsoon but the high banks restrict the flood water from spreading. The flood plain is usually 0.5 to 2 km wide. This active flood plain is flooded every year. There are many structures on the Ganga which divert its discharge. Major Water Resources Development Projects on the river are given in . Structurally, the Ganga basin comprises of three large divisions of the Indian subcontinent, namely: the Himalayan fold mountains the Central Indian highlands the Peninsular shield, and the Gangetic plain. The Himalayan Fold Mountains include numerous snow peaks rising above 7000 meters. Each of these peaks is surrounded by snow fields and glaciers. All the tributaries are characterised by well regulated flows and assured supply of water throughout the year. The Gangetic plain, in which the main stem of Ganga lies, consists of alluvial formation and is a vast flat depositional surface at an elevation below 300 meters. The Ganga basin consists of a wide variety of soils. While soils of the high Himalayas in the north are subject to continuous erosion, the Gangetic plain provides a huge receptacle into which thousands of meters of thick layers of sediments have been deposited to form a wide valley plain. The

Deccan plateau in the south has a mantle of residual soils of varying thickness arising out of weathering of ancient rocks of the peninsular shield. Some of the soils are highly susceptible to erosion. Mountain soils, submontane soils and alluvial soils, covering 58 % of the basin area, have very high erodibility; red soils covering 12% of the basin area have high erodibility, red & yellow soils and mixed red and black soils covering an area of 8% have moderate erodibility, and deep black soils and medium black soils covering an area of 14% have low erodibility. 2.7 SOIL CHARACTERISTICS OF GANGA BASIN Shallow black soils and lateritic soils covering an area of 6% have very low erodibility. Broadly, it can be said that soils in Haryana, Uttarakhand, Uttar Pradesh, Bihar, Jharkhand and West Bengal, through which the main stem of Ganga and all its tributaries flow, have very high erodibility. Demography has an important bearing on the state of the river as it is significantly affected by the population living within the basin. Average population density in the Ganga basin is 520 persons per square km as against 312 for the entire country (2001 census). Major cities of Delhi, Kolkata, Kanpur, Lucknow, Patna, Agra, Meerut, Varanasi and Allahabad are situated in the basin. The cities in the basin have large and growing populations and a rapidly expanding industrial base. The summary of urban population in the basin is given in Table 2.2. It can be seen that between 1991 and 2001, urban population increased by 32%. This trend is likely to continue. The pollution load is also expected to increase correspondingly.

Table 2.2: State-wise Number of Cities/Towns and Estimated Population

S. No	State	No of towns/ cities	Urban population 1991	2001
1.	Bihar (including Jharkhand)	130	6,715,096	8,681,800
2.	Haryana	106	4,054,744	6,115,304
3.	Himachal Pradesh	57	449,196	595,581
4.	Madhya Pradesh (including Chhattisgarh)	394	12,152,967	15,967,145
5.	Rajasthan	222	10,077,371	13,200,000
6.	Uttar Pradesh	704	27,544,233	34,539,582
7.	Uttarakhand	86		2,179,074
8.	West Bengal	373	18,707,601	22,427,251
9.	Delhi	1	8,471,625	12,905,780
	Total	2073	88,172,833	116,611,517

The objective, at the time of launching the Ganga Action Plan in 1985, was to improve the water quality of Ganga to acceptable standards by preventing the pollution load from reaching the river. Later, in 1987, on the recommendations of the Monitoring Committee of GAP, the objective of the Plan was

modified to restoring the river water quality to the Designated Best Use class of Ganga, which is "Bathing Class" (Class B). The standards of water quality for Class B are given in the following box. The classification of designated best use of inland surface water as stipulated by CPCB is given in Table 3.1. Studies undertaken before the formulation of the Ganga Action Plan indicated that a large proportion of pollution load in the river came from the municipal wastewater generated in 25 Class I towns located on the banks of the Ganga, each with a population exceeding one lakh. Therefore, the emphasis under the Plan was on interception and diversion of wastewater and its treatment in Sewage Treatment Plants, before discharge into river or on land. In addition, works were also undertaken to prevent pollution of the river from non-point sources, improving aesthetics, and promoting public participation. The various types of schemes taken up under GAP are categorized into core and non-core schemes.

Methodology used for the topic

GAP suffered from the following limitations;

• Only a part of the pollution load of the river could be tackled. GAP concentrated on improving the water quality of Ganga, in terms of organic pollution and dissolved oxygen. Only the wastewater of towns flowing through the drains to the river was targeted. Connections of household toilets to the sewer system, solid waste management, and some other vital aspects of municipal activities, which impinge on the water quality were not addressed. The issue of ensuring environmental flows in the river was not attended to. This has become increasingly important in view of the competing demands on the Ganga water for drinking, irrigation and power generation. Adopting more efficient water conservation practices could have reduced the need for abstraction of water from Ganga.

e cover in the Ganga basin has reduced considerably and land use pattern has changed leading to soil erosion. Sediment yield and its deposit on the river bed were also not monitored. Pollution load from non-point sources was addressed marginally. No attention was paid to run-off from agricultural

fields, which brings nonbiodegradable pesticides into the river. Measures necessary for the prevention of pollution of the river water while planning new settlements or expansion of the present ones were not considered. Watershed development as well as groundwater and surface water interaction were not covered. Only Class-I towns on the banks of rivers were taken up. Thus a large number of urban settlements remained outside the purview of the Plan. Pollution from rural sector was not addressed. Several parameters such as heavy metals, pesticides, nitrogen and phosphorous were not monitored. These parameters have become important with increased industrialisation and urbanisation. There was little sense of ownership among the stakeholders due to their limited participation in formulating schemes and in implementation. In public perception, the Plan continues to be seen as a Government scheme.

In the initial stages, schemes of I&D and STP were implemented with limited knowledge of actual wastewater generation and treatment technology options. This was due to lack of indigenous experience in pollution abatement works. An attempt has been made to address this shortcoming in the next stage (GAP II), with various technologies being evaluated to select the most appropriate option for a particular location. Initially, no provision was made for supply of standby power. Treatment plants & pumping stations, therefore, were operated with frequent interruptions. Subsequently, dedicated power line and/or diesel generator sets have been installed to ensure uninterrupted power supply to these facilities. However, O&M continues to be a major problem. there were delays in preparing sanctioning schemes Problems of land acquisition, court cases, contractual issues and inadequate capacities in the local bodies/implementing agencies came in the way of speedy implementation. In some cases, essential components of schemes were not foreseen and estimates had to be revised. This caused cost over-runs and delays. While seeking approval of schemes under the GAP, the State Governments had committed to ensuring proper O&M of the river conservation assets being created. However, most of the states could not provide adequate financial resources for O&M, In the absence of a fast track mechanism,

Steady and uninterrupted electricity and experienced manpower. The Municipal Corporations had problems in raising

the required financial and human resources to ensure proper operation and maintenance of pollution abatement infrastructure created under GAP. Consequently, O&M of these assets suffered resulting in continued pollution of the river. Under-utilization of STPs, in some instances due to non-conveyance of the sewage to the STPs, particularly in the absence of upstream systems such as branch sewer and house connections is also a serious constraint. Decentralized approach was adopted only in a few places under the Plan. The schemes generally relied on centralised systems, which meant that sewage was transported to the periphery of the town for treatment before its final disposal. This resulted in long sewer systems, involving pumping and treatment, which were capital and energy intensive. A variety of treatment technologies have been adopted under GAP. At places where adequate land was available, waste stabilization pond technology was used. In most other places, technologies like the Activated Sludge Process (ASP), which is a tried and tested technology, as well as Upflow Anaerobic Sludge Blanket (UASB), which is a new technology, were adopted. While ASP is an energy intensive technology, the UASB is less energy intensive but its effluent needs to be polished to meet the prescribed standards before it can be discharged into the river. The experience of using various technologies under GAP has been utilised in selection of appropriate treatment technologies in river pollution abatement programmes subsequently taken up under the NRCP. The system design for the schemes of interception, diversion & treatment of sewage catered to the hydraulic and organic load at the time of designing, with provision for increased load in future. However, treatment facilities at many places were soon found to be inadequate Large volume of wastewater in excess of treatment capacity of the STPs, had to be discharged into the river without treatment.

Core Schemes : • Interception and diversion (I&D) of sewage, reaching the Ganga river. • Installing treatment facilities to treat the intercepted sewage. • • atoria • • • Non Core Schemes : Providing facilities of Low Cost Sanitation (LCS) at community and individual levels at identified locations. Installation of Crematoria (electric as well as wood based improved crem). River Front Development (RFD) including bathing ghats. Afforestation Public awareness and participation. 3.3 INSTITUTIONAL ARRANGEMENTS An apex body, namely the Central Ganga Authority, (CGA) was set up under the

Chairmanship of the Prime Minister to finalize the policy framework and to coordinate and oversee the implementation of theAction Plan. A Steering Committee was constituted with Secretary, Ministry of Environment and Forests as Chairman to consider approval of schemes, allocation of funds and to review progress. A Monitoring Committee was also constituted to monitor progress of implementation of schemes. The Ganga Project Directorate (GPD), with the necessary financial and administrative powers, was set up as a part of the Ministry of Environment and Forests to implement theAction Plan. GAP II was merged with the National River Conservation Plan (NRCP) in 1996. The NRCP presently covers polluted stretches of 36 rivers spread over 165 towns in 20 States.

GANGA ACTION PLAN PHASE I (GAP I) Under GAP I, pollution abatement schemes were taken up in 25 Class-I towns in three States of U.P., Bihar and West Bengal. GAP I was declared complete on 31.03.2000 with an expenditure of Rs. 452 crore. The details are given below: States Covered : 3 (UP, Bihar and West Bengal) Towns Covered : 25 (UP-6, Bihar-4 and West Bengal-15) Schemes Sanctioned : 261 Schemes Completed : 260 Interception and Diversion : 88 Sewage Treatment Plants : 34 Low Cost Sanitation : 43 Crematoria : 28 River Front Development : 35 Others (afforestation) : 32 Sewage Treatment Capacity to be Created : 882 MLD (35 STPs) Sewage Treatment Capacity Created : 869 MLD (34 STPs) Total expenditure incurred : Rs. 452 Crores. 3.5 GANGA ACTION PLAN PHASE II (GAP II) As GAP I addressed only a part of the pollution load of Ganga, GAP II was launched in stages between 1993 and 1996. 59 towns along the main stem of river Ganga in five States of Uttarakhand, U.P., Jharkhand, Bihar and West Bengal are covered under the Plan. The salient features of the Plan are as under: States Covered : 5 (Uttarakhand, UP, Bihar, Jharkhand and West Bengal) Towns Covered : 59 (Uttarakhand-10, UP-12, Bihar-13, Jharkhand1, West Bengal-23) Schemes Sanctioned : 319 Schemes Completed : 200 Sewage Treatment Capacity to be Created : 277.28 MLD (37 STPs) Sewage Treatment Capacity Created : 129.77 MLD (18 STPs)

INDUSTRIAL POLLUTION Though industrial pollution constitutes around 20% of the total pollution load by volume, its contribution to polluting the river Ganga is much greater, due to the higher concentration of ollutants. This problem was sought to be addressed by focusing on Grossly Polluting Industries.Any

industrial unit, discharging into the river effluent having BOD load of 100 kg/day or more and/or is involved in the p , manufacture and use of hazardous substances, is classified as grossly polluting. Such units were identified and asked to install Effluent Treatment Plants. Presently, 154 grossly polluting industrial units are identified on the main stem of River Ganga. Of these, 94 units have Effluent Treatment Plants (ETPs) operating satisfactorily, 22 have ETPs but they do not operate satisfactorily and 38 Units have closed down. The total number of grossly polluting units along river Ganga and its tributaries is 478. Of these, 335 units have ETPs operating satisfactorily, while in 64 units ETPs do not operate satisfactorily and 79 units have been closed down.

Water quality monitoring is undertaken with the objective of defining the status of water quality. It also provides an idea of the trend in water quality. It is a long term and standardized assessment. The primary uses considered for such characterization relate to drinking water, safety of human contact and health of ecosystems. Before the launching of GAP, a comprehensive study of water quality in Ganga River Basin was undertaken by CPCB (at 39 stations between Rishikesh and Diamond Harbour). Under GAP, Water Quality Monitoring is a regular activity. This is being done at 27 Monitoring Stations. Though 21 water quality parameters were identified by NRCD, the emphasis is on parameters which indicate the quality criteria for Designated Best Use viz. pH, Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD) and indictor bacteria coliform (faecal coliform). This monitoring is being carried out through reputed scientific institutes/universities situated along the river and having the necessary infrastructure and capability to undertake this work. Nine core parameters and site specific heavy metals are monitored on a monthly basis. Performance monitoring of sewage treatment plants is also undertaken. A 'Protocol for Water Quality Monitoring' notified by the Water Quality Assessment Authority is being followed for achieving uniformity in monitoring of surface & ground water by all agencies in the country. Water Quality Status of Ganga River 13 The authenticity and reliability of water quality data is ensured through an exercise ofAnalytical Quality Control (AQC) with the help of Central Pollution Control Board. A water quality monitoring bulletin is published at regular intervals for information and corrective measures. During the pre-GAP

period, DO values exhibited a more or less stable pattern in Ganga. The average values ranged between 6.8-7.2 mg/l. The values were generally above 4.0 mg/l. Higher values were recorded in winters at Haridwar, Allahabad, Varanasi and Patna. There were only minor fluctuations. BOD depicts the pollution status of a stream and is measured as oxygen equivalent of organic matter. The values exhibited higher pollution level during post monsoon months than in summers and winters. The BOD levels were higher at Kannauj and downstream upto Varanasi. The pattern of variation, spatial and temporal, was not smooth. Maximum values were recorded at Kanpur downstream [15.5 mg/l, 14.15 mg/l, 16.39 mg/l (post-monsoon, winter and summers)]. Minimum values of less than 3 mg/l were recorded in the hilly stretches and downstream of Patna, except at Diamond Harbour where value of 15.58 mg/l was recorded in summer. The variation in total coliforms was 48333, 916667 and 835333 MPN/100 ml (post monsoon, winter and summer) at Uluberia with minimum levels at Haridwar (43, 2400,).As expected, the counts 4.1.3 Coliform 2400 were higher in summers compared to those in postmonsoon and winter seasons. The data at 16 monitoring stations during the preGAP period is given in The graphic representation is given in Figure 6. Annexure-III. The pre GAP status of ambient water quality along different zones of the River Ganga as per CPCB's classification of 'Designated Best use' is summarized in Table 4.1 and Table 4.2.

Fig. 6: Parametric values of Ganga Pre GAP at Selected Stations
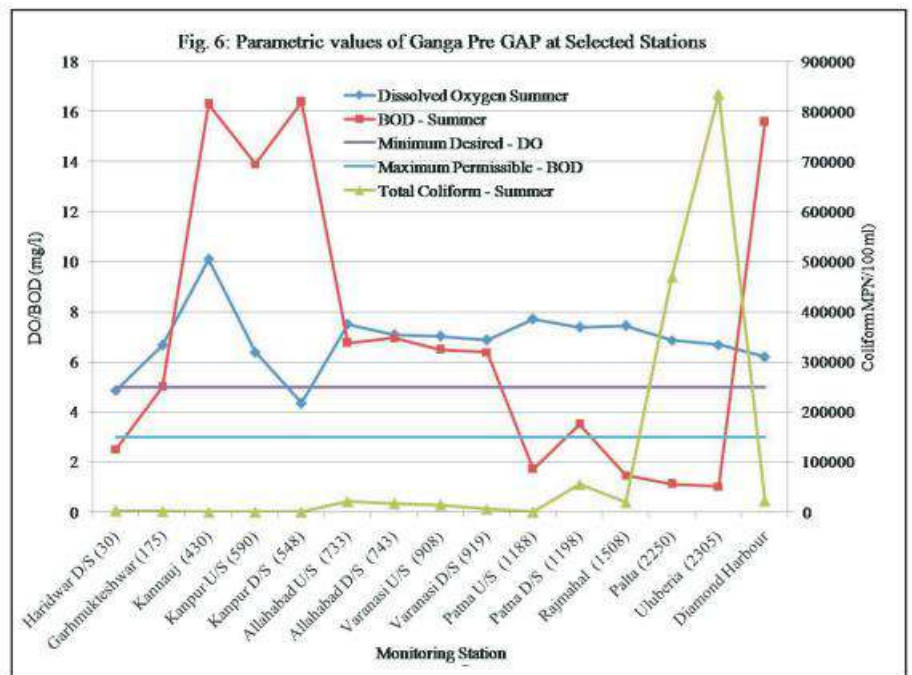
Video/photos of the Model

Conclusion

GAP has been a mixed success. Though the programme yielded good results in many stretches, the problem of pollution in river Ganga has not been fully addressed. The river water quality has improved at many locations despite significantly increased demographic and other pressures. However, the critical parameters of water quality, which adversely impact human health, exceed the prescribed standard limits at major locations.

Despite the problems of operation and maintenance river water quality has shown discernible improvement (in terms of DO and BOD) over the pre-GAP period. This has to be seen in the background of a steep increase in population with concomitant increase in organic pollution load. In the absence of Ganga Action Plan, there would have been further deterioration in these parameters. This conclusion has also been corroborated by several independent studies (Markandya & Murthy, 2004). The high BOD values in some of the towns are attributed to increased population and partial interception and diversion under GAP schemes. The water quality of the river is likely to

improve when all the ongoing works are completed and the entire waste water being generated is tackled. A comparison of pre-GAP and post-GAP values of the three critical parameters, namely DO, BOD and

• 4.4 SUMMARY , Coliforms reveals the following:

• Dissolved Oxygen is largely within acceptable limits. In the upper Ganga, from origin to Har dwar, the water quality is more or less of Bathing Standards (Class B). Higher levels of coliform are present almost throughout Ganga. GAP has not been able to adequately address the issue of coliforms. The stretch from Kannauj to Kanpur and Allahabad to Varanasi remains critical and needs focused attention. Apart from higher levels of coliforms, the norms for BOD indicating organic pollution are also exceeded in this stretch. A study on development of scenarios on comparison of river water quality without GAP (Markandya & Murthy, 2004) showed that a stretch of about 740 km (out of total 1520 km) between Rishikesh and Rajmahal would have violated the BOD limit of 3 mg/l without GAP. The study also indicated that stretch of about 437 km had a BOD level above the permissible limit of 3 mg/l after GAP I.

REVAMPING OF THE RIVER PROGRAM 6.2 CONSTITUTION OF NATIONAL GANGA RIVER BASIN AUTHORITY CONSERVATION ME The need for revamping the river conservation programme was widely recognised in view of the shortcomings in the approach followed in the Ganga Action Plan. Though this approach yielded good results in many stretches, the problem was not fully addressed. In the meanwhile, the challenges have grown. Over the years, the demand for river water is growing for irrigation, drinking water, industrial use and power. The increasing pollution load from expanding cities, diminishing flows due to melting glaciers, adverse health impacts, ineffective enforcement of environmental norms and lack of social mobilization compound the challenge. It was felt necessary that a new holistic approach based on river basin as the unit of planning and institutional redesign may be adopted. Accordingly, the Government of India has given Ganga the status of a 'National River' and has constituted the 'National Ganga River Basin Authority' (NGRBA) on 20.02.2009. The NGRBA is an empowered planning, financing, monitoring and coordinating authority for the Ganga River set up under Section The implementation was piecemeal and focussed more on

municipal sewage. Future Course of Action 22 3(3) of the Environment (Protection) Act, 1986 The Ministry of Environment and Forests would provide the necessary administrative and technical support to theAuthority. • The Authority has both regulatory and developmental functions. The Authority will take measures for effective abatement of pollution and conservation of the river Ganga in keeping with sustainable development needs. These include:- development of river basin management plan and regulation of activities aimed at prevention, control and abatement of pollution in the river Ganga to maintain its water quality, and to take measures relevant to river ecology and management in the Ganga Basin States; maintenance of minimum ecological flows in the river Ganga with the aim of ensuring water quality and environmentally sustainable development; measures necessary for planning, financing and execution of programmes for abatement of pollution in the river Ganga including augmentation of sewerage infrastructure, catchment area treatment, protection of flood plains, creating public awareness and such other measures for promoting environmentally sustainable river conservation; collection, analysis and dissemination of information relating to environmental pollution in the river Ganga; investigations and research regarding problems of environmental pollution and conservation of the river Ganga; creation of special purpose vehicles, as appropriate, for implementation of works vested with theAuthority; promotion of water conservation practices including recycling and reuse, rain water harvesting, and decentralised sewage treatment systems; monitoring and review of the implementation of various programmes or activities taken up for prevention, control and abatement of pollution in the river Ganga; and issuance of directions under section 5 of the Environment (Protection) Act, 1986 for the purpose of exercising and performing all or any of the above functions and for achievement of its objectives. • • • • • • The NGRBA would thus be responsible for addressing the problem of pollution in Ganga in a holistic and comprehensive manner. The responsibilities of the Authority would include integrating activities related to sustainable use of water, pollution abatement, maintenance of ecological flows, and river conservation. The NGRBAwould identify the pollution sources, build a database using scientific methods, analyse the data and ensure its sharing. The NGRBA will draw up a work plan with clear timelines and sources of funding. The Authority would coordinate with other regulatory

agencies like the Central Pollution Control Board (CPCB) and the State Pollution Control Boards (SPCBs) for access to data, and expertise and for promoting new technological options. Since water quality is directly impacted by abstraction, it may issue directions for taking appropriate measures with a view to ensuring minimum flows in the river in the interest of pollution control and environmental management. The Authority will also encourage States, ULBs, industry and farmers to increase water use efficiency and reuse wastewater after proper treatment. The State Governments would set up the State River Conservation Authorities (SRCAs) for coordinating and implementing the river conservation activities at the State level. These would function under the chairmanship of the Chief Ministers. Based on the integrated basin management plan drawn by the NGRBA, the State Governments will take steps for comprehensive management of the river in the States through their respectiveAuthorities. It is expected that this new initiative would rejuvenate the collective efforts of the Centre and States for cleaning the national river Ganga.

References

1. Das Gupta, S.P. "The Ganga Basin, Basin SubBasin Inventory of Water Pollution, Part II (Excluding the Yamuna Sub-Basin)," Centre for Study of Man and Environment, 1984.

2. Krishna Murti, C.R., Bilgrami, K.S., Das. T.M. and Mathur, R.P., "The Ganga A Scientific Study", Northern Book Depot, New Delhi, 1991.

3. Report of the Committee Constituted to Recommend Measures for Improvement in "The Ganga Action Plan", Ministry of Environment & Forests, Govt. of India, New Delhi, March 1999.

4. Bulletin for Water Quality Monitoring, Performance of Sewage Treatment Plant and Summer Average, Ministry of Environment & Forests, Govt. of India, New Delhi, July-Dec 2002.

5. Markandya, A. & Murty, M.N., "Cost benefit analysis of cleaning the Ganges: some emerging environment and development issues," Environment and Development Economics, Cambridge University Press, vol. 9(01), pages 61-81, February 2004

6. Bulletin for Water Quality Monitoring, Summer Averages Performance Monitoring of Sewage Treatment Plants (STPs), Water Quality Data, Ministry of Environment & Forests, Govt. of India, New Delhi, January-June 2004.

7. Lacy Shaw, "Modeling the Efficacy of the Ganga Action Plan's Restoration of the Ganga River, India", Thesis, Natural Resources and Environment at the University of Michigan, Aug. 2006,

8. Lok Sabha Starred Question No. 70, Ganga Action Plan, Ministry of Environment and Forests, Government of India, Nov. 27, 2006. References 31

9. Report for the Working Group on Rivers Lakes and Aquifers, For Eleventh Plan, Vol I, National River Conservation Directorate, Ministry of Environment & Forests, Govt. of India, New Delhi, March 2007.

10. Jain S K, et al; "Hydrology and water resources of India", Volume 57, Water Science and Technology Library, Springer 2007, pp 333 469

11. M.I.S. Report of Programmes, National River Conservation Plan,, Ministry of Environment & Forests, Govt. of India, New Delhi, Vol.-I, 2007.

12. Roy Nanigopal and Sinha Rajiv, "Understanding Confluence Dynamics in the Alluvial GangaRamganga Valley, India: An Integrated Approach using Geomorphology and Hydrology", Geomorphology 92, pp. 182 - 197, May 2007.

13. Water Quality Bulletin on River Water Quality Monitoring and Performance Monitoring of Sewage Treatment Plants (STPs), National River Conservation Directorate, Ministry of Environment & Forests, Govt. of India, New Delhi, January-June 2007.

14. Water Quality Monitoring for Ganga, NRCD, MOEF, New Delhi, Jan - June 2008.

15. M.I.S. Report of Programmes, National River Conservation Plan, Ministry of Environment & Forests, Govt. of India, Vol-II, Sept. 2008.

16. M.I.S. Report of Programmes Under, National River Conservation Plan, Ministry of Environment & Forests, Govt. of India, New Delhi, Vol-III, Sept. 2008.

17. Ganga Action Plan-A Critical Analysis, Eco Friends, Kanpur (undated)

Wastewater Treatment plant

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (DATA SCIENCE)

By

Student's Name :- Adinath Nichit

Roll Number:- 21315A0057

Under the esteemed guidance of

Ms. Seema Vishwakarma

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

CERTIFICATE

This is to certify that the project entitled, **"Waste-water Treatment Plant "**, is bonafied work of **Mr. Adinath Dattatraya Nichit** bearing Seat No: ___21315A0057___ submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in DATA SCIENCE in the subject Environmental Science from University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

INDEX
Environmental Science

No.	Title/Aim	Date	Faculty Sign	Grade	Student Sign
1	Topic selection details				
2	Introduction of the topic				
3	Review of Literature of the selected topic				
4	Methodology used for the topic				
5	Video/photos of the Model				
6	Conclusion				
7	References				
8	Model/ Poster Presentation				

This review paper focuses on modelling of wastewater treatment plants (WWTP). White-box modelling is widely applied in this field, with learning, design and process optimisation as the main applications. The introduction of the ASM model family by the IWA task group was of great importance, providing researchers and practitioners with a standardised set of basis models. This paper introduces the nowadays most frequently used white-box models for description of biological nitrogen and phosphorus removal activated sludge processes. These models are mainly applicable to municipal wastewater systems, but can be adapted easily to specific situations such as the presence of industrial wastewater. Some of the main model assumptions are highlighted, and their implications for practical model application are discussed. A step-wise procedure leads from the model purpose definition to a calibrated WWTP model. Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. .n the WWTP domain are other potential applications where fruitful interactions between AI methods and white-box models could be developed.

Wastewater treatment is a process used to remove contaminants from wastewater and convert it into an effluent that can be returned to the water cycle. Once returned to the water cycle, the effluent creates an acceptable impact on the environment or is reused for various purposes (called water reclamation).[1] The treatment process takes place in a wastewater treatment plant. There are several kinds of wastewater which are treated at the appropriate type of wastewater treatment plant. For domestic wastewater (also called municipal wastewater or sewage), the treatment plant is called a sewage treatment plant. For industrial wastewater, treatment either takes place in a separate industrial wastewater treatment plant, or in a sewage treatment plant (usually after some form of pre-treatment). Further types of treatment plants include agricultural waw

Processes commonly used include phase separation (such as sedimentation), biological and chemical processes (such as oxidation) or polishing. The main by-product from wastewater treatment plants is a type of sludge which is usually treated in the

same or another wastewater treatment plant.biogas can be another by-product if anaerobic treatment processes are used. Some wastewater may be highly treated and reused as water. The main purpose of wastewater treatment is for the treated wastewater to be able to be disposed or reused safely. However, before it is treated, the options for disposal or reuse must be considered so the correct treatment process is used on the wastewater.

The term "wastewater treatment" is in the literature often used to mean "sewage treatment. Strictly speaking, wastewater treatment is broader than sewage treatment.

The unit processes involved in wastewater treatment include physical processes such as settlement or flotation and biological processes such oxidation or anaerobic treatment. Some wastewaters require specialized treatment methods. At the simplest level, treatment of most wastewaters is carried out through separation of solids from liquids, usually by sedimentation. By progressively converting dissolved material into solids, usually a biological floc or biofilm, which is then settled out or separated, an effluent stream of increasing purity is produced. Phase separation transfers impurities into a non-aqueous phase. Phase separation may occur at intermediate points in a treatment sequence to remove solids generated during oxidation or polishing. Grease and oil may be recovered for fuel or saponification. Solids often require dewatering of sludge in a wastewater treatment plant. Disposal options for dried solids vary with the type and concentration of impurities removed from water. Solids such as stones, grit, and sand may be removed from wastewater by gravity when density differences are sufficient to overcome dispersion by turbulence. This is typically achieved using a grit channel designed to produce an optimum flow rate that allows grit to settle and other less-dense solids to be carried forward to the next treatment stage. Gravity separation of solids is the primary treatment of sewage, where the unit process is called "primary

settling tanks" or "primary sedimentation tanks."[15] It is also widely used for the treatment of other types of wastewater. Solids that are denser than water will accumulate at the bottom of quiescent settling basins. More complex clarifiers also have skimmers to simultaneously remove floating grease such as soap scum and solids such as feathers, wood chips, or condoms. Containers like the API oil-water separator are specifically designed to separate non-polar liquids

Water treatment, also called sewage or domestic wastewater treatment, is a process by which pollutants are removed from household sewage and effluents (waste discharged from industrial plants, homes, factories). There are various processes utilized to remove these pollutants, including chemical and biological processes as well as physical ones. The resulting treated effluent should be clean enough to be discharged back into the environment or reused and the leftover solid waste disposed off. Effluent and sewage can be treated in various ways, from a home-based septic tank or aerobic treatment systems to a municipal treatment plant. When it goes to a municipality's station, it undergoes various stages of treatment including: pre treatment, primary, secondary and tertiary. During pre-treatment, easily removable materials are separated or screened out, including grit (sand and gravel), oils, fats and greases, and larger objects (such as tampons or scraps of material). During the primary treatment, the effluent is transported through primary clarifiers, which are large tanks where sludge settles to the bottom and greases and oils rise to the top (where they are skimmed off). During this process, the solids and liquids separate, with the solids settling to the bottom of the tanks. There they can be gathered and moved, and treated separately. During

the secondary treatment, aerobic biological processes (protozoa and bacteria that eat the biodegradable soluble organic contaminants) are used to break down the biological content of the effluent (human or food waste and soaps, among other things). During the tertiary treatment, the quality of the effluent is raised through disinfection practices such as chlorination or the use of ozone or ultraviolet light, as well as some other methods such as sand filtration or putting effluent in highly aerobic lagoons or constructed wetlands. Chlorine is cheap and effective but can create carcinogenic compounds and/or effluent that is toxic to aquatic species (unless dechlorinated). Ultraviolet light creates water that's healthier for the environment. It's deadly to bacteria and viruses because it alters their genetic structure, making them incapable of reproducing. It isn't always effective if the water is cloudy and the pathogens are protected from the ultraviolet light. Ozone destroys pathogens because its instability and reactive nature cause it to oxidize most organic materials. Sometimes, a combination of tertiary treatments are used.

Stage One — Bar Screening

Removal of large items from the influent to prevent damage to the facility's pumps, valves and other equipment.
The process of treating and reclaiming water from wastewater (any water that has been used in homes, such as flushing toilets, washing dishes, or bathing, and some water from industrial use and storm sewers) starts with the expectation that after it is treated it will be clean enough to reenter the environment.

The quality of the water is dictated by the Environmental Protection Agency (EPA) and the Clean Water Act, and wastewater facilities operate to specified permits by National Pollutant Discharge Elimination System (NPDES). According to the EPA, The Clean Water Act (CWA) establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Under the CWA, EPA sets wastewater standards for industry. The EPA has also developed national water quality criteria recommendations for pollutants in surface waters. EPA's National Pollutant Discharge Elimination System (NPDES) permit program controls discharges. As an example of expected standards, the Biochemical Oxygen Demand (BOD) of average wastewater effluent is 200 mg/L and the

effluent after treatment is expected to be >30 mg/L. It is crucial a wastewater facility meets these expectations or risk stiff penalty. The physical process of wastewater treatment begins with screening out large items that have found their way into the sewer system, and if not removed, can damage pumps and impede water flow. A bar screen is usually used to remove large items from the influent and ultimately taken to a landfill.

Stage Two — Screening

Removal of grit by flowing the influent over/through a grit chamber.

Fine grit that finds its way into the influent needs to be removed to prevent the damage of pumps and equipment downstream (or impact water flow). Too small to be screened out, this grit needs to be removed from the grit chamber. There are several types of grit chambers (horizontal, aerated or vortex) which control the flow of water, allowing the heavier grit to fall to the bottom of the chamber; the water and organic material continue to flow to the next stage the process. The grit is physically removed from the bottom of the chamber and discarded.

Stage Three — Primary Clarifier

Initial separation of solid organic matter from wastewater.

Solids known as organics/sludge sink to the bottom of the tank and are pumped to a sludge digestor or sludge processing area, dried and hauled away. Proper settling rates are a key indicator for how well the clarifier is operating. Adjusting flow rate into the clarifier can help the operator adjust the settling rates and efficiency.

After grit removal, the influent enters large primary clarifiers that separate out between 25% and 50% of the solids in the influent. These large clarifiers (75 feet in diameter, 7½ inches at the edges and 10½ feet in the center as an example) allow for the heavy solids to sink to the bottom and the cleaner influent to flow. The effectiveness of the primary clarification is a matter of appropriate water flow. If the water flow is too fast, the solids don't have time to sink to the bottom resulting in negative impact on water quality downstream. If the water flow is too slow, it impacts the process up stream.

The solids that fall to the bottom of the clarifier are know as sludge and pumped out regularly to ensure it doesn't impact the process of separation. The sludge is then discarded after any water is removed and commonly used as fertilizer.

Stage Four — Aeration

Air is pumped into the aeration tank/basin to encourage conversion of NH3 to NO3 and provide oxygen for bacteria to continue to propagate and grow.
Once converted to NO3, the bacteria remove/strip oxygen molecules from the nitrate molecules and the nitrogen (N) is given off as N2↑ (nitrogen gas).

At the heart of the wastewater treatment process is the encouragement and acceleration of the natural process of bacteria, breaking down organic material. This begins in the aeration tank. The primary function of the aeration tank is to pump oxygen into the tank to encourage the breakdown of any organic material (and the growth of the bacteria), as well as ensure there is enough time for the organic material to be broken down. Aeration can be accomplished with pumping and defusing air into the tank or through aggressive agitation that adds air to the water. This process is managed to offer the best conditions for bacterial growth. Oxygen gas [O2] levels below 2 ppm will kill off the bacteria, reducing efficiency of the plant. Dissolved oxygen monitoring at this stage of the plant is critical. Ammonia and nitrate measurements are common to measure how efficient the bacteria are in converting NH3 to N2↑.

A key parameter to measure in wastewater treatment is Biochemical Oxygen Demand (BOD). BOD is a surrogate indicator for the amount of organic material present and is used to determine the effectiveness of organic material breakdown. There are a number of other tests used to ensure optimal organic material breakdown (and BOD reduction) such as measuring pH, temperature, Dissolved Oxygen (DO), Total Suspended Solids (TSS), Hydraulic Retention Time (flow rate), Solids Retention Time (amount of time the bacteria is in the aeration chamber) and Mixed Liquor Suspended Solids. Ongoing and accurate monitoring is crucial to ensure the final required effluent BOD.

Stage Five — Secondary Clarifier

Treated wastewater is pumped into a secondary clarifier to allow any remaining organic sediment to settle out of treated water flow.
As the influent exits the aeration process, it flows into a secondary clarifier where, like the primary clarifier, any very small solids (or fines) sink to the bottom of the tank. These small solids are called activated sludge and consist mostly of active bacteria. Part of this activated sludge is returned to the aeration tank to increase the bacterial concentration, help in propagation, and accelerate the breakdown of organic material. The excess is discarded.

The water that flows from the secondary clarifier has substantially reduced organic material and should be approaching expected effluent specifications.

Stage Six — Chlorination (Disinfection)

Chlorine is added to kill any remaining bacteria in the contact chamber.
With the enhanced concentration of bacteria as part of the aeration stage, there is a need to test the outgoing effluent for bacteria presence or absence and to disinfect the water. This ensures that higher than specified concentrations of bacteria are not released into the environment. Chlorination is the most common and inexpensive type of disinfection but ozone and UV disinfection are also increasing in popularity. If chorine is used, it is important to test for free-chlorine levels to ensure they are acceptable levels before being released into the environment.

Stage Seven — Water Analysis & Testing

Testing for proper pH level, ammonia, nitrates, phosphates, dissolved oxygen, and residual chlorine

levels to conform to the plant's NPDES permit are critical to the plant's performance.
Although testing is continuous throughout the wastewater treatment process to ensure optimal water flow, clarification and aeration, final testing is done to make sure the effluent leaving the plant meets permit specifications. Plants that don`t meet permit discharge levels are subject to fines and possible incarceration of the operator in charge.

Stage Eight — Effluent Disposal

After meeting all permit specifications, clean water is reintroduced into the environment.

Although testing is continuous throughout the wastewater treatment process to ensure optimal water flow, clarification and aeration, final testing is done to make sure the effluent leaving the plant meets permit specifications. Plants that don`t meet permit discharge levels are subject to fines and possible incarceration of the operator in charge.

Water treatment

To proide drinking water to the public is one of the most important tasks of communities ao follow the rules of engineering sciences and also needs technical knowledge and practical experience. Water is treated differently in different communities depending on the quality of the water which enters the plant. For example; groundwater requires less treatment than water from lakes, rivers and streams. In order to analyse all these technical aspects in the drinking water treatment systems and for the supplement of a training guide on drinking water treatment plants, PURE-H2O project received a European Grant from the Turkish Agency and formed a competent partnership as follows for the realization of the project and a thorough introduction of a drinking water treatment plant system to the engineers and technicians.Substances that are removed during drinking water treatment process include suspended solids, bacteria, algae, viruses, fungi, minerals such as iron, manganese and sulfur, and other chemical pollutants such as fertilizers. Measures are taken to ensure that not only the water quality during the treatment process, but during its conveyance and distribution after the treatment as well. It is therefore common practice to have residual disinfectants in the treated water in order to kill any bacteriological contamination during distribution. The treatment of water to make it potable is a multi-tiered process that often includes chemical, physical and biological methods.

The chemical processes include oxidation, coagulation and disinfection. The physical processes consist of flocculation, sedimentation, filtration, adsorption and disinfection with the use of ultraviolet light. The biological activated carbon (BAC) and sand filtration comprise of the biological processes.

The types of treatment depend on the source and size of the water system. For example, if the water source is from the surface, it is more exposed to direct wet weather runoff and to the atmosphere, therefore, these sources (such as lakes, rivers, reservoirs, etc.) are more easily contaminated and will require additional treatment in order to make the water more potable. Whereas ground water sources are more likely to require minimal treatment as it is not as exposed to the elements and goes through the natural sedimentation process of purifying the water through the soil.

Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. The model purpose, defined at the beginning of the procedure, influences the model selection, the data collection and the model calibration. In the model calibration a process engineering approach, i.e. based on understanding of the process and the model structure, is needed. A calibrated WWTP model, the result of an iterative procedure, can usually be obtained by only modifying few model parameters, using the default parameter sets as a starting point. Black-box, stochastic grey-box and hybrid models are useful in WWTP applications for prediction of the influent load, for estimation of biomass activities and effluent quality parameters. These modelling methodologies thus complement the process knowledge included in white-box models with predictions based on data in areas where the white-box model assumptions are not valid or where white-box models do not provide accurate predictions. Artificial intelligence (AI) covers a large spectrum of methods, and many of them have been applied in applications related to WWTPs. AI methodologies and white-box models can interact in many ways; supervisory control systems for WWTPs are one evident application. Modular agent-based systems combining several AI and modelling methods provide a great potential. In these systems, AI methods on one hand can maximise the knowledge extracted from data and operator experience, and subsequently apply this knowledge to improve WWTP control. White-box models on the other hand allow evaluating scenarios based on the available process knowledge about the WWTP. A white-box model calibration tool, an AI based WWTP design tool and a knowledge

representation tool in the WWTP domain are other potential applications where fruitful interactions between AI methods and white-box models could be developed.

Wastewater treatment is a process used to remove contaminants from wastewater and convert it into an effluent that can be returned to the water cycle. Once returned to the water cycle, the effluent creates an acceptable impact on the environment or is reused for various purposes (called water reclamation).[1] The treatment process takes place in a wastewater treatment plant. There are several kinds of wastewater which are treated at the appropriate type of wastewater treatment plant. For domestic wastewater (also called municipal wastewater or sewage), the treatment plant is called a sewage treatment plant. For industrial wastewater, treatment either takes place in a separate industrial wastewater treatment plant, or in a sewage treatment plant (usually after some form of pre-treatment). Further types of treatment plants include agricultural .

When it goes to a municipality's station, it undergoes various stages of treatment including: pre treatment, primary, secondary and tertiary. During pre-treatment, easily removable materials are separated or screened out, including grit (sand and gravel), oils, fats and greases, and larger objects (such as tampons or scraps of material). During the primary treatment, the effluent is transported through primary clarifiers, which are large tanks where sludge settles to the bottom and greases and oils rise to the top (where they are skimmed off). During this process, the solids and liquids separate, with the solids settling to the bottom of the tanks. There they can be gathered and moved, and treated separately. During the secondary treatment, aerobic biological processes (protozoa and bacteria that eat the biodegradable soluble organic contaminants) are used to break down the biological content of the effluent (human or food waste and soaps, among other things). During the tertiary treatment, the quality of the effluent is raised through disinfection practices such as chlorination or the use of ozone or ultraviolet light, as well as some other methods such as sand filtration or putting effluent in highly aerobic lagoons or constructed wetlands.

Chlorine is cheap and effective but can create carcinogenic compounds and/or effluent that is toxic to aquatic species (unless dechlorinated). Ultraviolet light creates water that's healthier for the environment. It's deadly to bacteria and viruses because it alters their genetic structure, making them incapable of reproducing. It isn't always effective if the water is cloudy and the pathogens are protected from the ultraviolet light. Ozone destroys pathogens because its instability and reactive nature cause it to oxidize most organic materials. Sometimes, a combination of tertiary treatments are used

This review paper focuses on modelling of wastewater treatment plants (WWTP). White-box modelling is widely applied in this field, with learning, design and process optimisation as the main applications. The introduction of the ASM model family by the IWA task group was of great importance, providing researchers and practitioners with a standardised set of basis models. This paper introduces the nowadays most frequently used white-box models for description of biological nitrogen and phosphorus removal activated sludge processes. These models are mainly applicable to municipal wastewater systems, but can be adapted easily to specific situations such as the presence of industrial wastewater. Some of the main model assumptions are highlighted, and their implications for practical model application are discussed. A step-wise procedure leads from the model purpose definition to a calibrated WWTP model. Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. The model purpose, defined at the beginning of the procedure, influences the model selection, the data collection and the model calibration. In the model calibration a process engineering approach, i.e. based on understanding of the process and the model structure, is needed. A calibrated WWTP model, the result of an iterative procedure, can usually be obtained by only modifying few model parameters, using the default parameter sets as a starting point. Black-box, stochastic grey-box and hybrid models are useful in WWTP applications for prediction of the influent load, for estimation of biomass activities and effluent quality parameters. These modelling methodologies thus complement the process knowledge included in white-box models with predictions based on data in areas where the white-box model assumptions are not valid or where white-box models do not provide accurate predictions. Artificial intelligence (AI) covers a large spectrum of methods, and many of them have been applied in applications related to WWTPs. AI methodologies and white-box models can interact in many ways; supervisory control systems for WWTPs are one evident application. Modular agent-based systems combining several AI and modelling methods provide a great potential. In these systems, AI

methods on one hand can maximise the knowledge extracted from data and operator experience, and subsequently apply this knowledge to improve WWTP control. White-box models on the other hand allow evaluating scenarios based on the available process knowledge about the WWTP. A white-box model calibration tool, an AI based WWTP design tool and a knowledge representation tool in the WWTP domain are other potential applications where fruitful interactions between AI methods and white-box models could be developed.

Today wastewater treatment plants are evaluated not only in terms of their treatment efficiency but also concerning their energy efficiency. Increasing energy efficiency can be realized either through operational optimisation or by realising an already existing potential for energy generation on-site. The main source of energy at a municipal wastewater treatment plant is the biogas produced in the anaerobic sludge digester. Studies indicate excess digester capacities of about 20% in Germany available for co-fermentation of organic substrates other than sewage sludge. This paper presents an example of a municipal wastewater treatment plant going towards an energy self-sufficient operation and even a surplus energy production as the result of an increasing co-fermentation of sludge from grease skimming tanks. In 2005 on average 113% of the electricity consumed for plant operation was generated on-site in gas engines. Co-fermentation of about 30% (related to the total dry residue input) of grease interceptor sludge in the presented case does not only effect a 4-times increased gas yield, but also an intensified 20% higher anaerobic degradation of the organic matter of the sewage sludge and thus having a positive influence not only on the energy and financial balance but also on the anaerobic sludge stabilisation with respect to the degradation degree of the organic fraction.

Artificial neural networks (ANN) models were developed to predict the performance of a wastewater treatment plant (WWTP) based on past information. The data used in this work were obtained from a major conventional treatment plant in the Greater Cairo district, Egypt, with an average flow rate of 1 million m^3/day. Daily records of biochemical oxygen demand (BOD) and suspended solids (SS) concentrations through various stages of the treatment process over 10 months were obtained from the plant laboratory. Exploratory data analysis was used to detect relationships in the data and evaluate data dependence. Two ANN-based models for prediction of BOD and SS concentrations in plant effluent are presented. The appropriate architecture of the neural network models was determined through several steps of training and testing of the models. The ANN-based models were found to provide an efficient and a robust tool in predicting WWTP performance.

This review paper focuses on modelling of wastewater treatment plants (WWTP). White-box modelling is widely applied in this field, with learning, design and process optimisation as the main applications. The introduction of the ASM model family by the IWA task group was of great importance, providing researchers and practitioners with a standardised set of basis models. This paper introduces the nowadays most frequently used white-box models for description of biological nitrogen and phosphorus removal activated sludge processes. These models are mainly applicable to municipal wastewater systems, but can be adapted easily to specific situations such as the presence of industrial wastewater. Some of the main model assumptions are highlighted, and their implications for practical model application are discussed. A step-wise procedure leads from the model purpose definition to a calibrated WWTP model. Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. The model purpose, defined at the beginning of the procedure, influences the model selection, the data collection and the model calibration. In the model calibration a process engineering approach, i.e. based on understanding of the process and the model structure, is needed. A calibrated WWTP model, the result of an iterative procedure, can usually be obtained by only modifying few model parameters, using the default parameter sets as a starting point. Black-box, stochastic grey-box and hybrid models are useful in WWTP applications for prediction of the influent load, for estimation of biomass activities and effluent quality parameters. These modelling methodologies thus complement the process knowledge included in white-box models with predictions based on data in areas where the white-box model assumptions are not valid or where white-box models do not provide accurate predictions. Artificial intelligence (AI) covers a large spectrum of methods, and many of them have been applied in applications related to WWTPs. AI methodologies and white-box models can interact in many ways; supervisory control systems for WWTPs are one

evident application. Modular agent-based systems combining several AI and modelling methods provide a great potential. In these systems, AI methods on one hand can maximise the knowledge extracted from data and operator experience, and subsequently apply this knowledge to improve WWTP control. White-box models on the other hand allow evaluating scenarios based on the available process knowledge about the WWTP. A white-box model calibration tool, an AI based WWTP design tool and a knowledge representation tool in the WWTP domain are other potential applications where fruitful interactions between AI methods and white-box models could be developed.

Sewage treatment (or domestic wastewater treatment, municipal wastewater treatment) is a type of wastewater treatment which aims to remove contaminants from sewage to produce an effluent that is suitable for discharge to the surrounding environment or an intended reuse application, thereby preventing water pollution from raw sewage discharges.[2] Sewage contains wastewater from households and businesses and possibly pre-treated industrial wastewater. There are a high number of sewage treatment processes to choose from. These can range from decentralized systems (including on-site treatment systems) to large centralized systems involving a network of pipes and pump stations (called sewerage) which convey the sewage to a treatment plant. For cities that have a combined sewer, the sewers will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage treatment often involves two main stages, called primary and secondary treatment, while advanced treatment also incorporates a tertiary treatment stage with polishing processes and nutrient removal. Secondary treatment can reduce organic matter (measured as biological oxygen demand) from sewage, using aerobic or anaerobic biological processes.

A large number of sewage treatment technologies have been developed, mostly using biological treatment processes. Engineers and decision makers need to take into account technical and economical criteria, as well as quantitative and qualitative aspects of each alternative when choosing a suitable technology.[3]:215 Often, the main criteria for selection are: desired effluent quality, expected construction and operating costs, availability of land, energy requirements and sustainability aspects. In developing countries and in rural areas with low population densities, sewage is often treated by various on-site sanitation systems and not conveyed in sewers. These systems include septic tanks connected to drain fields, on-site sewage systems (OSS), vermifilter systems and many more. On the other hand, advanced and relatively expensive sewage treatment plants in cities that can afford them may include tertiary treatment with disinfection and possibly even a fourth treatment stage to remove micropollutants.

At the global level, an estimated 52% of sewage is treated.[4] However, sewage treatment rates are highly unequal for different countries around the world. For example, while high-income countries treat approximately 74% of their sewage, developing countries treat an average of just 4.2%.[4] The treatment of sewage is part of the field of sanitation. Sanitation also includes the management of human waste and solid waste as well as stormwater (drainage) management.[5] The term "sewage treatment plant" is often used interchangeably with the term "wastewater treatment plant

Artificial neural networks (ANN) models were developed to predict the performance of a wastewater treatment plant (WWTP) based on past information. The data used in this work were obtained from a major conventional treatment plant in the Greater Cairo district, Egypt, with an average flow rate of 1 million m^3/day. Daily records of biochemical oxygen demand (BOD) and suspended solids (SS) concentrations through various stages of the treatment process over 10 months were obtained from the plant laboratory. Exploratory data analysis was used to detect relationships in the data and evaluate data dependence. Two ANN-based models for prediction of BOD and SS concentrations in plant effluent are presented. The appropriate architecture of the neural network models was determined through several steps of training and testing of the models. The ANN-based models were found to provide an efficient and a robust tool in predicting WWTP performance.

This review paper focuses on modelling of wastewater treatment plants (WWTP). White-box modelling is widely applied in this field, with learning, design and process optimisation as the main applications. The introduction of the ASM model family by the IWA task group was of great importance, providing researchers and practitioners with a standardised set of basis models. This paper introduces the nowadays most frequently used white-box models for description of biological nitrogen and phosphorus removal activated sludge processes. These models are mainly applicable to municipal wastewater systems, but can be adapted easily to specific situations such as the presence of industrial wastewater. Some of the main model assumptions are highlighted, and their implications for practical model application are discussed. A step-wise procedure leads from the model purpose definition to a calibrated WWTP model. Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. The model purpose, defined at the beginning of the procedure, influences the model selection, the data collection and the model calibration. In the model calibration a process engineering approach, i.e. based on understanding of the process and the model structure, is needed. A calibrated WWTP model, the result of an iterative procedure, can usually be obtained by only modifying few model parameters,

using the default parameter sets as a starting point. Black-box, stochastic grey-box and hybrid models are useful in WWTP applications for prediction of the influent load, for estimation of biomass activities and effluent quality parameters. These modelling methodologies thus complement the process knowledge included in white-box models with predictions based on data in areas where the white-box model assumptions are not valid or where white-box models do not provide accurate predictions. Artificial intelligence (AI) covers a large spectrum of the water.

Artificial neural networks (ANN) models were developed to predict the performance of a wastewater treatment plant (WWTP) based on past information. The data used in this work were obtained from a major conventional treatment plant in the Greater Cairo district, Egypt, with an average flow rate of 1 million m^3/day. Daily records of biochemical oxygen demand (BOD) and suspended solids (SS) concentrations through various stages of the treatment process over 10 months were obtained from the plant laboratory. Exploratory data analysis was used to detect relationships in the data and evaluate data dependence. Two ANN-based models for prediction of BOD and SS concentrations in plant effluent are presented. The appropriate architecture of the neural network models was determined through several steps of training and testing of the models. The ANN-based models were found to provide an efficient and a robust tool in predicting WWTP performance.

This review paper focuses on modelling of wastewater treatment plants (WWTP). White-box modelling is widely applied in this field, with learning, design and process optimisation as the main applications. The introduction of the ASM model family by the IWA task group was of great importance, providing researchers and practitioners with a standardised set of basis models. This paper introduces the nowadays most frequently used white-box models for description of biological nitrogen and phosphorus removal activated sludge processes. These models are mainly applicable to municipal wastewater systems, but can be adapted easily to specific situations such as the presence of industrial wastewater. Some of the main model assumptions are highlighted, and their implications for practical model application are discussed. A step-wise procedure leads from the model purpose definition to a calibrated WWTP model. Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. The model purpose, defined at the beginning of the procedure, influences the model selection, the data collection and the model calibration. In the model calibration a process engineering approach, i.e. based on understanding of the process and the model structure, is needed. A calibrated WWTP model, the result of an iterative procedure, can usually be obtained by only modifying few model parameters, using the default parameter sets as a starting point. Black-box, stochastic grey-box and hybrid models are useful in WWTP applications for prediction of

the influent load, for estimation of biomass activities and effluent quality parameters. These modelling methodologies thus complement the process knowledge included in white-box models with predictions based on data in areas where the white-box model assumptions are not valid or where white-box models do not provide accurate predictions. Artificial intelligence (AI) covers a large spectrum are useful.

Artificial neural networks (ANN) models were developed to predict the performance of a wastewater treatment plant (WWTP) based on past information. The data used in this work were obtained from a major conventional treatment plant in the Greater Cairo district, Egypt, with an average flow rate of 1 million m^3/day. Daily records of biochemical oxygen demand (BOD) and suspended solids (SS) concentrations through various stages of the treatment process over 10 months were obtained from the plant laboratory. Exploratory data analysis was used to detect relationships in the data and evaluate data dependence. Two ANN-based models for prediction of BOD and SS concentrations in plant effluent are presented. The appropriate architecture of the neural network models was determined through several steps of training and testing of the models. The ANN-based models were found to provide an efficient and a robust tool in predicting WWTP performance.

This review paper focuses on modelling of wastewater treatment plants (WWTP). White-box modelling is widely applied in this field, with learning, design and process optimisation as the main applications. The introduction of the ASM model family by the IWA task group was of great importance, providing researchers and practitioners with a standardised set of basis models. This paper introduces the nowadays most frequently used white-box models for description of biological nitrogen and phosphorus removal activated sludge processes. These models are mainly applicable to municipal wastewater systems, but can be adapted easily to specific situations such as the presence of industrial wastewater. Some of the main model assumptions are highlighted, and their implications for practical model application are discussed. A step-wise procedure leads from the model purpose definition to a calibrated WWTP model. Important steps in the procedure are: model purpose definition, model selection, data collection, data reconciliation, calibration of the model parameters and model unfalsification. The model purpose, defined at the beginning of the procedure, influences the model selection, the data collection and the model calibration. In the model calibration a process engineering approach, i.e. based on understanding of the process and the model structure, is needed. A calibrated WWTP model, the result of an iterative procedure, can usually be obtained by only modifying few model parameters, using the default parameter sets as a starting point. Black-box, stochastic grey-box and hybrid models are useful in WWTP applications for prediction of the influent load, for estimation of biomass activities and effluent quality parameters. These modelling methodologies thus complement the process

knowledge included in white-box models with predictions based on data in areas where the white-box model assumptions are not valid or where white-box models do not provide accurate predictions. Artificial intelligence (AI) covers a large spectrum of are parameters.

The overall aim of treating sewage is to produce an effluent that can be discharged to the environment while causing as little water pollution as possible, or to produce an effluent that can be reused in a useful manner.[8] This is achieved by removing contaminants from the sewage. It is a form of waste management.

With regards to biological treatment of sewage, the treatment objectives can include various degrees of the following: transform dissolved and particulate biodegradable components (especially organic matter) into acceptable end products, transform and remove nutrients (nitrogen and phosphorus), remove or inactivate pathogenic organisms, and remove specific trace organic constituents (micropollutants).[6]:548

Some types of sewage treatment produce sewage sludge which can be treated before safe disposal or reuse. Under certain circumstances, the treated sewage sludge might be termed "biosolids" and can be used as a fertilizer.

 It encompasses components such as receiving drains, manholes, pumping stations, storm overflows, and screening chambers of the combined sewer or sanitary sewer. Sewerage ends at the entry to a sewage treatment plant or at the point of discharge into the environment. It is the system of pipes, chambers, manholes, etc. that conveys the sewage or storm water.

In many cities, sewage (or municipal wastewater) is carried together with stormwater, in a combined sewer system, to a sewage treatment plant. In some urban areas, sewage is carried separately in sanitary sewers and runoff from streets is carried in storm drains. Access to these systems, for maintenance purposes, is typically through a manhole. During high precipitation periods a sewer system may experience a combined sewer overflow event or a sanitary sewer overflow event, which forces untreated sewage to flow directly to receiving waters. This can pose a serious threat to public health and the surrounding environment.

The system of sewers is called *sewerage* or *sewerage system* in British English and *sewage system* in American English.

Sewage treatment (or domestic wastewater treatment, municipal wastewater treatment) is a type of wastewater treatment which aims to remove contaminants from sewage to produce an effluent that is suitable for

discharge to the surrounding environment or an intended reuse application, thereby preventing water pollution from raw sewage discharges.[2] Sewage contains wastewater from households and businesses and possibly pre-treated industrial wastewater. There are a high number of sewage treatment processes to choose from. These can range from decentralized systems (including on-site treatment systems) to large centralized systems involving a network of pipes and pump stations (called sewerage) which convey the sewage to a treatment plant. For cities that have a combined sewer, the sewers will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage treatment often involves two main stages, called primary and secondary treatment, while advanced treatment also incorporates a tertiary treatment stage with polishing processes and nutrient removal. Secondary treatment can reduce organic matter (measured as biological oxygen demand) from sewage, using aerobic or anaerobic biological processes.

Sewage treatment (**or domestic wastewater treatment, municipal wastewater treatment**) is a type of wastewater treatment which aims to remove contaminants from sewage to produce an effluent that is suitable for discharge to the surrounding environment or an intended reuse application, thereby preventing water pollution from raw sewage discharges.[2] Sewage contains wastewater from households and businesses and possibly pre-treated industrial wastewater. There are a high number of sewage treatment processes to choose from. These can range from decentralized systems (including on-site treatment systems) to large centralized systems involving a network of pipes and pump stations (called sewerage) which convey the sewage to a treatment plant. For cities that have a combined sewer, the sewers will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage treatment often involves two main stages, called primary and secondary treatment, while advanced treatment also incorporates a tertiary treatment stage with polishing processes and nutrient removal. Secondary treatment can reduce organic matter (measured as biological oxygen demand) from sewage, using aerobic or anaerobic biological processes.

A large number of sewage treatment technologies have been developed, mostly using biological treatment processes. Engineers and decision makers need to take into account technical and economical criteria, as well as

quantitative and qualitative aspects of each alternative when choosing a suitable technology.[3]:215 Often, the main criteria for selection are: desired effluent quality, expected construction and operating costs, availability of land, energy requirements and sustainability aspects. In developing countries and in rural areas with low population densities, sewage is often treated by various on-site sanitation systems and not conveyed in sewers. These systems include septic tanks connected to drain fields, on-site sewage systems (OSS), vermifilter systems and many more. On the other hand, advanced and relatively expensive sewage treatment plants in cities that can afford them may include tertiary treatment with disinfection and possibly even a fourth treatment stage to remove micropollutants.

At the global level, an estimated 52% of sewage is treated.[4] However, sewage treatment rates are highly unequal for different countries around the world. For example, while high-income countries treat approximately 74% of their sewage, developing countries treat an average of just 4.2%.[4]

The treatment of sewage is part of the field of sanitation. Sanitation also includes the management of human waste and solid waste as well as stormwater (drainage) management.[5] The term "sewage treatment plant" is often used interchangeably with the term "wastewater treatment plant

Typical values for physical–chemical characteristics of raw sewage in developing countries have been published as follows: 180 g/person/d for total solids (or 1100 mg/L when expressed as a concentration), 50 g/person/d for BOD (300 mg/L), 100 g/person/d for COD (600 mg/L), 8 g/person/d for total nitrogen (45 mg/L), 4.5 g/person/d for ammonia-N (25 mg/L) and 1.0 g/person/d for total phosphorus (7 mg/L).[9]:57 The typical ranges for these values are: 120–220 g/person/d for total solids (or 700–1350 mg/L when expressed as a concentration), 40–60 g/person/d for BOD (250–400 mg/L), 80–120 g/person/d for COD (450–800 mg/L), 6–10 g/person/d for total nitrogen (35–60 mg/L), 3.5–6 g/person/d for ammonia-N (20–35 mg/L) and 0.7–2.5 g/person/d for total phosphorus (4–15 mg/L).[9]:57

For high income countries, the "per person organic matter load" has been found to be approximately 60 gram of BOD per person per day.[10] This is called the population equivalent (PE) and is also used as a comparison parameter to express the strength of industrial wastewater compared to sewage.

When choosing a suitable sewage treatment process, decision makers need to take into account technical and economical criteria, as well as quantitative and qualitative aspects of each alternative.[3]:215 Therefore, each analysis is site-specific. A life cycle assessment (LCA) can be used, and criteria or weightings can be attributed to the various aspects. The final decision may have a degree of subjectivity.[3]:216 A range of publications exist to help with technology selection.[3]:221 [12][14][15]

In industrialized countries, the critical items in process selection are, in decreasing order of importance: efficiency, reliability, sludge disposal aspects and land requirements. In developing countries, the main critical items might be different and revolve more around construction costs, sustainability, simplicity and operational costs.[3]:218

Choosing the most suitable treatment process is complicated and requires expert inputs, often in the form of feasibility studies. This is because the main important factors to be considered when evaluating and selecting sewage treatment processes are numerous: process applicability, applicable flow, acceptable flow variation, influent characteristics, inhibiting or refractory compounds, climatic aspects, process kinetics and reactor hydraulics, performance, treatment residuals, sludge processing, environmental constraints, chemical product requirements, energy requirements, requirements of other resources, personnel requirements, operating and maintenance requirements, ancillary processes, reliability, complexity, compatibility, area availability.[3]:219

With regards to environmental impacts the following aspects are included in the selection process: Odors, vector attraction, sludge transportation, sanitary risks, air contamination, soil and subsoil contamination, surface water pollution or groundwater contamination, devaluation of nearby areas, inconvenience to the nearby population.

- **Conclusion**

ConclusionIn the current management of wastewater by most countries, all the aspects that ought to be involved in the water treatment process are not considered, as it is evident from the above literature review. As a result, this

results into the mixing if different wastewater in a bit to cut costs or utilize the few available wastewater treatment plants. This should however not be the case due to the varying impurity composition of for example sewage wastewater and agricultural wastewater. Some countries don't even bother with the management of storm wastewater hence posing pollution problems to their ecosystems. Governing bodies in different localities around the globe should therefore take the initiative of ensuring proper designing and operation of separate wastewater plants for different types of wastewater. All the relevant stakeholders should put more responsibility into the maintenance of water treatment plants. This will ensure a better supply of well-recycled water instead of the currentstate substandard recycled wastewater that is causing a global clean water crisis. It is also important to note that the management of wastewater ought to be done with the intent of helping in saving the cost of finding building new water infrastructures whenever there is water shortage. Wastewater management should also be viewed as an environmental

References :-

AUTOMATIC IR WATER TAP SYSTEM

A Project Report

Submitted in partial fulfilment of the requirements for the
award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Name of The Student:Sandeep pedini &Rahul Ambre

Seat Number: 19302B0050 & 19302B0054

Under the esteemed guidance of

Mr.laxmikant manchekar

Assistant Professor, Department of Information Technology

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2020 - 2021

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that the project entitled, **"AUTOMATIC IR WATER SYSTEM "**, is bonafied work of

NAME OF THE STUDENT :RAHUL AMBRE bearing **Seat No:19302B0054** submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

Date: **College Seal**   **Principal**

1. COMPANY CERTIFICATE (for LIVE Project)

1. Avishkar/ Tantravihar/ Project Exhibition CERTIFICATE
2. Vsearch/ National/ International level Conference CERTIFICATE
3. RESEARCH PAPER

ABSTRACT

Water is an essential resource in the world and currently household drinking water is an important asset to save the life due to shortage of water in the earth. This paper describes the design and development process of an automatic control system for tap water using float less water level sensor which can save wastage of water without the presence of any operator physically. This sensing system utilizes a combination of a solenoid valve, electromagnetic relay (a type of electrical switch), float less level controller (61F) and electrodes (used to sense the watery level electrically).

The developed system can automatically control the water tap accordingly when level sensor can sense the lower level of water tank. Also, the system has ability to activate the relay which starts solenoid valve. The entire process can continue until sense the upper level of water. After that the system deactivates the relay as well as the solenoid which can stop the water

ACKNOWLEDGEMENT

I WOULD LIKE TO EXPRESS MY SPECIAL THANKS OF GRATITUDE TO MY PROJECT GUIDE **MRS.LAXMIKANT MANCHEKAR** WHO GAVE ME THE GOLDEN OPPORTUNITY TO DO THIS WONDERFUL PROJECT ON THE TOPIC (HOMIE), WHICH ALSO HELPED ME IN DOING A LOT OF RESEARCH
AND I CAME TO KNOW ABOUT SO MANY NEW THINGS. I AM REALLY

THANKFUL TO THEM.

LAST BUT NOT THE LEAST, I WOULD LIKE TO THANK EVERYONE WHO IS INVOLVED IN THE PROJECT DIRECTLY OR INDIRECTLY.

DECLARATION

I hereby declare that the project entitled, "**AUTOMATIC IR WATER SYSTEM**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

Table of Contents :

List of Figures

Chapter 1: Introduction

1.1 Background :

Water is an essential resource in the world and currently household drinking water is an important asset to save the life due to shortage of water in the earth. This paper describes the design and development process of an automatic control system for tap water using float less water level sensor which can save wastage of water without the presence of any operator physically. This sensing system utilizes a combination of a solenoid valve, electromagnetic relay (a type of electrical switch), float less level controller (61F) and electrodes (used to sense the watery level electrically). The developed system can automatically control the water tap accordingly when level sensor can sense the lower level of water tank. Also, the system has ability to activate the relay which starts solenoid valve. The entire process can continue until sense the upper level of water. After that the system deactivates the relay as well as the solenoid which can stop the water flow through tap, when the upper level is sensed. In summary, the developed system is able to control the water tap to protect the wastage of valuable water by this mechanism. This system is low-cost compare to other commercial systems, was tested to assess the success rate of the development. The result shows an autonomous plus robust monitoring system with satisfactory result which is relatively simple to install.As you may well know, automatic control for a water tap can significantly reduce water consumption to some extent. Besides, automatic faucets can eliminate cross-contamination by keeping hands and germs away from commonly-used surfaces Presented here is a simple electronic

circuit which can control the valve operation by sensing valid-movements with the help of a Passive Infrared (PIR) motion sensing module. In practice, automatic taps are presence sensors and not motion sensors. They employ "Active Infrared" technology which senses "presence" and not "movement" of objects. However, here an unorthodox "Passive Infrared" technology is used to realize the 6VDC powered smart faucet controller circuit!

1.2 Objectives :

The objectives of this project are:

To change manually system water tap become automatic system water tap.

- *To control three different types of output with just one selector switch.*

- *To reduce wastage of water that always occurs at water taps.*

- *To reduce direct contact to the device for prevent from bacteria.*

1.3 Purpose, Scope, Applicability (Feasibility Study)

1.3.1 PURPOSE

- *Automatic sensor taps offer the benefit of improved hygiene, by eliminating the need to physically turn the knob of the tap ON or OFF.*
- *This eliminates the chance of re-contaminating one"s hand by touching the same handle that was previously touched by not only your unwashed hands, but by that of those before you.*
- *This tap greatly reduces the chances of water wastage which may GSJ: Volume 7, Issue 7, July 2019 ISSN 2320-9186 1155 GSJ© 2019 www.globalscientificjournal.com arise if one forgets to turn off the tap after use or turned it only partially off out of haste*
- *.By implication, when installed in home, sensor taps alleviate the need for parents to ensure that their children have turned off taps. Economically, sensor taps use less water, resulting in direct savings on water bills. More about how automatic sensor taps operates and their construction is discussed in the*

Figure 1

1.3.2 SCOPE

Nowadays without electricity we cannot imagine our daily life because electricity has become a necessity for all, without which day-to-day life chores & daily activities become stand still. Due to the depletion of non-renewable

resources, conservation of mandatory and by doing so we can reduce electricity bills as well. We know that energies like wind energy, solar energy and hydro energy are called renewable energy sources which are renewable in nature. Therefore, utilization of these resources for power supply is the best possible way of producing, conserving and renewing energy, which is advantageous as it is pollution free, affordable, and free from environmental impacts.This paper represents automatic lighting using PIR motion sensor. Using this sensor, we can certainly minimize the consumption of electrical power. Power crisis is one of the most common problems in all countries. With the help of the sensors we can eliminate this shortage by minimizing the wastage of electrical power or saving our generated power. PIR is the type of sensor that gives us signal when anything crosses its rays. It is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. It is a low-cost device used to detect a change in motion in its surroundings within different range of radius. A PIRbased motion detector is used to sense movement of people, animals, or other objects. It can also be helpful in the security systems. In many offices there are pavements where lights kept switched on for the whole night and day. But if we use the sensor then only when it gets motion it will give signal and the lights will be switched on. The whole process can be controlled by using Arduino. So, this project is very lower costing ix and also power saving. It also minimizes the electric bills of any office. Moreover, it creates an opportunity for minimizing the load shedding in cities and villages.

Chapter 2 : Survey of Technologies

The technologies for web development keep changing and phasing out; new ones come in all the time while most of the old ones become obsolete. Even so, there are still some web technologies that are still popular. Though you need to be aware of the latest trends, there are still some old ones that are still running successfully and are quite popular among developers.

PIR(*Passive infrared sensor)*

✝ *A passive infrared sensor (PIR sensor) is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. They are most often used in PIR-based motion detectors. PIR sensors are commonly used in security alarms and automatic lighting applications.*

✝ *PIR sensors detect general movement, but do not give information on who or what moved. For that purpose, an imaging IR sensor is required.*

✝ *PIR sensors are commonly called simply "PIR", or sometimes "PID", for "passive infrared detector". The term passive refers to the fact that PIR devices do not radiate energy for detection purposes. They work entirely by detecting infrared radiation (radiant heat) emitted by or reflected from objects.*

Fig : PIR Module

AUTOMATIC LIGHT CONTROL BY PIR MODULE

Nowadays without electricity we cannot imagine our daily life because electricity has become a necessity for all, without which day-to-day life chores & daily activities become stand still. Due to the depletion of non-renewable resources, conservation of mandatory and by doing so we can reduce electricity bills as well. We know that energies like wind energy, solar energy and hydro energy are called renewable energy sources which are renewable in nature. Therefore, utilization of these resources for power supply is the best possible way of producing, conserving and renewing energy, which is advantageous as it is pollution free, affordable, and free from environmental impactsThis paper represents automatic lighting using PIR motion sensor. Using this sensor, we can certainly minimize the consumption of electrical power. Power crisis is one of the most common problems in all countries. With the help of the sensors we

can eliminate this shortage by minimizing the wastage of electrical power or saving our generated power. PIR is the type of sensor that gives us signal when anything crosses its rays. It is an electronic sensor that measures infrared (IR) light radiating from objects in its field of view. It is a low-cost device used to detect a change in motion in its surroundings within different range of radius. A PIRbased motion detector is used to sense movement of people, animals, or other objects.

❖ OBJECTIVES

- *The objectives of this project are:*
- *To change manually system water tap become automatic system water tap.*
- *To control three different types of output with just one selector switch.*
- *To reduce wastage of water that always occurs at water taps.*
- To reduce direct contact to the device for prevent from bacteria.

Project structure :
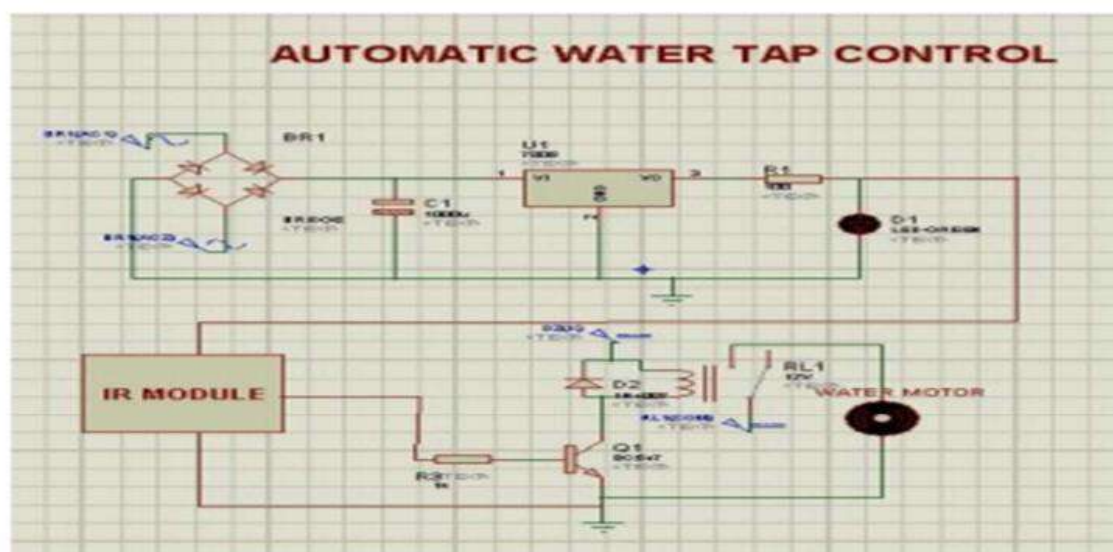
Fig 2:water tap control

This system will make use of infrared rays where the distraction will be detected and the water will be let out of the tap with great ease. There are different types of washbasin taps that are being available all over the world. Sometimes some people may not know how to use those taps. For such people this system can be of great help. When people just hold their hands below the water tap outlet there will be infrared rays that will be detected. There will be distraction that will be caused when the hands are being held below the tap outlet. When the hands are being detected there will be a signal that will be sent by

this system and the water will be flowed through the tap without any difficulty. This system can help the old people without any difficulty. The features that can be included in the automatic washbasin tap controller system are as follows:

- Automate work: This system can help in automating the work of the human beings with great ease and without any difficulty.

- Efficient: This system will be simple and easy to use by the people with great ease.
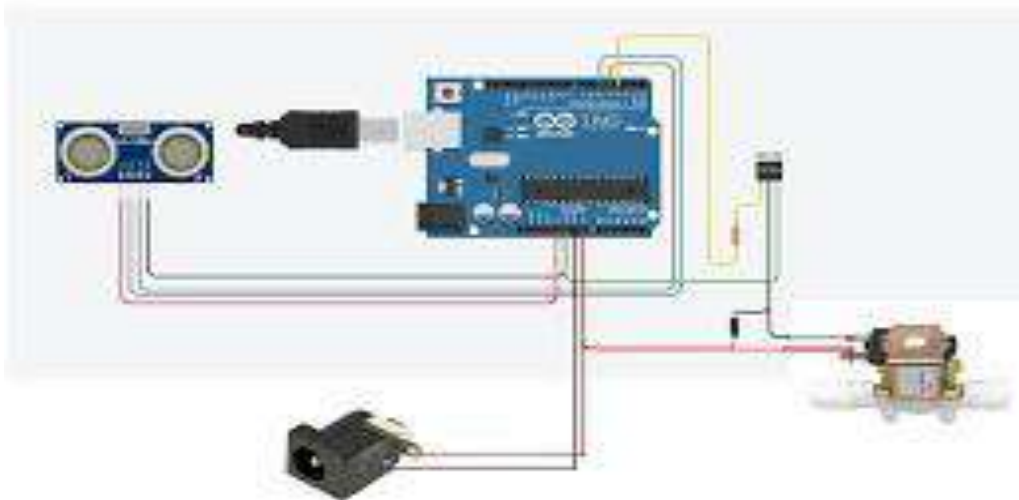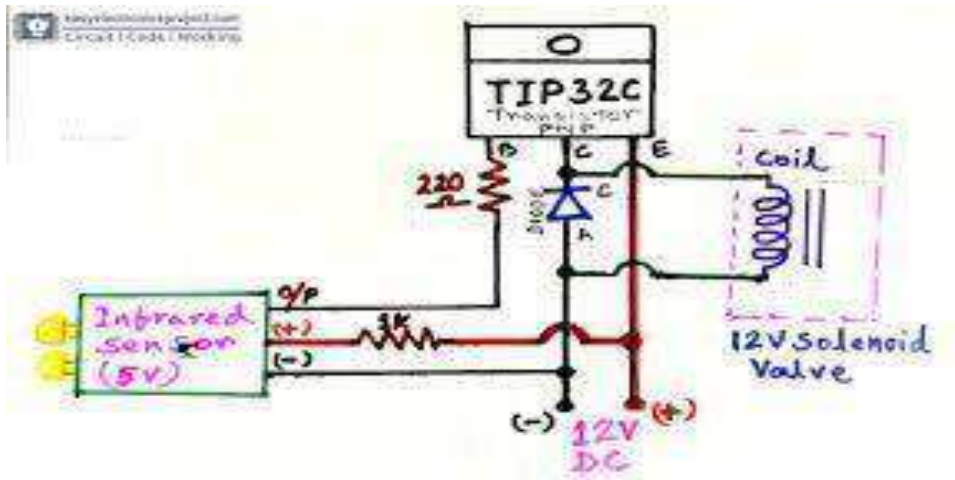
Chapter 3 Requirements and Analysis

3.1 Problem Definition

RequNeed of this project is to avoid wastage of water.Because sometimes people forget to off the motor when tank is full,because of that water get wasted.To avoid this problem this project came into picture.By using this water level indicator system we can monitor water level and consumption of water.irement Specification

3.4 Software and Hardware Requirement

HARDWARE REQUIREMENT

o **Components we need**

o **2 Channel Relay Boards.**

o **2 I.R sensor Modules.**

o **Solenoid valve.**

o **Some wires.**

o **A water tap.**

o **Water pipe.**

o **5V DC battery.**

o **12 to 24 V A.C to D.C Power adapter (according to the requirement of your solenoid valve)**
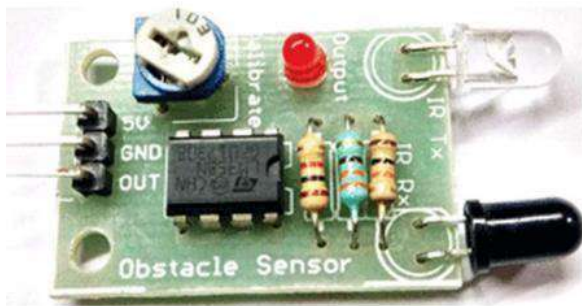
IR MODULE

FIG.1.4
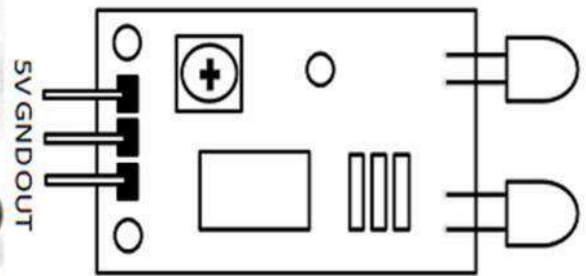
IR SENSOR MODULE PINOUT

FIG.1.5

Brief about IR Sensor Module:

The IR sensor module consists mainly of the IR Transmitter and Receiver, Opamp, Variable Resistor (Trimmer pot), output LED in brief. IR LED Transmitter IR LED emits light, in the range of Infrared frequency. IR light is invisible to us as its wavelength (700nm – 1mm) is much higher than the visible light range. IR LEDs have light emitting angle of approx. 20-60 degree and range of approx. few centimetres to several feet's, it depends upon the type of IR transmitter and the manufacturer. Some transmitters have the range in kilometers. IR LED white or transparent in colour, so it can give out amount of maximum light. Photodiode Receiver Photodiode acts as the IR receiver as its conducts when light falls on it. Photodiode is a semiconductor which has a P-N junction, operated in Reverse Bias, means it start conducting the current in reverse direction when Light falls on it, and the amount of current flow is proportional to the amount of Light. This property makes it useful for IR detection. Photodiode looks like a LED, with a black colour coating

on its outer side, Black colour absorbs the highest amount of light

IR Sensor Module Features:

• 5VDC Operating voltage
• I/O pins are 5V and 3.3V compliant
• Range: Up to 20cm
• Adjustable Sensing the range
• Built-in Ambient Light Sensor
• 20mA supply current
• Mounting a hole

Chapter 4 :System Design

4.1 Basic Modules

1. *Arduino Uno:*

One of the most popular Arduino boards out there is the Arduino Uno. While it was not actually the first board to be

released, it remains to be the most actively used and most widely documented on the market. Because of its extreme popularity, the Arduino Uno has a ton of project tutorials and forums around the web that can help you get started or out of a jam. We're big fans of the Uno because of it's great features and ease of use.
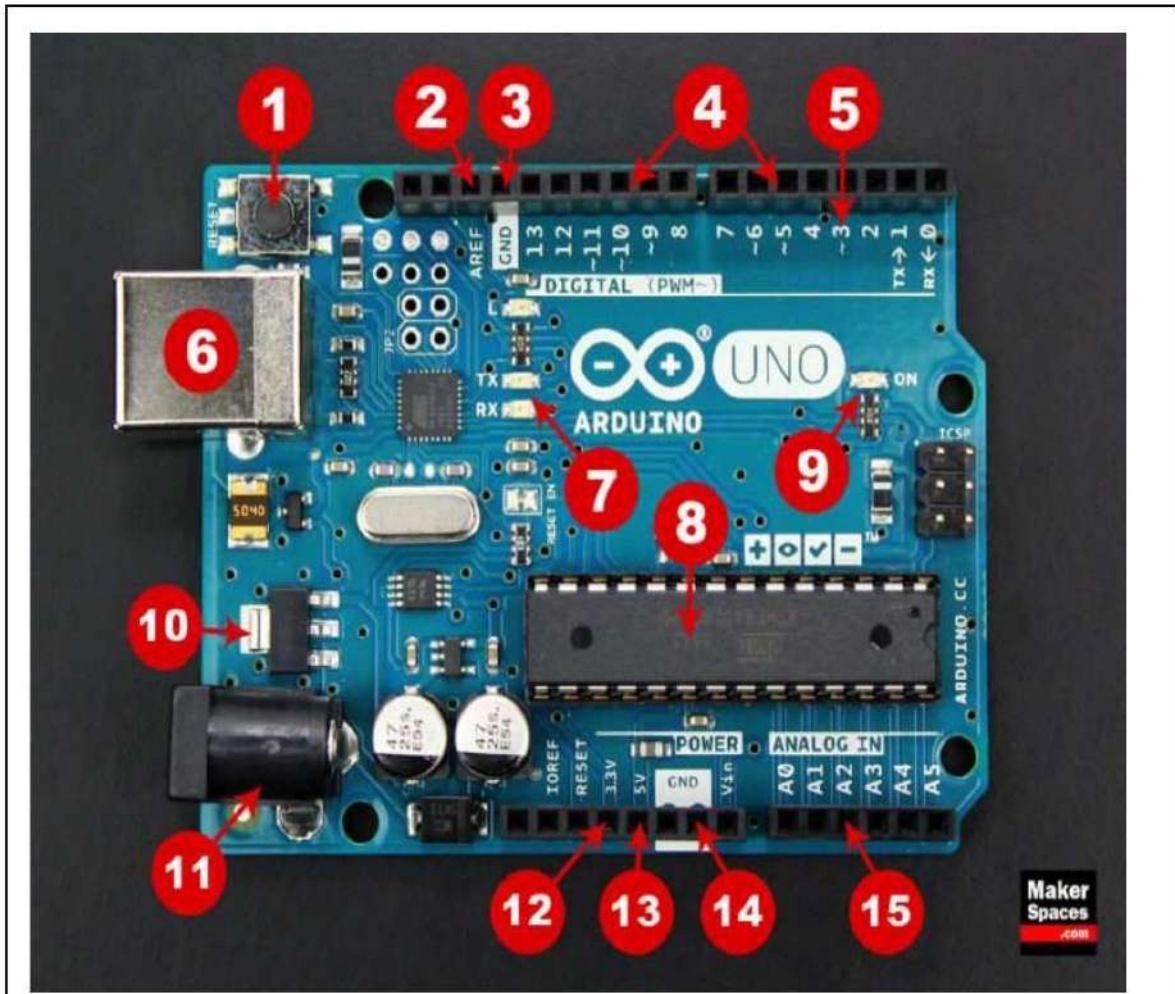
Arduino is open-source hardware. The hardware reference designs are distributed under a Creative Commons Attribution Share-Alike 2.5 license and are available on the Arduino website. Layout and production files[24] for some versions of the hardware are also available.

Although the hardware and software designs are freely available under copyleft licenses, the developers have requested the name Arduino to be exclusive to the official product and not be used for derived works without permission. The official policy document on use of the Arduino name emphasizes that the project is open to incorporating work by others into the official product.[25] Several

Arduino-compatible products commercially released have avoided the project name by using various names ending in -duino.[26]

2.Relay module

RELAY MODULE
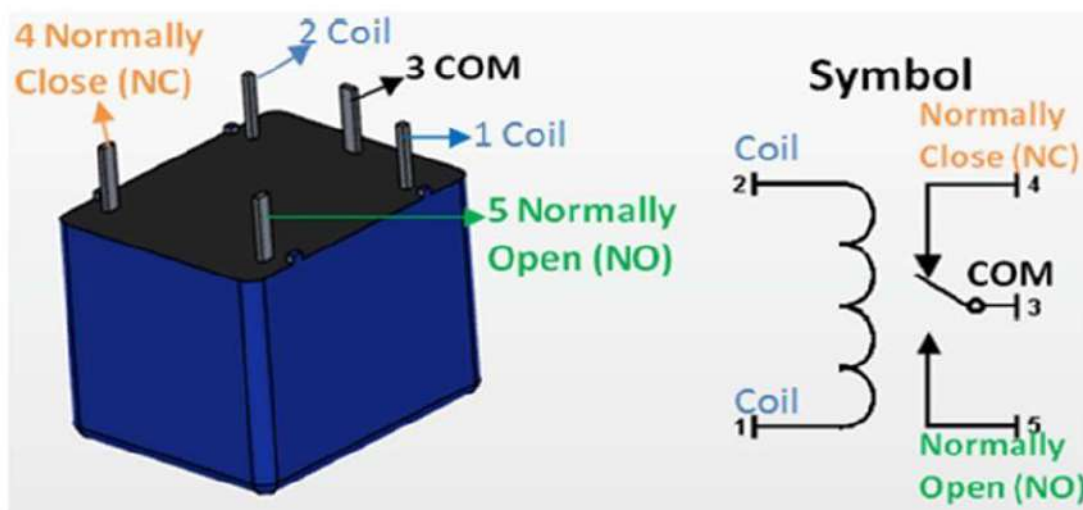
RELAY PIN DIAGRAM

FIG.2.1

Relays are most commonly used switching device in electronics. Let us learn how to use one in our circuits based on the requirement of our project. Before we proceed with the circuit to drive the relay, we have to consider two important parameters of the relay. Once is the Trigger Voltage; this is the voltage required to turn on the relay that is to change the contact from Common->NC to Common->NO. Our relay here has 5V trigger voltage, but you can also find relays of values 3V, 6V and even 12V so select one based on the available voltage in your project. The other parameter is your Load

Voltage & Current, this is the amount of voltage or current that the NC,NO or Common terminal of the relay could withstand, in our case for DC it is maximum of 30V and 10A. Make sure the load you are using falls into this range.

A simple relay consists of wire coil wrapped around a soft iron core, or solenoid, an iron yoke that delivers a low reluctance path for magnetic flux, a movable iron armature and one or more sets of contacts. The movable armature is hinged to the yoke and linked to one or more set of the moving contacts. Held in place by a spring, the armature leaves a gap in the magnetic circuit when the relay is de-energized. While in this position, one of the two sets of contacts is closed while the other set remains open.

When electrical current is passed through a coil, it generates a magnetic field that in turn activates the armature. This movement of the movable contacts makes or breaks a connection with the fixed contact. When the relay is de-energized, the sets of contacts that were closed, open and breaks the connection and vice versa if the contacts were open. When switching off the current to the coil, the armature is returned, by force, to its relaxed position.

3.*PIR Sensor*:
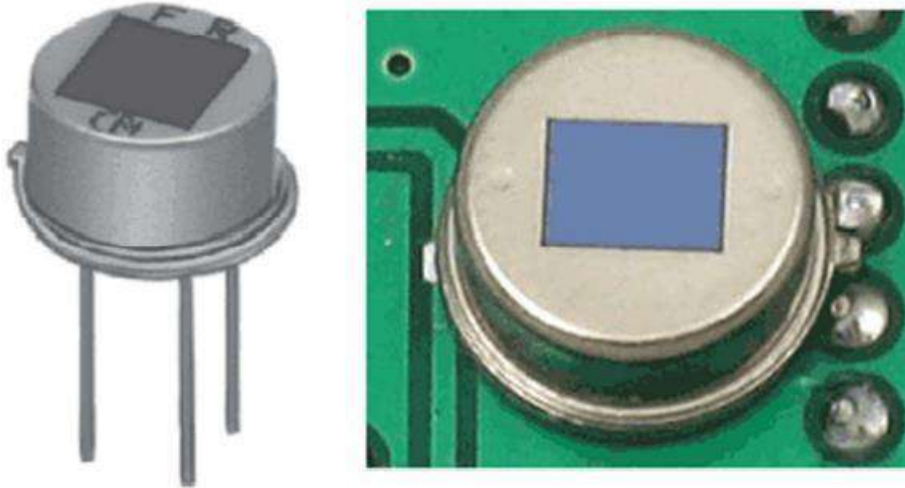
PIR sensors are more complicated than many of the other sensors explained in these tutorials (like photocells, FSRs and tilt switches) because there are multiple variables that affect the sensors input and output. To begin explaining how a basic sensor works, we'll use this rather nice diagram The PIR sensor itself has two slots in it, each slot is made of a special material that is sensitive to IR. The lens used here is not really doing much and so we see that the two slots can 'see' out past some distance (basically the sensitivity of the sensor). When the sensor is idle, both slots detect the same amount of IR, the ambient amount radiated from the room or walls or outdoors. When a warm body like a human or animal passes by, it first intercepts one half of the PIR sensor, which causes a positive differential change between the two halves. When the warm body leaves the sensing area, the reverse happens, whereby the

sensor generates a negative differential change. These change pulses are what is detected.
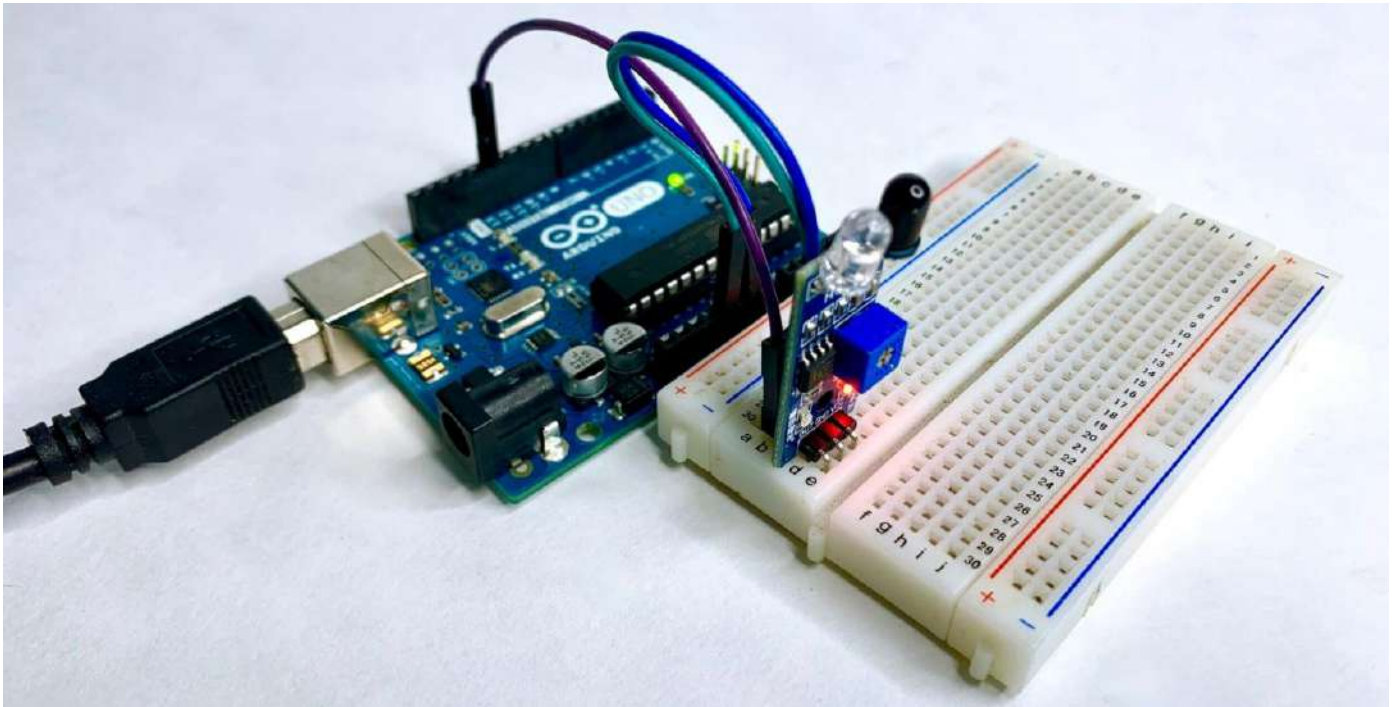
4.*Small breadboard :*
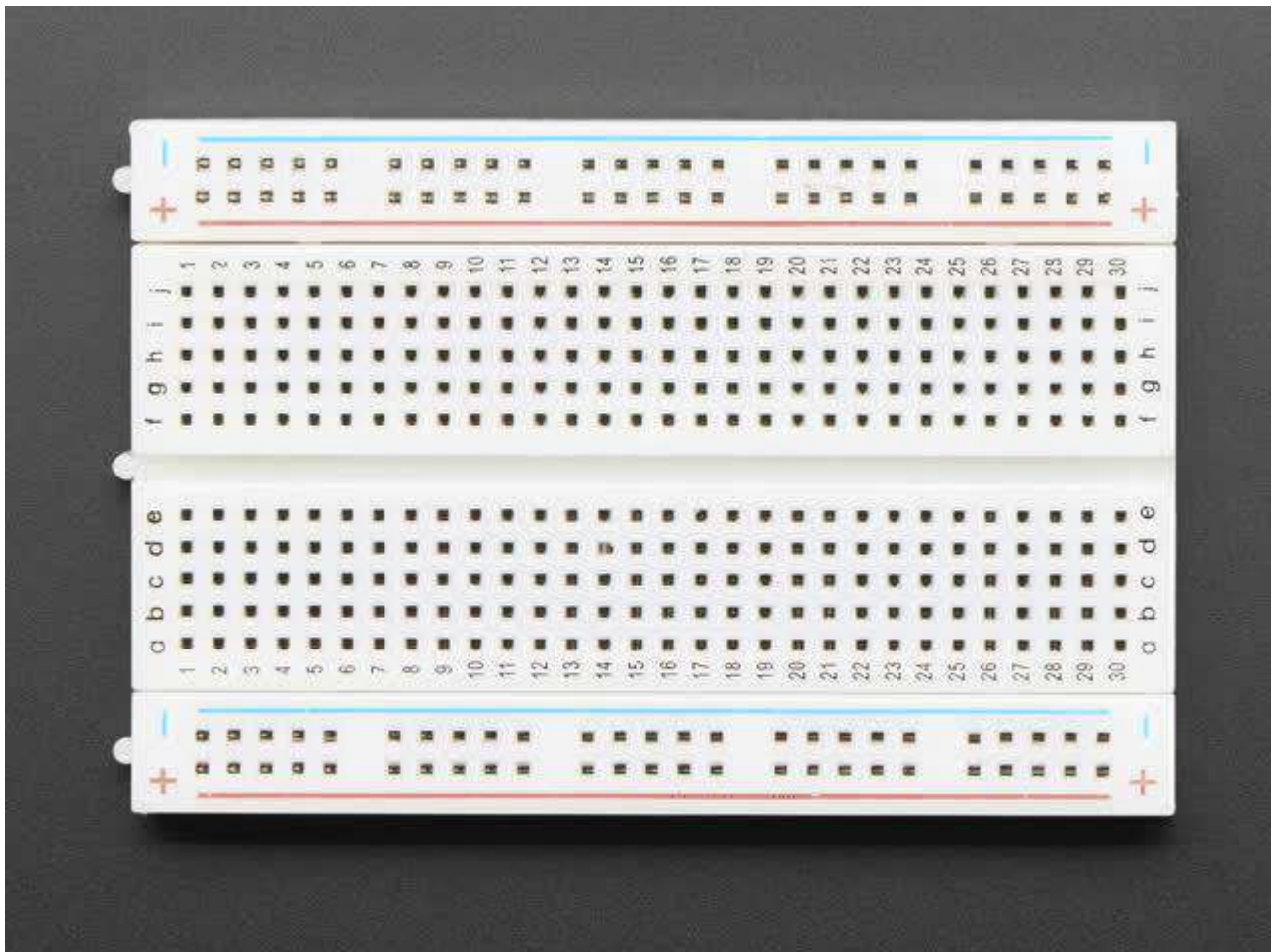
A breadboard, or protoboard, is a construction base for prototyping of electronics. Originally the word referred to a literal bread board, a polished piece of wood used when slicing bread.[1] In the 1970s the solderless breadboard (a.k.a.

plugboard, a terminal array board) became available and nowadays the term "breadboard" is commonly used to refer to these.

Because the solderless breadboard does not require soldering, it is reusable. This makes it easy to use for creating temporary prototypes and experimenting with circuit design.
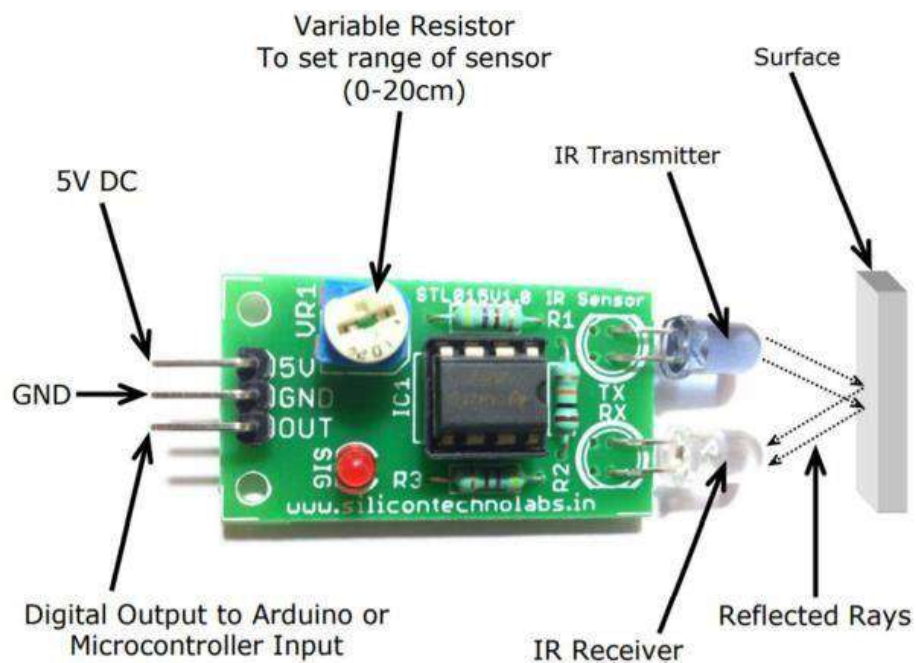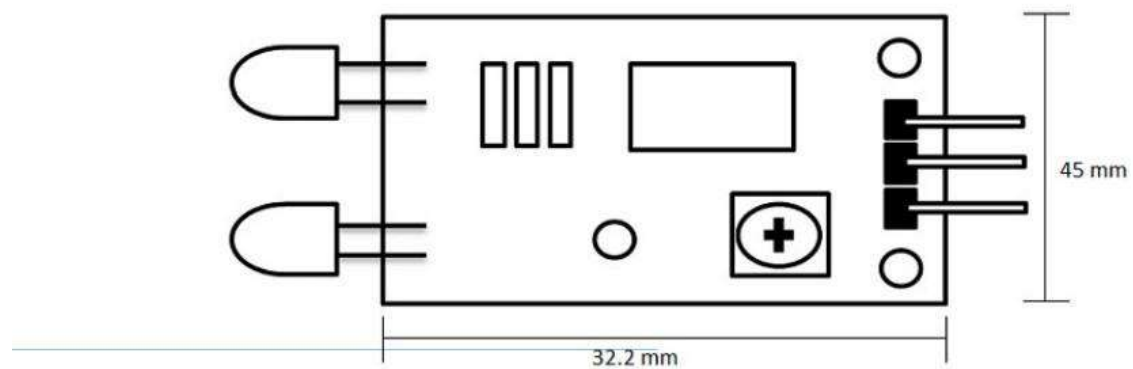
For this reason, solderless breadboards are also popular with students and in technological education. Older breadboard types did not have this property. A stripboard (Veroboard) and similar prototyping printed circuit boards, which are used to build semi-permanent soldered prototypes or one-offs, cannot easily be reused. A variety of electronic systems may be prototyped by using breadboards, from small analog and digital circuits to complete central processing units (CPUs).

4.2 Data Design (Table Design)

4.2.1 Schema Design

SCHEMATIC REPRESENTATION

45 mm

32.2 mm

Variable Resistor
To set range of sensor
(0-20cm)

5V DC

GND

Surface

IR Transmitter

STL815V1.0 IR Sensor

5V
GND
OUT

VR1

IC1

R1

TX
RX

R3

R2

www.silicontechnolabs.in

Digital Output to Arduino or
Microcontroller Input

IR Receiver

Reflected Rays

An infrared sensor includes two parts namely the emitter & the receiver (transmitter & receiver), so this is jointly called an optocoupler or a photo-coupler. Here, IR LED is used as an emitter whereas the IR photodiode is used as a receiver.

The photodiode used in this is very sensitive to the infrared light generated through an infrared LED. The resistance of photodiode & output voltage can be changed in proportion to the infrared light obtained. This is the fundamental IR sensor working principle.

The type of incident that occurred is the direct otherwise indirect type where indirect type, the arrangement of an infrared LED can be done ahead of a photodiode without obstacle. In indirect type, both the diodes are arranged side by side through a solid object ahead of the sensor. The generated light from the infrared LED strikes the solid surface & returns back toward the photodiode.

IR sensors use three basic Physics laws like Planck's Radiation, Stephan Boltzmann & Wein's Displacement.The application circuit of the IR sensor is an obstacle detecting circuit that is shown below. This circuit can be built with a photodiode, IR LED, an Op-Amp, LED & a potentiometer, The main function of an infrared LED is to emit IR light and the photodiode is used to sense the IR light. In this circuit, an operational amplifier is used as a voltage comparator and the output of the sensor can be adjusted by the potentiometer based on the requirement.

4.3 Diagrams

4.3.1 E-R Diagram /Block Diagram

BLOCK DIAGRAM

FIG.1.1
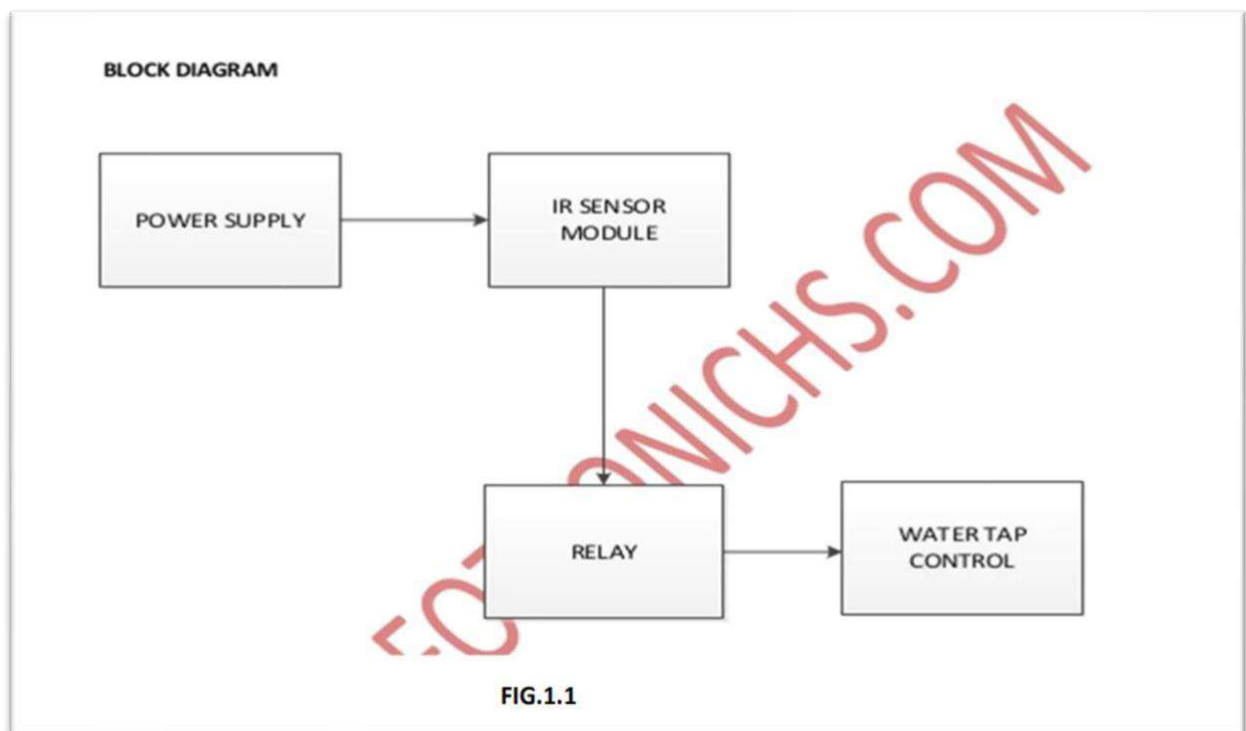
In this project, we will see the Automatic Room Lights using Arduino and PIR Sensor, where the lights in the room will automatically turn ON and OFF by detecting the presence of a human. Such Automatic Room Lights can be implemented in

your garages, staircases, bathrooms, etc. where we do not need continuous light but only when we are present. Also, with the
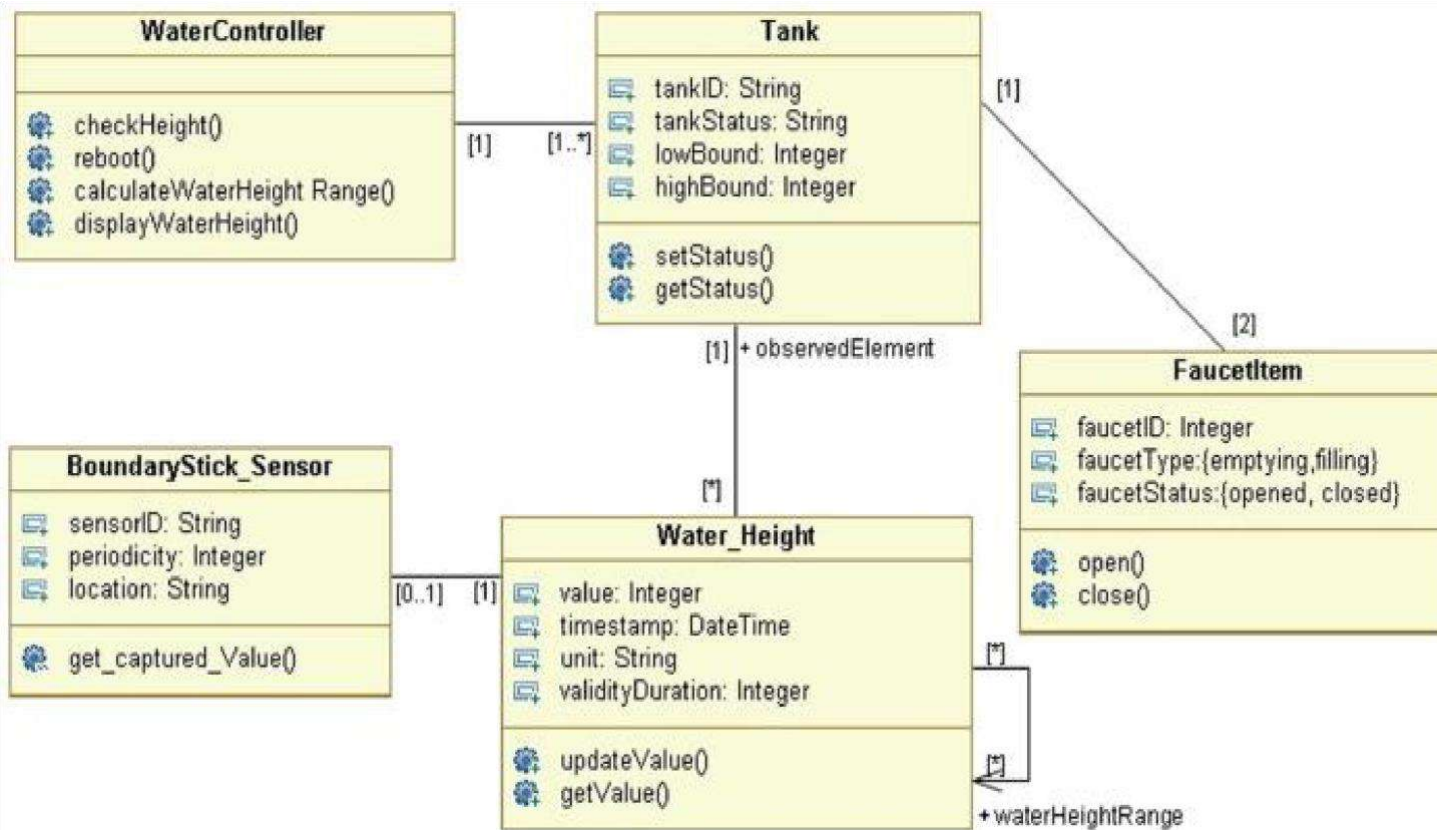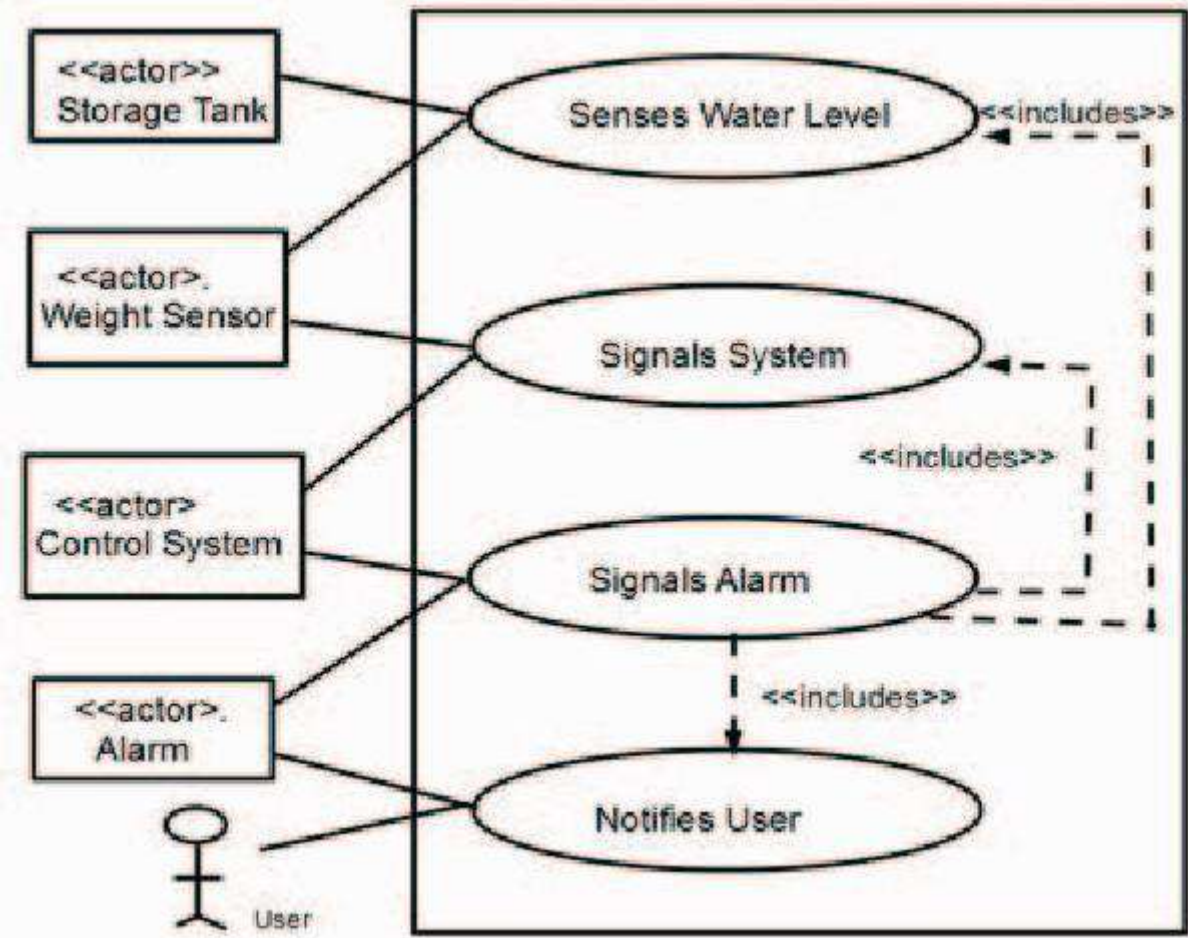

help of an automatic room light control system, you need not

worry about electricity as the lights get automatically off when there is no person. So, in this DIY project, we have implemented Automatic Room Lights using Arduino and PIR Sensor. Automatic Room Lights System using Arduino is a very useful project as you need not worry about turning on and off the switches every time you want to turn on the lights. The main components of the Automatic Room Lights project are Arduino, PIR Sensor and the Relay Module.
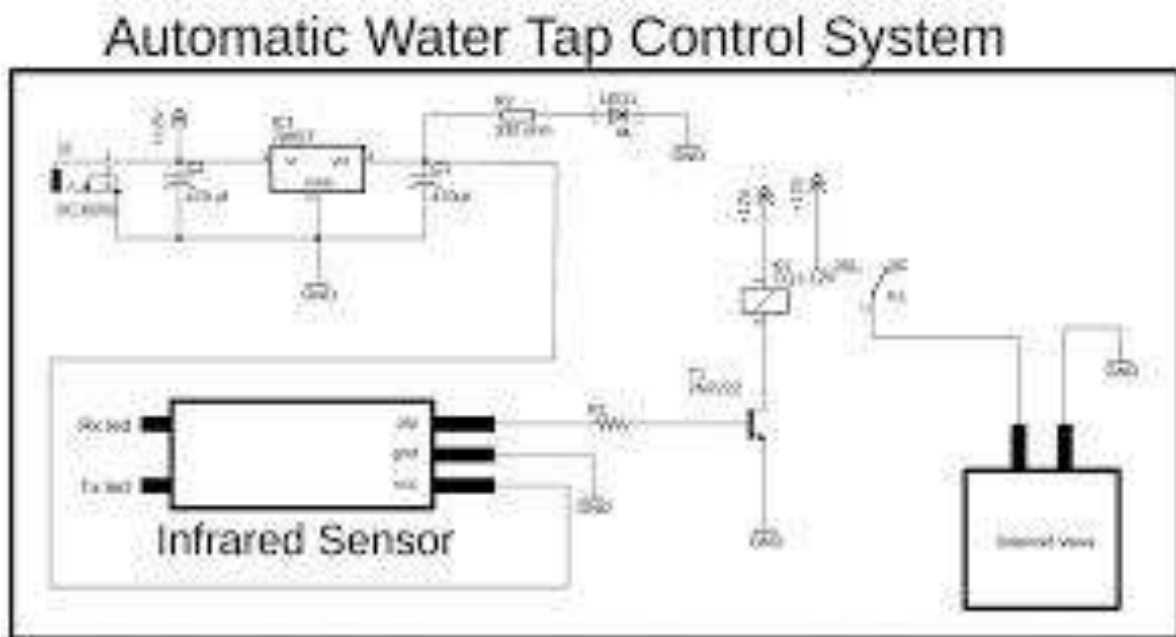
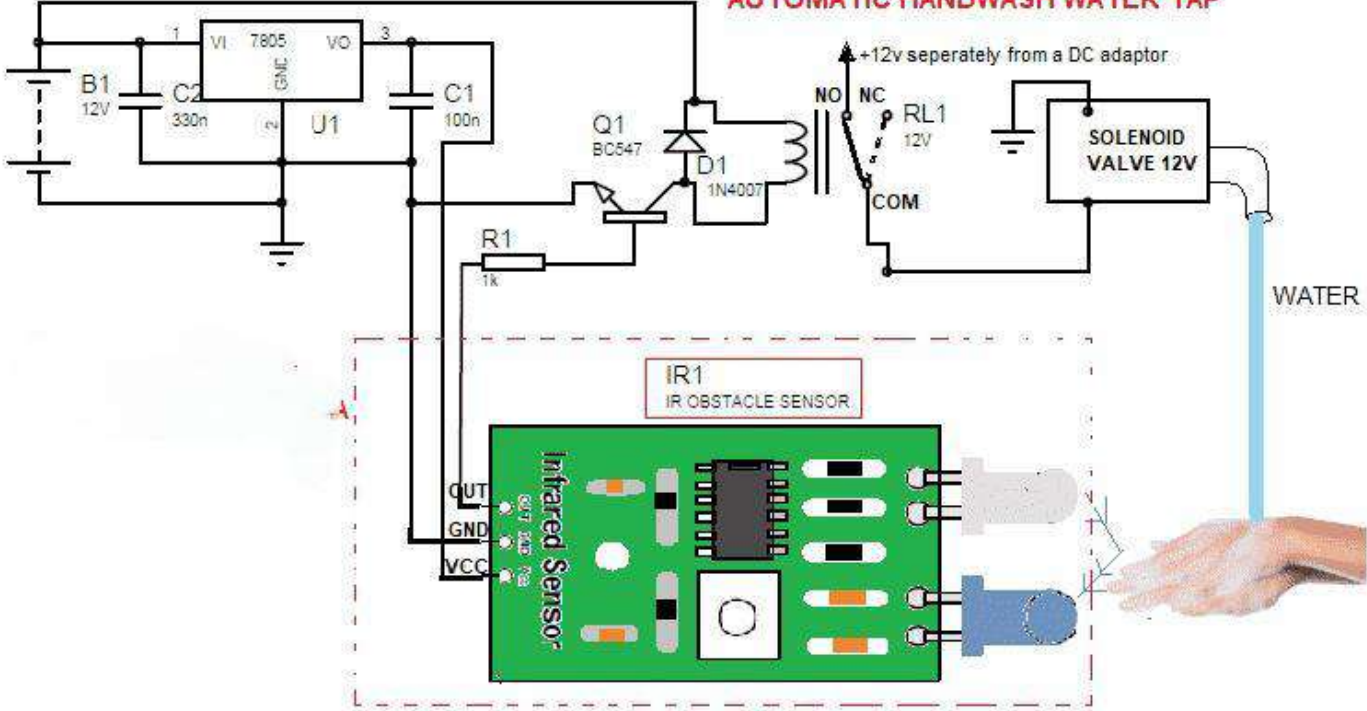## 4.3.2 Class Diagram / Data Flow Diagram

4.3.3 Use Case Diagram

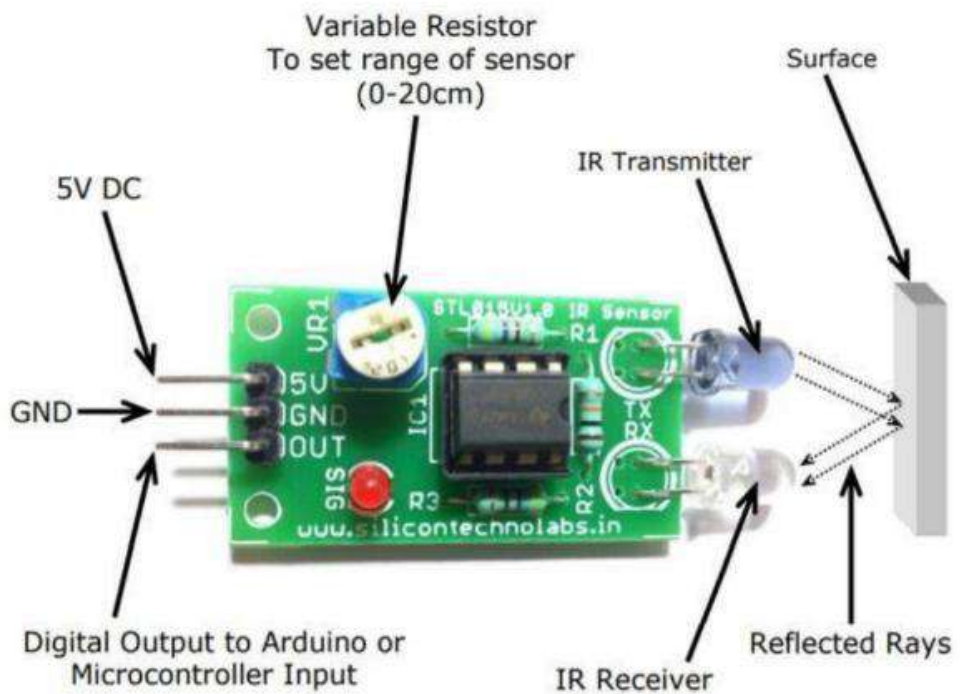## 4.3.4 Sequence Diagram

4.3.5 Activity Diagram

Automatic Water Tap Control System

Infrared Sensor

www.electroniclinic.com

AUTOMATIC HANDWASH WATER TAP

B1
12V

C2
330n

VI 7805 VO
1   3
GND
2
U1

C1
100n

Q1
BC547

D1
1N4007

R1
1k

NO NC
RL1
12V
COM

+12v seperately from a DC adaptor

SOLENOID
VALVE 12V

WATER

A

IR1
IR OBSTACLE SENSOR

OUT
GND
VCC

Infrared Sensor
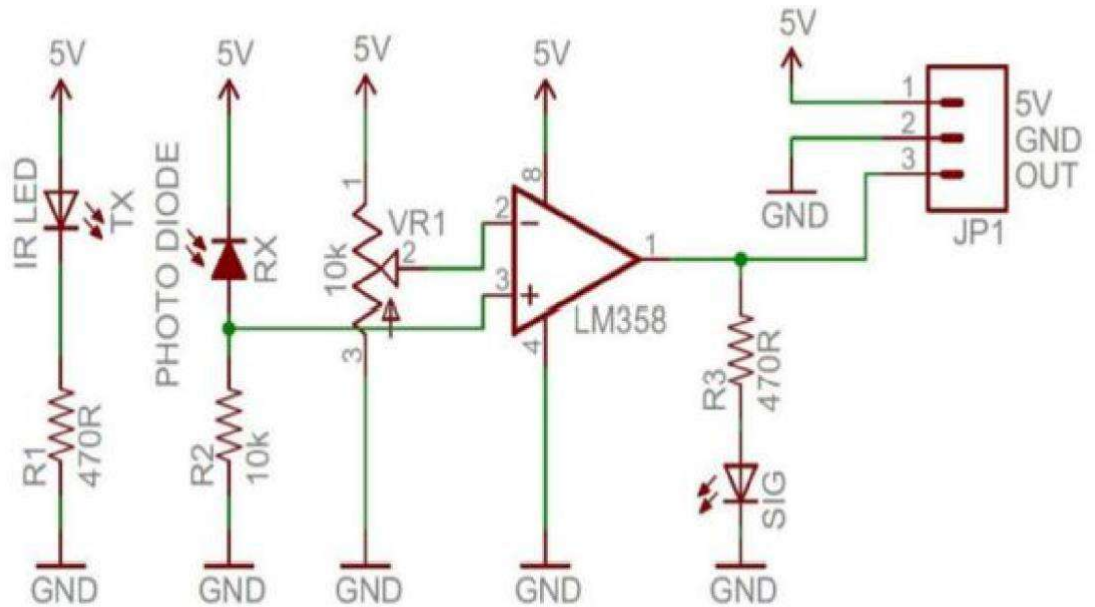
4.3.6 Component Diagram

4.3.7 Menu Tree / Circuit Diagram

4.3.9 User Interface Design

4.3.10 Security Issues

Price range is wide and, as always, you usually get what you pay for, but sensor taps probably imply more initial investment than traditional taps, plus a remote control is necessary to change the default settings. Nonetheless, touchless tapware saves costs in the long run, especially for commercial washrooms, and just one remote control can adjust an infinite number of compatible automatic taps.

If there is a water cut, one cannot use the faucets. If there is a power cut, mains operated sensor taps will not work either. Nevertheless, let's count how many times a year businesses face power cuts or what the chances are that users go into a commercial washroom during a blackout, let alone reaching the basin.

Hands free taps work with an infrared sensor. This widget may have problems with reflective surfaces and extremely bright colours. Installers must read carefully the mounting instructions that the manufacturer provides in order to avoid mirrors or polished chrome finishes opposite the tap sensor, as well as another built-in sensor right in front of it. Despite following the guidelines, beware that sensored taps can make activation mistakes from time to time.

When acquiring automatic taps for houses, it looks reasonable to know that some domestic animals could activate them unintentionally, mainly in the kitchen. Imagine that a cat walks on the basin countertop where a sensor tap is accommodated… It will definitely result in a feline fright, but also in endless water waste. E-taps include a default limit opening time of approximately 1 or 2 minutes to avoid vandalism, mistakes or situations like this one.

4.3.11 Test Cases Design:

Chapter 5

Implementation And Testing

5.1 Implementation Approaches

Sr. No	Implementation Plan	Action	
1.	Module	- IR sensor - Single channel relay module - Aurdino uno R3 - IR module	
2.	Percentage Completed	Aurdino uno R3	100%
		IR Sensor	100%
		Single channel relay module	100%
3.	Status	Aurdino Uno R3	Completed
		IR Sensor	Completed
		Single channel relay moudle	Completed

4.	Day Started	11 January 2022		
5.	Day to be Completed	15 March 2022		
6.	Actual Completion Date			
7.	Module Assignment	• Aurdino Uno R3	Rahul Ambre	
		• IR Sensor	Sandeep Pedini	
		• Single channel realy module	Rahul and Sandeep	
8.	Importance of Module	• Aurdino Uno R3	High	
		• IR Sensor	High	
		• Single channel realy module	High	

Gantt Chart

	Semester VI																									
	June		July				August			September			October		December		January				Feburary				March	
Activities	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12
Implementation																										
Development															▪	▪	▪									
Unit Testing																		▪								
Development																			▪	▪						
Unit Testing																					▪					
Development																						▪				
Unit Testing																							▪			
Development																							▪	▪		
Unit Testing																								▪		
Test case creation																									▪	
Intergration Testing																									▪	▪
Acceptance Testing																										▪
Overall Project Plan	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
Weekly Review/ Discussion with Guide	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪

5.2 Coding Details And Code Efficiency:

5.2.1 Coding Details:

Int RELAY = 13; // Use the onboard Uno LED int isObstaclePin = 7; // This is our input pin int isObstacle = HIGH; // HIGH MEANS NO OBSTACLE

Void setup()

{

 pinMode(RELAY, OUTPUT); pinMode(isObstaclePin, INPUT); Serial.begin(9600);

void loop()

{

isObstacle = digitalRead(isObstaclePin);

 if (isObstacle == HIGH)

{

```
Serial.println("OBSTACLE!!, OBSTACLE!!"); digitalWrite(RELAY,
HIGH);

}

Else

{

Serial.println("clear"); digitalWrite(RELAY, HIGH);

}

Delay(200);

}
```

5.2.2 Code Efficiency

- *Our* code doesn't need enough memory to load and work as it coded in python language with less memory utilization.
- Less global variable were used compare to local variable to minimize memory usage.
- Basic data types and function were used to enhanced the code.
- Aurdino IDE was used to code and test the code and upload to the Aurdino Uno R3 board without any conversation in the code.
- Tested the code several times which work without any fails.
- Different libraries were used to increase the code functionality.
- The code is reliable for the system for which it was coded.
- Our code uses simple basic data types instead of derived data types.
- Comments were used to understand the functionality of the statement.

5.3 Testing approaches

Testing Approaches tells us how to test the entire project.

There are two basic type of testing method:

- ❖ Unit Testing
- ❖ Integration Testing

5.3.1 Unit Testing:-

Unit testing is done to remove problems from the code by breaking your program into different parts and testing each part.

Aurdino Uno R3:-

   It is an open-source microcontroller board that can be programmed according to user requirements. board is used for interfacing the input-output elements to construct a project and conncted to the aurdino Uno R3 and single channel relay module.

IR Sensor:-

        IR sensor is an electronic device that senses the IR radiations in its surroundings. The IR sensor used here is an active IR sensor that

emits IR radiation from the transmitter diode and receives the reflected rays from the target object through a receiver.

The connections for the IR sensor with the Arduino are as follows: Connect the negative wire on the IR sensor to GND on the Arduino. Connect the middle of the IR sensor which is the VCC to 5V on the Arduino. Connect the signal pin on the IR sensor to pin 8 on the Arduino.

Single Channel Relay Module:-

This 5V One Channel IR Wireless Relay Module with Remote Control is a one channel latching relay module. The output of the module is a passive output and it can be controlled by its 2-button IR wireless controller when the module is powered on. The module comes equipped with suitable remote control. It also can drive most household electrical appliances. The operating voltage for this module is 5VDC

It will display the result of the process on tap of water.

Chapter 6

Results And Discussion:-

Test Reports:-

1)When the power is on, automatically system is on and afterwards

Tap is automatically is on

2)afterwards all the process is complete then automatically water

Tap is start and start water flow

3)when the hand are move in to ir sensor then ir sensor catch the waves and automatically water are comes

4)there is no hand touched and maintain social distancing

Chapter 7:-

Conclusion :-

7.1 Conclusion:-

The various blocks of the automatic sensor water tap for hand washing were Designed and mounted on the Printed Circuit Board (PCB), they were tested for Workability. From the output unit, it can be concluded that this aim of the designAnd the implementation is achieved, since the solenoid valve was turned ON When it senses an IR radiation and also switched of when the IR body is no More. However, the tap does not turn OFF immediately after the hand is Withdrawn as expected. It delays for about 3 to 4 seconds. The design and Implementation of the automatic sensor water tap for hand washing was a very Interesting one. The tap turns ON immediately when it senses human hands. However, it exhibits a delay of about 3 to 4 seconds before it turns OFF. Further

Work should be carried out on this topic to eliminate this delay so that water Wastage will be completely avoided. Because of the advantages of the automatic Water sensor tap in modern technology, there is the need to widen its field of Application.

References

It is very important that the students acknowledge the work of others that they have used or adapted in their own work, or that provides the essential background or context to the project. The use of references is the standard way to do this. Please follow the given standard for the references for books, journals, and online material. The citation is mandatory in both the reports.

Eg:

1)Tinkercard

2)Research gate

3)global scientific journal

Website Used

- WWW.SEMINARPROJECTS.COM
- WWW.GOOGLE.COM
- WWW.CIRCUITTODAY.COM
- WWW.INDIANENGINEER.TK
- WWW.WIKIPEDIA.ORG

Glossary

Water conservation:

Finding ways to save water is very important. Electronic taps are usually designed with a low flow rate, an aerator in the spout and system or materials that prevent leakage.

For instance, while traditional basin taps pour between 10 and 15 litres per minute, Giampieri sensor taps would not use more than 6 litres and their solenoid valve is closed by default (and placed before the hose, which in this case supports up to 15 bar). Bear in mind that a dripping tap can wastebetween 300 ml and 1 litre per hour.

Energy saving in the long term: Each sensor tap requires 6, 9 or 12 volts, depending on the brand.

This expense is unavoidable, whether hardwired or battery operated. Nonetheless, e-taps can make a difference during activation. Selecting the preferred

flow and temperature every time a traditional faucet is activated wastes energy, among other things. In this regard, automatic basin taps with a constant temperature (cold, warm or premixed) are a great choice for commercial washrooms.

Likewise, thermostatic faucets would be more energy efficient in showers than mixer lever ones.

☐ *These settings can be even more environmental friendly if power comes from renewable energies and if further restrictions are implemented in the tap handle or in the rest of the system (aerators, flow limiters, pressure reducing valves). The latter gadgets sound a wise choice also for those who are still using traditional basin taps.

Appendices

These may be provided to include further details of results, mathematical derivations, certain illustrative parts of the program code (e.g., class interfaces), user documentation etc.

In particular, if there are technical details of the work done that might be useful to others who wish to build on this work, but that are not sufficiently important to the project as a whole to justify being discussed in the main body of the project, then they should be included as appendices.

Summary

Make your tap work automatically when you put your hands just below the water tap outlet. This infrared-based automatic washbasin tap controller system **detects any interruption of the IR rays by your hands or utensil and water automatically starts flowing out of the tap**

PORTRAYAL OF WOMEN IN MEDIA

BACHELOUR OF ACCOUNTING AND FINANCE

BY

ANIKET SANGLE

Roll Number : 21305B0045

Under the guidance of

Miss. Sidra Usmani

Group Members

NAME OF STUDENTS	ROLL NUMBER
KARTHIK	21305A0036
ANURAG YADAV	21305A0037
PRAKRUTI MISHRA	21305A0038
BHAKTI LOKE	21305A0039
PRASAD PARADKAR	21305A0043
VAISHNAVI BANSOE	21305A0044
ANIKET SANGLE	21305A0045
SAVI YENDHE	21305A0046

<u>INDEX</u>

<u>INTRODUCTION</u>

We have been observing women's participation, their performance and also how they have been portrayed in media. This are the three important things we have to look through in our modern time, especially for the ferminists.

Improving the status of women, in every aspect, is regarded as the only way to endicate this gender gap and achieving a better quality of life for the women. Media can play a significant role in shaping social values, attitudes, norms, perception and behavior.

Media can focus all the problems faced by women, these can give a space for women to talk about their rights of freedoms and most importantly media can provide a democratic environment where can participate, represent their womanhood and in which they will be portrayed positively.

Women have been portrayed as domestic provides who do not make any significant decisions, are dependent on men in their lives, and are essentially portrayed as sex objects. Media can help to expressing their rights of freedoms. Environment where they can represent their womanhood and to motivate them to their upcoming development.

OBJECTIVE

To study how the portrayal of women in media has changed and to achieve knowledge about portrayal of women in media. In the media world, media has already set an impossibly high beauty standards and the result of this often leaves women in a losing position in reality. The media has already set firm a message saying that women's worth is strongly dependent on her sexuality. Women's sexuality is valued mainly on their beauty and also their performance. Since media has already set such a high standard women's beauty standard, hence women will spend countless amount of money on beauty products and clothing and also countless time in order to bring themselves up to attain the same level or even higher in order to achieve as what the media has already set. Unfortunately, with the concept that I've mentioned above on the virginal and sexual depictions of women, women are being set to be disappointed and fail. This is solely because no women in the world can be both portrayed as innocent and sexual at the same time so women are being forced to choose either

PROCEDURE & METHOD

   The research is based on a close reading of the novel. When pondering over which aspect in the novel this paper should start with, adjectives are taken into consideration in the first place as for their basic function of portrayal. Then the researcher found that nouns in the novel also play an important role in portraying characters' qualities and thus add nouns into investigation afterwards. Adjectives and nouns describing three main female characters including Elizabeth Bennet , Mrs Bennet and Charlotte Lucas have been carefully picked out one by one and divided into mainly two groups (one describing external qualities and another describing internal qualities). Here, both the adjectives and nouns function in the same way, which is to describe the characters' qualities. Based on the identified adjectives and nouns, different fictional images of three main female characters are presented and analyzed. Furthermore, potential causes influencing the author's way in portraying female characters will also be discussed.

NEGATIVE IMPACT OF MASS MEDIA OF WOMEN TOWARS SOCIETY

It depicts the women in poor taste : The mass media supports the advertisement of   certain unethical advertisers, where, women are shown in women.

It promotes women-related violent programmes : A good number of TV programmes and serial depict women – related violence such as abduction and rape. But at time it also result in violent programmes which may result in rape and sexual abuse

Many a times media only saw women as sex icons. For advertisement, it is a marketing scheme. Advertisers want to appeal as many people as they can and these image women supposedly do that. But many a times, women find it very difficult to wear such uncomfortable clothes in front of media

SEX ICONS

In the media, women are displayed as being sexy and most of the time are uncomfortable in clothes. For TV and the movies women are displayed thus way because in thus society, people are used to see by women like that, which is quite sad. Women in media are used by men for pleasures and it is sometimes shown that women does not deserve anything, especially respect, because they do not show or give respect to themselves. Men and people in general start to think that these images is what women are only for or what women are wearing (or not wearing) is what all women should be like.

EFFORTS TO EMPOWERMENT OF WOMEN

Twice a year, two special U.N. days highlight the importance of women and girls to our world. The following are the ways to empower women and girls:-

Provide the ticket to a better life :- Women around the world spend 200 million hours each day getting water that is often dirty and dangerous to their health.

Support girls and women in crisis :- Millions of girls are subjected to abuse, child labor, human trafficking, child marriage and other offenses.

Mentor a girl close to home :- Many girls growing in the United States are held back by poverty, poor-performing schools and teen violence.

CONCLUSION

Thankfully, the portrayal and view of women has changed over the years. There are still some major problems, but we may never see those opinions be erased. Because of the stereotypes and portrayal of women were what they were in the past, we have the ones today. Whether they are in the mockery of the views in the past or a twist on what they were, they are still there and women are still faced with them everyday across the world.

<u>REFERENCES</u>

It is very important that the students acknowledge the work of others that they have used or adapted in their own work, or that provides the essential background or context to the project. The use of references is the standard way to do this. Please follow the given standard for the references for books, journals, and online material. The citation is mandatory

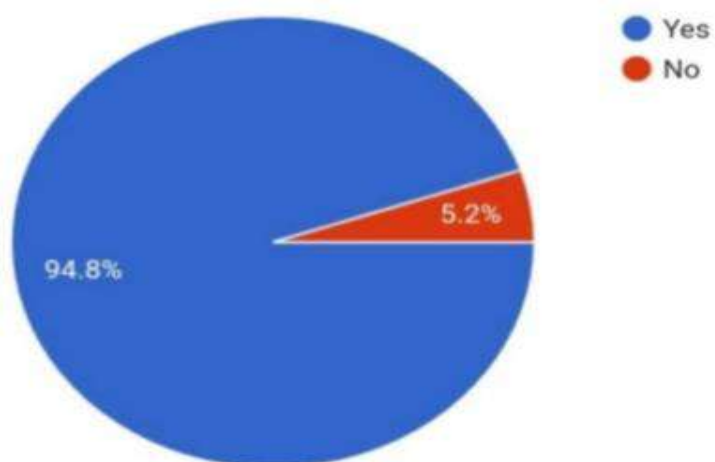Linhares, A., & Brum, P. (2007). Understanding our understanding of strategic scenarios: What role do chunks play? Cognitive Science, 31(6), 989-1007. https://doi.org/doi:10.1080/03640210701703725

Do you want to change the view of society towards portrayal of women in media ?

56 responses

- Yes
- No

12.5%

87.5%
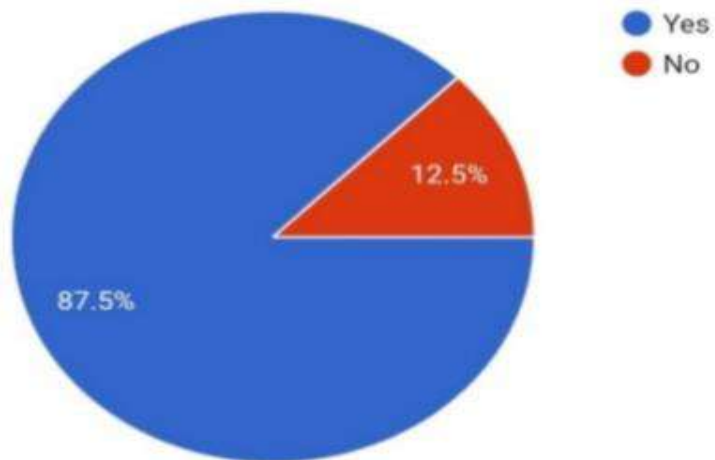
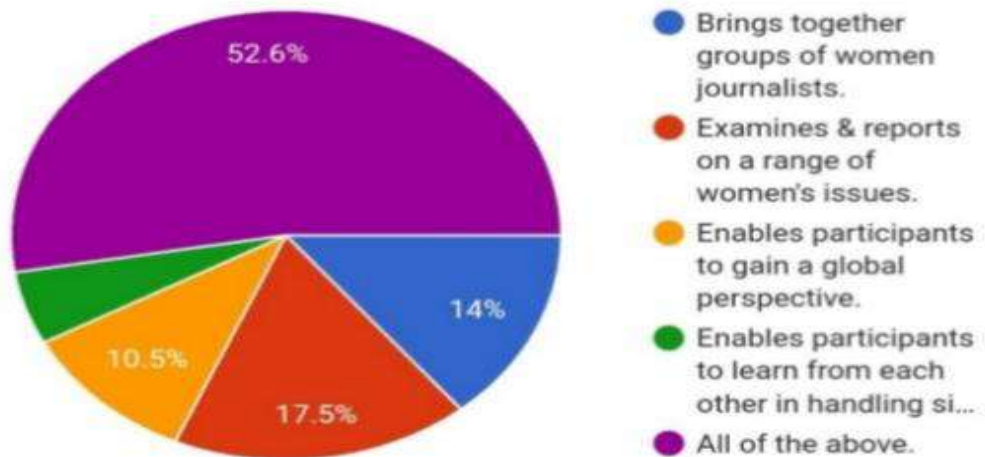## Will you give the chance to a women in media ?

58 responses

- Yes
- No

5.2%

94.8%

Which refinements are imperative for expunging the mentality of objectifying women in the society?

59 responses

Legend:
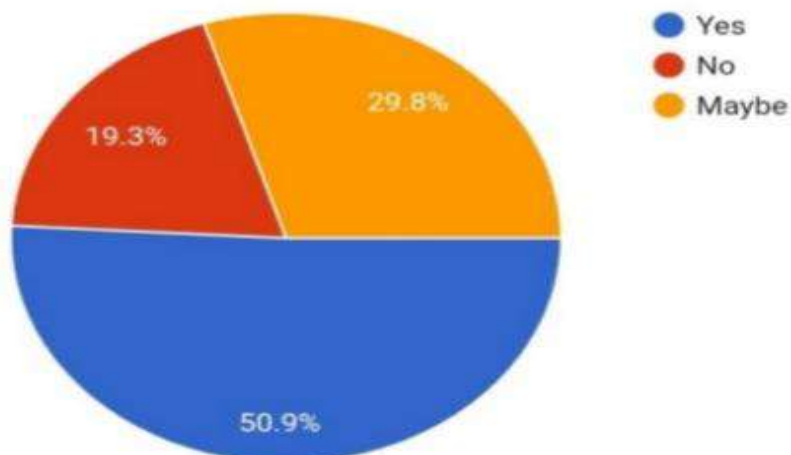- Call for responses & service fit for purpose.
- Teach the next generation, how to shield one's dignity.
- Stand against the conservative mindset of society.
- All of the above.

Pie chart values: 61%, 11.9%, 18.6%, 8.5%
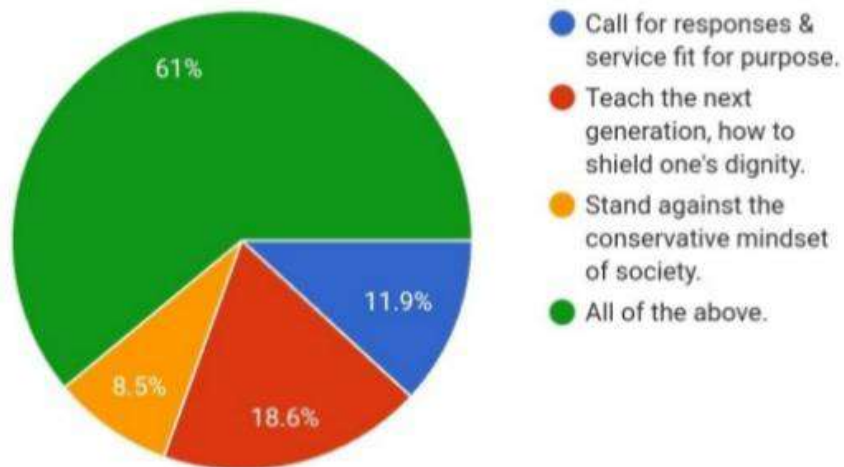
Women's edition serves the following purposes...

57 responses

- Brings together groups of women journalists.
- Examines & reports on a range of women's issues.
- Enables participants to gain a global perspective.
- Enables participants to learn from each other in handling si...
- All of the above.

52.6%
14%
17.5%
10.5%

In india ,will a women ever be enough as just a working professional ?

57 responses

- Yes
- No
- Maybe

29.8%
19.3%
50.9%

Did you heard about the portrayal of women in media?

58 responses

- ● Yes
- ● No

29.3%

70.7%
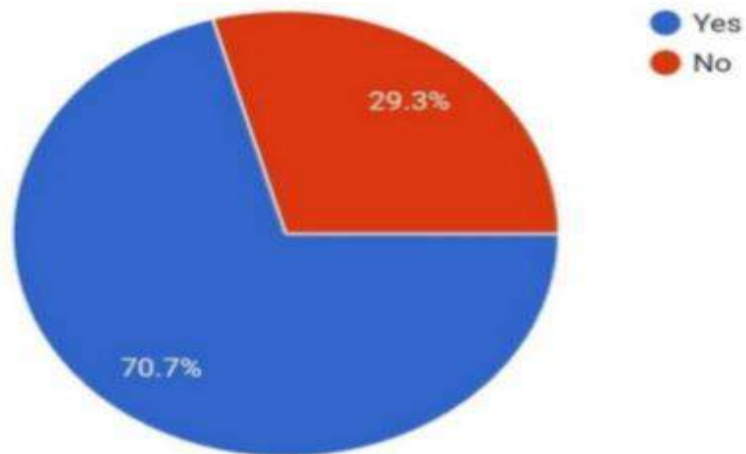
Which factors inspired women in many countries to establish their own magazines ?

58 responses

50%

12.1%

22.4%

15.5%

- ● Male-run publications largely women activists.
- ● The news outlets that did cover women trivialized their goals.
- ● Women that depated form the norms of domesticity & passivity were depicted as militant and aggressive .
- ● All of the above
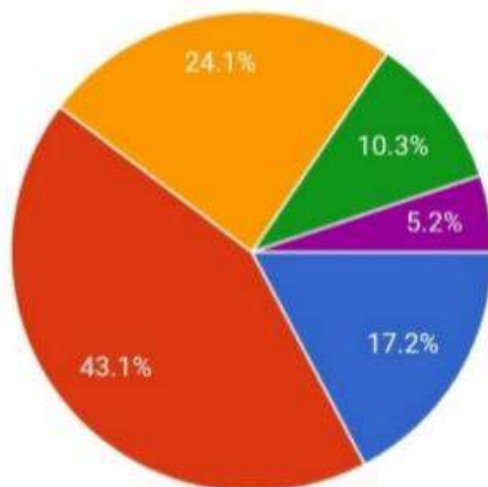
The objective of women's edition is to...

54 responses

- ● Advance the political interests of women at cost of men.
- ● Increase reporting on women's health & developement
- ● Begin discussion among the public and policy makers on issues of gender and...
- ● Organize the influential celebrities and policy makers o...

Pie chart segments: 27.8%, 11.1%, 22.2%, 38.9%

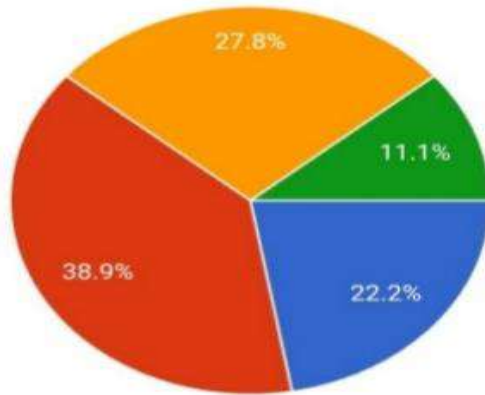## People and instyle demonstrated that...

58 responses

- ● Women consumers are mostly interested in fashion and celebr...
- ● Women are an important demographic market...
- ● There was no need to develop women specific media.
- ● Women were already influential in traditio...
- ● Women consumers are mostly intereste...

Pie chart segments: 24.1%, 10.3%, 5.2%, 17.2%, 43.1%
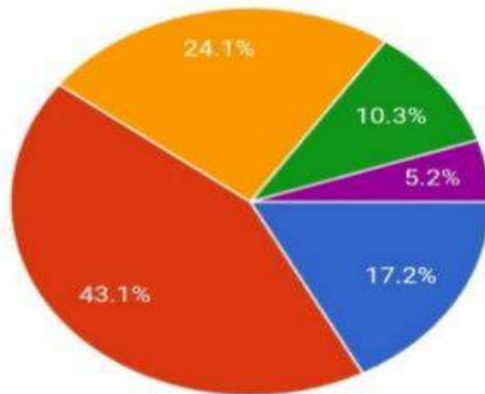
The objective of women's edition is to...

54 responses

- ● Advance the political interests of women at cost of men.
- ● Increase reporting on women's health & developement
- ● Begin discussion among the public and policy makers on issues of gender and...
- ● Organize the influential celebrities and policy makers o...

Pie chart values: 27.8%, 11.1%, 22.2%, 38.9%

People and instyle demonstrated that...

58 responses

- ● Women consumers are mostly interested in fashion and celebr...
- ● Women are an important demographic market...
- ● There was no need to develop women specific media.
- ● Women were already influential in traditio...
- ● Women consumers are mostly intereste...

Pie chart values: 24.1%, 10.3%, 5.2%, 17.2%, 43.1%

Group Members Name And Roll No:-

- Saroj Kumari Malviya   21305A0001

- Ishan jakka   21305A0002

- Vaibhavi hande   21305A0003

- Vighnesh thube   21305A0004

- Harsh cheulkar   21305A0005

- Shreyash haralkar   21305A0006

- Devraj kadam   21305A0007

- Manasi nair   21305A0008

- Ankita Yadav   21305A0009

- Sonal Jamsandekar   21305A0010

Index page

Introduction

Demography is the statistical and mathematical study of the size, composition, and spatial distribution of human populations and how these features change over time. Data are obtained from a census of the population and from registries: records of events like birth, deaths, migrations, marriages, divorces, diseases, and employment. To do this, there needs to be an understanding of how they are calculated and the questions they answer which are included in these four concepts: population change, standardization of population numbers, the demographic bookkeeping equation, and population composition.

Meaning

The demographic composition refers to the proportion or number of people who can be identified according to a certain characteristic. The demographic composition provides a mathematical description of the people living in a specific area.

Scope Of Demographic Composition

A. SIZE AND SHAPE OF POPULATION: -

Generally, the size of population means the total number of persons usually residing in a definite area at a definite time. The size and shape of population of any region, state or nation are changeable. It is because every country has its own unique customs, Specialities, social-economic conditions, cultural atmosphere, moral values, and different standards for acceptance of artificial means of family planning and availability of health facilities, etc.

B. ASPECTS RELATED TO BIRTH RATE AND DEATH RATE: -

Birth rate and death rate are the decisive factors that influence the size and shape of the population and therefore their importance in population studies is crucial. In addition to these, factors like marriage rate, belief regarding social status and marriage, age of marriage, orthodox customs related to marriage, early marriage and its effects on the health of the mother and the child, child infanticide rate, maternal death, still birth, resistance power, level of medical services, availability of nutritious food, purchasing power of the people, etc. also affect the birth and death rate.

C. COMPOSITION AND DENSITY OF POPULATION : -

In the subject matter of demography, the study of composition and density of population is important. In the composition of population factors like the sex ratio, race wise and age- group wise size of population, the ratio of rural and urban population, distribution of population according to religion and language, occupational distribution of population, agricultural and industrial structure and per sq. km. density of population are very important.

D. SOCIO-ECONOMIC PROBLEMS : -

Out of the many problems relating to population growth, the effects of high density due to industrialization in the urban areas are of more importance as they affect the socio-economic life of the people. Problems like slum areas, polluted air and water, crime, addiction to liquor, juvenile delinquency, and prostitution, are also important subjects of study in demography.

Objective of demographic composition

➢ Objectives of Demography: To achieve knowledge about the size, composition, organization and distribution of the population.

➢ To study the trend of population growth which describes the past evolution present distribution and future changes in the population of an area.

➢ To study the trend of population growth and the population distribution, which describes the trends of population and its relationships with the different aspects of social parameters like education level, extent of urbanization, employment, living standard, etc. in an area.

➢ To protect the future demographic evaluation and its probable consequences.

Methods For Demographic Composition

Demographic methods are used to provide researchers and policymakers with useful information about the size and structure of human populations and the processes that govern population changes. A population, of course, may range in size from a small number of individuals surveyed locally to a large national population enumerated in periodic censuses to even larger aggregated entities .

We use demographic methods not only in purely demographic applications, but also in a variety of other fields, among them sociology, economics, anthropology, public health, and business. Demographers, like all researchers, must pay careful attention to the quality of data that enter into their analyses. Some circumstances under which we use these methods are more trying than others. In cases in which the data are viewed to be accurate and complete, the methods we use to analyze them are more straightforward than those that are applied to data of imperfect quality.

The methods are: -

      1. There are two methods of data collection: direct and indirect. Direct data come from vital statistics registries that track all births and deaths as well as certain changes in legal status such as marriage, divorce, and migration (registration of place of residence). In developed countries with good registration systems (such as the United States and much of Europe), registry statistics are the best method for estimating the number of births and deaths.

      2. A census is the other common direct method of collecting demographic data. A census is usually conducted by a national government and attempts to enumerate every person in a country. However, in contrast to vital statistics data, which are typically collected continuously and summarized on an annual basis, censuses typically occur only every 10 years or so, and thus are not usually the best source of data on births and deaths. Analyses are conducted after a census to estimate how much over or undercounting took place. These compare the sex ratios from the census data to those estimated from natural values and mortality data.

      3. Google Forms is a survey administration software included as part of the free, web-based Google Docs Editors suite offered by Google. The service also includes Google Docs, Google Sheets, Google Slides, Google Drawings, Google Sites, and Google Keep. Google Forms is only available as a web application. The app allows users to create and edit surveys online while collaborating with other users in real-time. The collected information can be automatically entered into a spreadsheet.

We did a google survey for demographic composition of our classroom, the responses are as follow: -

- ❖ This survey was conducted to study the demographic composition of the students in our classroom. The questionnaire was based on age, gender, family background, annual income and marital status.

- ❖ Out of 101 responses 51.5% were females and 48.5 % were the males. (gender)

- ❖ Most of family had 4 member in their family (member in your family)

- ❖ 93.1% were from the age group of 15 to 35 that is youth and 5% were from the middle age group (Age)

- ❖ There are a 91.1% people are unmarried and 6.9% are married (marital status)

- ❖ 47.5 % of family had one working member and 33.7% had two employed family members (working F.M)

- ❖ 33% people had 2 children in their family and 25 % people had one child in their family and 22% people had zero children in their family (no of child)

- ❖ There is 8.9 % people had 1 adult in their family and There is 36.6% people had 2 adults are in their family and 21.8 % people had 3 adults are in the family (no of adults)

- ❖ We also get to know the annual income of the respondents. 29 % people have annual income between 0 to 1 lakh and 25 % people have annual income between 1 lakh to 2,50,000 and more 25% people had 2,50,000 to 5 Lakhs and 16% people had 5 lakhs to 7,50,000. (Annual income)

Recommendations

- As we did this presentation, we can find flaw in the survey. Surveys are of a smaller size than a census, which allows for collection of more in-depth information that can then be generalized. But also, Surveys are less expensive than censuses and civil registration (smaller size allows for quick collection of more in-depth information than any of the other two systems). Though it has its own pros and cons, it didn't give a clear idea as we would've got by the census method

Conclusion

❖ Demographic Needs Theoretical Foundations. It Does Not Need Theory as A Goal in Itself.

❖ It Need Profound Theories to Produce the Statistics on The Events and States That from The Core of a Discipline Whose Task Is to Describe Populations and Population Changes.

❖ At Least, It Does Not Need Much Behavioral Theory in This Respect

❖ But It Does Need Behavioral, Theoretical Backgrounds to Place Demographic Phenomena and Demographic Change in A Perspective.

❖ Allows Their Adequate Interpretation

❖ The Value of This Study Is Situated in The Provision of An Interpretive Framework to Answer This Question.

❖ Demography Has a Variety of Theoretical Backgrounds, but as yet these Are Not Sufficiently

References

➢ https://thefactfactor.com/facts/pure_science/biology/demography/1838/

➢ https://www.rug.nl/research/portal/files/14526236/c9.pdf

➢ https://www.researchgate.net/publication/281208742_Demographic_recommendation_by_means_of_group_profile_elicitation_using_speaker_age_and_gender_recognition

And reference from public by google survey form

Survey link : -
https://docs.google.com/forms/d/1F93UV2IVKrKZ1e1M0am7t1PwPg0a2WS4sj_9j97dKpQ/edit

Survey result :-
https://docs.google.com/spreadsheets/d/1VdWhmeTPylIRGNMK4qJ7jx20WHviHcIjhvcKCP_rtl0/edit

Thank you !!!

Vidyalankar School of Information Technology (VSIT).

THE DISPARITIES ARISING OUT OF GENDER WITH SPECIAL REFERENCE TO VOILENCE AGAINST WOMEN.

BACHELOR OF ACCOUNTING AND FINANCE

Gausia Fakki	**21305A0023**
Madhura More	**21305A0024**
Omkar Salokhe	**21305A0025**
Ankita Kesarwani	**21305A0026**
Nisha Kurmi	**21305A0027**
Shruti Torne	**21305A0028**
Smruti Mekal	**21305A0029**
Aarya Khandpekar	**21305A0030**
Lav Mane	**21305A0031**
Pravalika Pasikanti	**21305A0032**
Pradnyesh Bhosale	**21305A0033**
Mallika Nagvekar	**21305A0035**

Under the guidance of

Ms. Sidra Usmani

Assistant Professor

Date of Submission: 11 December 2021

INDEX

INTRODUCTION

The relationship between gender and violence is complex. The different roles and behaviors of females and males, children as well as adults, are shaped and reinforced by gender norms within society. These are social expectations that define appropriate behavior for women and men (e.g. in some societies, being male is associated with taking risks, being tough and aggressive and having multiple sexual partners).

Difference in gender roles and behaviors often create inequalities, whereby one gender becomes empowered to the disadvantage of the other. Thus, in many societies, women are viewed as subordinate to men and have a lower social status, allowing men control over, and greater decision-making power than, women. Gender inequalities have a large and wide-ranging impact on society. For example, they can contribute to gender inequities in health and access to health care, opportunities for employment and promotion, levels of income, political participation and representation and education. Often inequalities in gender increase the risk of acts of violence by men against women.

They also hinder the ability of those affected to remove themselves from abusive situations or seek support. Violence against women is most often perpetrated by an intimate partner, but it takes many other forms: violence by a family member, sexual harassment and abuse by authority figures, trafficking for prostitution, child marriages, dowry-related violence, honor killings, sexual violence committed by soldiers during wars and so on. Health consequences of such

violence range from physical injuries and unwanted pregnancies to sexually transmitted infections (including HIV), emotional problems such as anxiety and depression and (in extreme cases) homicide or suicide. For decades, therefore, promoting gender equality has been a critical part of violence prevention.

This has included interventions that confront the entrenched beliefs and cultural norms from which gender inequalities develop, and efforts to engage all sectors of society in redressing these inequalities, both of which are thought to reduce gender-based violence. Despite the long history and high visibility of such measures, however, few have been subject to any kind of scientific evaluation. This briefing reviews some of the most promising methods of promoting gender equality and their effectiveness in reducing violence towards women. There are many types of violence against women, but this briefing focuses specifically on interventions to prevent violence by intimate partners and during dating, as these have been evaluated more than other interventions in this area.

This has included interventions that confront the entrenched beliefs and cultural norms from which gender inequalities develop, and efforts to engage all sectors of society in redressing these inequalities, both of which are thought to reduce gender-based violence. Despite the long history and high visibility of such measures, however, few have been subject to any kind of scientific evaluation. This briefing reviews some of the most promising methods of promoting gender equality and their effectiveness in reducing violence towards women. There are many types of violence

against women, but this briefing focuses specifically on interventions to prevent violence by intimate partners and during dating, as these have been evaluated more than other interventions in this area.

Laws and policies to promote gender equality. The development of international and national legal frameworks that promote gender equality can play an important role in preventing violence against women. Internationally, a number of human rights agreements require states to take measures to eliminate gender-based violence against women. These include the Convention on the Elimination of All Forms of Discrimination Against Women; the International Covenant on Civil and Political Rights; and the International Covenant on Economic, Social and Cultural Rights. Significant changes are also underway worldwide to strengthen national laws and policies. Among them are laws that criminalize violence against women (e.g. intimate-partner violence, rape in marriage, trafficking for prostitution); laws and policies that support and protect those affected (e.g. implementing protection orders, child and family protection units, specialized response teams, women's shelters and family courts); improving the response of police and other criminal justice officials towards cases of violence against women; and improving women's rights in marriage, divorce, property ownership and inheritance and child support.

OBJECTIVES

Media interventions use television, radio, the Internet, newspapers, magazines and other printed publications to reach a wide range of people and effect change within society. They aim to increase knowledge, challenge attitudes and modify behavior. Media interventions can also alter social norms and values (e.g., the belief that masculinity is associated with aggression) through public discussion and social interaction. Media campaigns have proven successful in increasing knowledge of intimate partner violence and influencing attitudes towards gender norms, but less is known about their ability to reduce violent behavior, as it is difficult to measure potential changes in levels of violence associated with media interventions.

Research shows, however, that the most successful media interventions are those that begin by understanding the behavior of their audience and engaging its members in developing the intervention. One of the best-known and most carefully evaluated media programs is Soul City in South Africa. This uses a series of radio and television episodes to highlight intimate partner violence, date rape and sexual harassment, among other social problems. The series is accompanied by information booklets that are distributed nationally. An evaluation of the fourth series, which focused on gender-based violence, used a random sample of the national population and conducted two sets of interviews, eight months apart: before and after the intervention.

PROCEDURE AND METHOD

The methodological approach of this research follows a mixed method, which combines both, qualitative and quantitative components, and integrates these two forms of data using distinct philosophical assumptions and theoretical frameworks. The core assumption and a key feature of the chosen inquiry is that the combination of qualitative and quantitative approaches provides a more comprehensive and thorough understanding of a research problem than either approach alone.

As for data collection, initially a content analysis was conducted aimed at detecting the frequency of the occurrence of this social phenomenon and the reality of the IPV problem, within which the secondary data was collected at the first stage of the work. The research paper refers to data from the findings of the UNICEF Multiple Indicator Cluster Surveys (MICS), UN Women Global Database on Violence against Women, WHO, OSCE, and also consists of in-depth interviews with representatives of the NGOs dealing with gender issues and experts in this field. To investigate and explain trends, good practices and priorities in combating IPV, –a case study is used as fundamental tool of analysis.

The use of the case study method allows us to closely scrutinize measures that are strongly influenced by gender equality impacts and how they are conceptualized. In addition, this approach allows for a careful examination and focuses on not only exploring and describing phenomena but also explaining causal relationships within the phenomena both at the surface and in its in-depth.

Obtaining high quality data on IPV is a complex task, especially in terms of accessibility and reliability, since the nature of the examined phenomenon is very private and carries intimate content. Furthermore, it is challenging to identify and measure violence in rural areas of Georgia. Because the definition and scope of the term 'violence' vary in different cultures in rural communities due to a number of different reasons it is interpreted differently. For example, only those behaviours which cause serious physical injury might be considered as violent.

The current practice of violence against women by intimate partners can be divided into two factor groups: 'Hard' practice of physical and psychological (verbal) violence (for example beating, killing, isolation, intimidation, and controlling behaviour) 'Light' practice of the psychological (verbal) violence (for example screaming, swearing, negative addressing, etc.)

Both group factors are included in our baseline research along with factors of the 'women-blaming' explanation which is not only an essential part but also overlaps with our chosen approaches. Furthermore, the questions in our paper also reflect different approaches and the relationship between egalitarianism, dominance, and IPV within the context of partner's dynamics.

GENDER INEQUALITY IN PRACTICE:-

  • There is no country where women and men are equal in all spheres of life. Women and girls are given inferior status and protection before the law, limited and restricted access to services (health, financial, education), unequal access to and control over resources including land, property and income, less food, poverty and marginalization.

 • There is compelling evidence that gender is the most significant predictor of poverty and powerlessness.

• This discrimination happens because of the belief that, because of their gender, women are inferior to men, and therefore should not be treated equally.

CONCLUSION

The commission reaffirms that the convention on the elimination of all forms of discrimination against women the convention on the rights of the child and the optional protocols there to, as well as other relevant convention and treats, provide an international legal framework and a comprehensive set of measures for the elimination and prevention of all forms of discrimination on violence against women and girls, as a cross cutting issued addressed in different international instrument.

The commission reaffirms that the convention on the elimination of all forms of discrimination against women the convention on the rights of the child and the optional protocols there to, as well as other relevant convention and treats, provide an international legal framework and a

comprehensive set of measures for the elimination and prevention of all forms of discrimination on violence against women and girls, as a cross cutting issued addressed in different international instrument.

RECOMMENDATION

Member States must:

• Address gender inequality as a core element of efforts to tackle violence against women.

• Develop policies and programs to promote education for women and girls as a means of empowering and protecting them and achieving gender equality in society, along with programs to address potential backlash.

• Ensure that programmers to eradicate extreme poverty and hunger are designed specifically to promote women's economic participation, independence and sexual and reproductive autonomy, and incorporate linkages to programs to prevent violence and provide services to female survivors of violence.

• Involve men and boys in programs to prevent violence against women.

BIBLIOGRAPHY

- Website: http://www.ra-un.org

- The agreed conclusions adopted by the Commission are transmitted to the Economic and Social Council, in accordance with the Council resolution 2008/29 of 24 July 2008, as an input into the annual ministerial review and the development cooperation forum.

GLOSSARY

Homicide : The killing of one person by another.

Entrenched : Establish (an attitude, habit, or belief) so firmly that change is very difficult or unlikely.

Prerequisite : A thing that is required as a prior condition for something else to happen or exist.

Reinforce : Strengthen or support (an object or substance), especially with additional material.

Linkages : The action of linking or the state of being linked.

Morbidity : The condition of suffering from a disease or medical condition.

GOOGLE SURVEY

- We created a questionnaire in the form of google survey, we shared the link of it via WhatsApp. The survey was conducted on Disparities arising out of genders and violence against women.

- We did a google survey to know how people think about the disparities towards gender and violence against women.

Google survey result

1) These 7 strategies are effective for preventing violence against women:

• Relationship skills strengthened

• Empowerment of women

• Services ensured

• Poverty reduced

• Environments made safe

• Child and adolescent abuse prevented

• Transformed attitudes, beliefs, and norms

True

False

80.8% is on True

2) We find more women's are working in hospitals as a nurse because they:-

• are available

• are women

• are gentle and caring

• are qualified

70.4% is on are gentle and caring

3) At which age group women's are highly suffering from domestic violence :-

• 11-17

• 18-24

• 25-34

• 35-44

70.4% is on 18-24

4) Gender inequality occurs when men have a higher status over women and have the ability to control women in different spheres of life :-

• True

• False

77.8% is on True

5) Household chores of women includes:-

• to cook

• to wash clothes

• to sweep

• all of the above

84.6% is on all of the above

6) We can help women to get equal rights or equal status in Society by:-

• educating them with progressive ideas

• making them ignore household work

• fighting with men

• providing them more work

81.5% is on educating them with progressive ideas

7) What is really a domestic violence against women is :-

• Emotional abuse

• Physical abuse

• Sexual abuse

• All of the above

77.8% is on All of the above

Vidyalankar School of Information Technology

ISSUES OF PEOPLE WITH PHYSICAL DISABILITY

Under the guidance of miss. Sidra Usmani

Name	Roll no.
SAMEER NAIKAWADI	21305A0047
ARYAN PALAV	21305A0049
AMOGH LAD	21305A0050
HARSH GAWLI	21305A0051
SHRUTI NANGARE	21305A0052
ANAGHA MESTRY	21305A0053
ROUNAK ANSARI	21305A0054
KHUSHI GOSAR	21305A0055
SHIVPRASAD GUPTA	21305A0056
ASHISH YADAV	21305A0057

COURSE- FOUNDATION COURSE
DIVISION-A
BATCH-1
PROF.-SIDRA USMANI

INTRODUCTION

- ❖ A physical disability limits a person's ability to perform various activities and abilities.
- ❖ Disability plays an important role in the context of breast cancer, since it is a constant reminder of the illness and affects psychosocial health, sexuality, and employment
- ❖ Physical disabilities affect the physical body that effect can include conditions such as brain injuries, and amputations severe respiratory and cardiac diseases can also affect mobility.
- ❖ Physical disabilities often face major obstacles within social environment. A physical disability is a limitation on a person physical functioning mobility.
- ❖ Physical disabilities can be major impediment to participating in normal society. Being able use a effortlessly is particularly a basic literacy skill required for employment these day.
- ❖ Disabilities can be take sever psychological toll. To be disabled means to have lost a range of functioning or to never have acquired that functioning in the first place.

Objectives

A common barrier is society's expectation that people with disabilities can't perform up to "standard", or if they do, they are somehow courageous or exceptional.

 This attitude has the effect of patronizing people with disabilities.

- ❖ which Often relegates them to jobs with lower standards & less pay;
- ❖ Limits their options for housing, education, transportation, and employment;*
- ❖ Makes them appear as "expendable" in the eyes of legislators;
- ❖ A shift in your mindset about the disability. Overcoming does not necessarily have to mean that you get rid of your disability completely
- ❖ If that is an option for you, then you should make that your goal. But in other cases, your disability might be something that you'll have to accept and learn to live with

The Disability Discrimination Act

The DDA (2005) made further amendments by:

- ❖ Widening the definition of who may be a disabled person
- ❖ Bringing general qualifications bodies under the Act
- ❖ Introducing a duty to promote disability equality on the public sector; the Disability Equality Duty (DED).
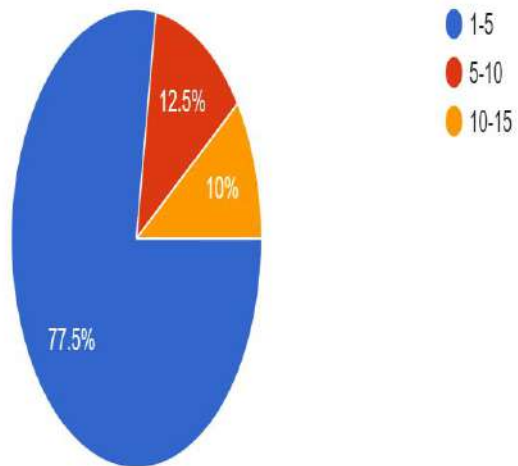
Procedure or Method

- In working with all people, it is important to promote independence. This is no different when working with people with physical disabilities.

- While they may have some limitations, such as not being physically able to walk or feed their selves this does not mean that a person with a physical disability is unable to be in dependent in all ways.

- Caring for an adult with a physical disability is the same as caring for any other adult in the sense that they have the same basic needs.

- They need food, water, safety, love, a sense of belonging within their family and community and to develop a sense of independence . Unlike other adults, they may require additional care.

- Be patient and kind. Allow time for tasks to be completed and don't rush the patient.

- When people feel they are working with someone who is patient and who gives them time to complete a task, they are more willing to try to do it themselves.
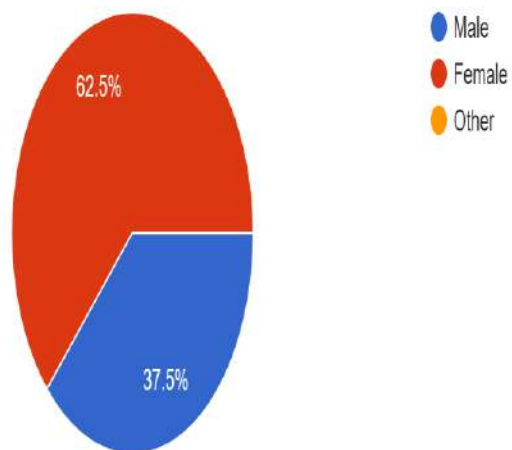
Survey

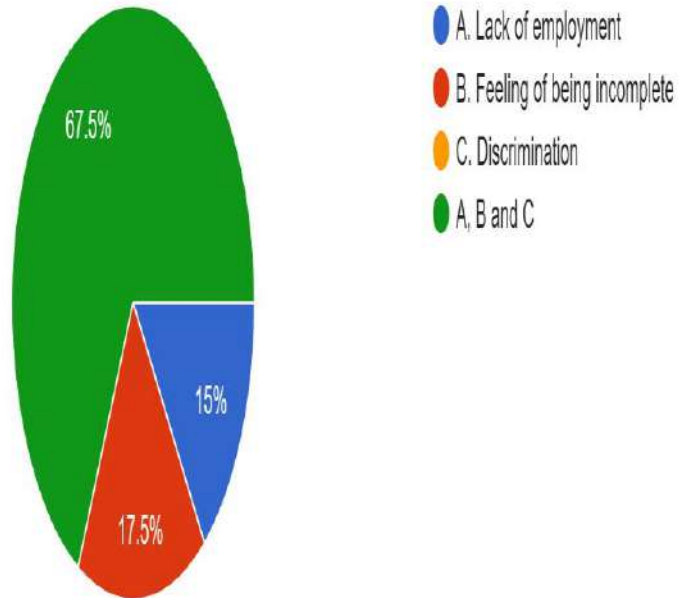How many disable people are in you area

40 responses

- 1-5
- 5-10
- 10-15

12.5%

10%

77.5%

Gender

40 responses

- Male
- Female
- Other

62.5%

37.5%

What are the difficulty face by them

40 responses

- A. Lack of employment
- B. Feeling of being incomplete
- C. Discrimination
- A, B and C

67.5%

15%

17.5%

Have you ever helped any disability person
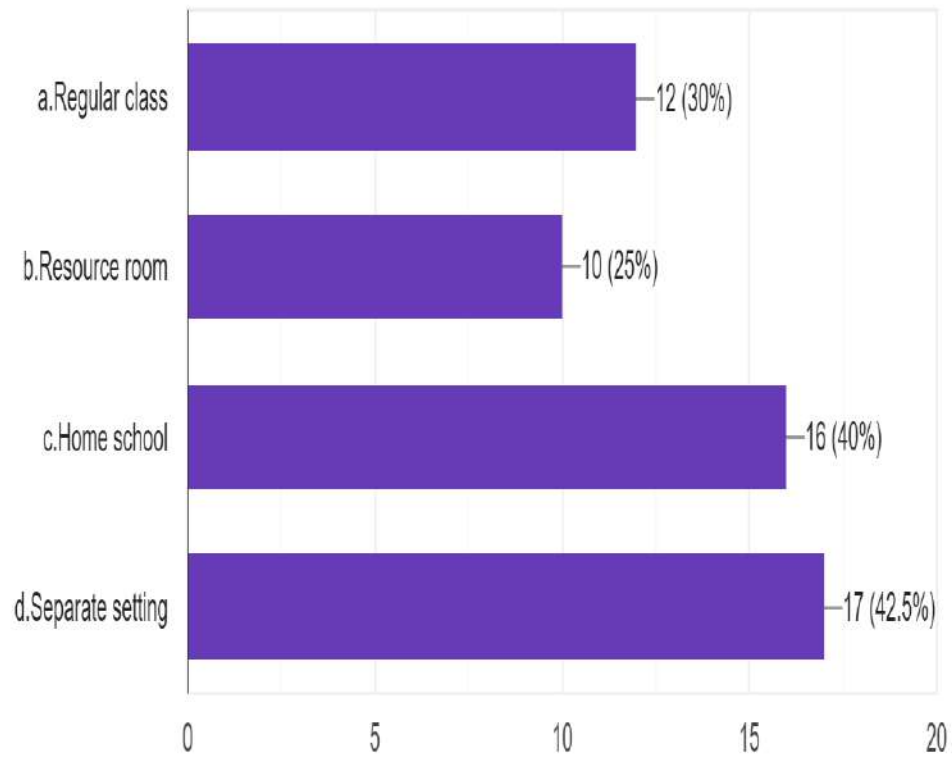
40 responses

- Yes
- No

22.5%

77.5%
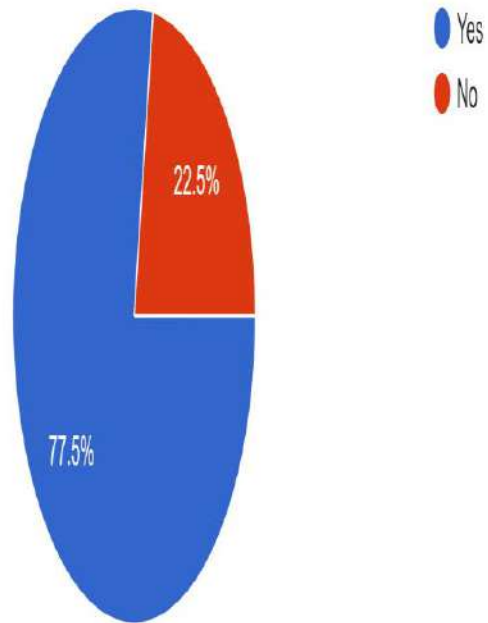
What helps do they get from government

40 responses
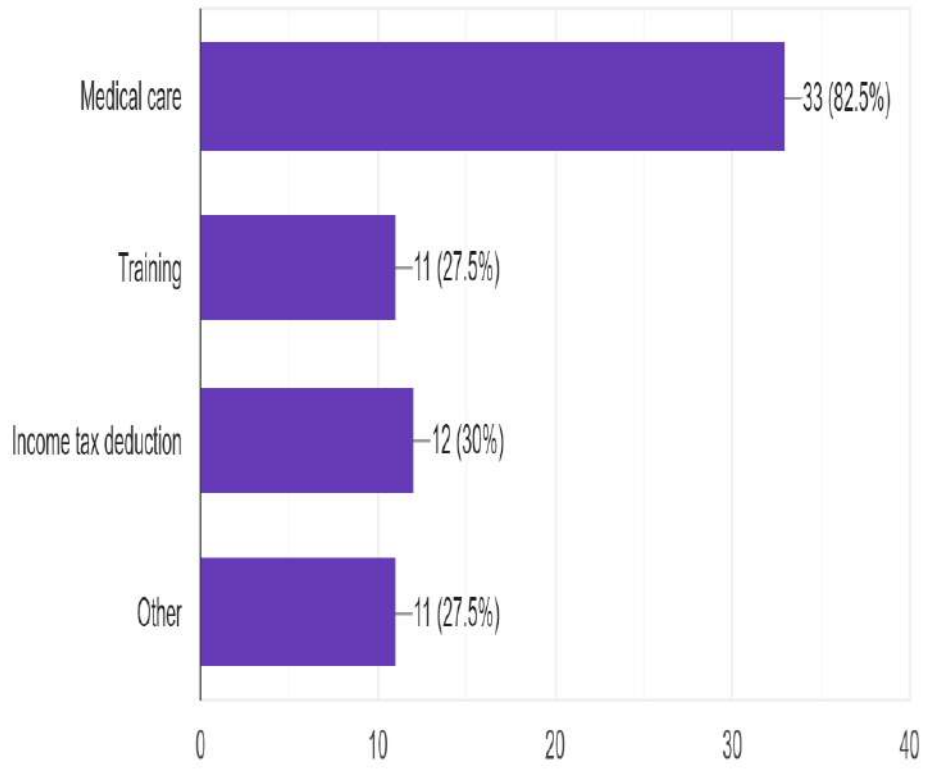
The most common educational placement for students with physical disabilities is

40 responses

Recommendations

Always treat people with disabilities as equals. All people want to have friends, fun, and experience life to the maximum. Never be afraid, skeptical, or embarrassed to approach someone with a disability. People with disabilities have just as much fun!

Do not stare. Sometimes it is an eye-opening experience to see someone with a disability in public. However, people with disabilities have lives just like everyone else. You are certainly allowed to look, but do not stare at a person with a disability.

CONCLUSION

The Physical Disability Strategy is in response to an identified need for people with disabilities who live in the Middlesbrough area to improve their quality of life.

The population of disabled people is highly diverse and includes people from all age groups and from widely differing cultural, religious and social backgrounds who rightly expect the same life opportunities as all other members of society.

References

- UN General Assembly, *Convention on the Rights of Persons with Disabilities : resolution / adopted by the General Assembly*, 24 January 2007, A/RES/61/106, available at: https://www.refworld.org/docid/45f973632.html [accessed 27 December 2020]

- https://courses.lumenlearning.com/suny-home-health-aide/chapter/working-with-people-with-physical-disabilities/

- https://www.cdc.gov/ncbddd/disabilityandhealth/disability-strategies.html

Vidyalankar School of Information Technology.

EXAMINE THE CAUSES AND EFFECTS OF CONFLICTS ARISING OUT OF REGIONALISM AND LINGUISTIC DIFFERENCES

BACHELOR OF ACCOUNTING AND FINANCE

BY

<u>NAMES & ROLL NOS: -</u>

1.	Arsalan Mukadam	21305A0058
2.	Prerana Kamble	21305A0059
3.	Rasika Pandit	21305A0060
4.	Samiksha Waghmare	21305B0001
5.	Nandani Deswan	21305B0002
6.	Shivam Singh	21305B0003
7.	Piyushbhai Sahu	21305B0004
8.	Tarun Yadav	21305B0005
9.	Kamalvanshi Pillai	21305B0006
10.	Karan Nirmal	21305B0007
11.	Rahul	21305B0008

Under the Guidance of

Ms. Sidra Usmani

Assistant Professor

Date of Submission - 11/12/2021

INTRODUCTION

- There are various aspects that unite the people living in a particular region. A region is characterized by a language, culture, demographic composition, geographical features, social, historical, and political backgrounds. Hence a person tends to be very loyal to a distinct region more than to the country

- India is a multi-lingual country. It is a nation of 28 states and 7 union territories where as many as 1652 languages are spoken and of these 18 languages are recognized as official languages in the 8th schedule of the Constitution.

- Regionalism is a political ideology that focuses on the national or normative interests of a particular region, group of regions or other subnational entity. The rise of regionalism in India is due to diversity and variation in the India economic and social culture.

- In this article, we have explained the term regionalism and what are the reasons behind the birth of Regionalism in India, which is very useful for the competitive examinations like UPSC-prelims, SSC, State Services, NDA, CDS, and Railways etc.

- Language is closely related to culture and therefore to the customs of people. Besides, the massive spread of education and growth of mass literacy can only occur through the medium of the mother tongue.

- Democracy can become real to the common people only when politics and administration are conducted through the language they can understand.

- Since independence in 1947, linguistic affinity has served as a basis for organizing interest groups; the "language question" itself has become an increasingly sensitive political issue.

OBJECTIVE:

- In 1950, the states were reorganized on linguistic basis.

- As a result, the domiciles of a particular state speak a particular language. Therefore, India has become a land of many tongues and has been called "as a tower of veritable languages" or a "Museum of languages" or a "linguistic madhouse".

- In Languish English shall be used for communication between the Union Government and a state which has not adopted Hindi as it's official language and where Hindi is used for communication between one state and the other which has not adopted Hindi as its official language, then such communication in Hindi shall be accompanied by an English translation therefore.

- The Government of India has taken several steps for the popularization of Hindi language amongst the non-Hindi speaking people, particularly, its employees. Special efforts are now being made in non-Hindi speaking States to teach Hindi, that Hindi language may serve as a medium of expression for the elements of the composite culture of India.

- Regionalism is the expression of a common sense of identity and purpose by

people within a specific geographical region, united by its unique language, culture, language, etc.

- In a positive sense, it encourages people to develop a sense of brotherhood and oneness which seeks to protect the interests of a particular region and promotes the welfare and development of the state and its people

- In the negative sense, it implies excessive attachment to one's region which is a great threat to the unity and integrity of the country.

- Region as a geographical unit, is delimited   form each other. Region as a social system, reflects the relation between different human beings and groups. Regions are an organized cooperation in cultural, economic, political or military fields. Region acts as a subject with distinct identity, language, culture and tradition.

METHODS AND PROCEDURE:

- For the general terminologies and the concept regionalism, the data was collected from the google search engine

- The data then collected was accordingly classified and organized based on its relevant

- Its majority includes the objectives, meaning, and the introduction to the concept of regionalism and linguistic barriers

- We took the information from the book linguistic regionalism in eastern Europe and beyond

- There exist several groups in India that hold different identities as Indian

society multi- regional, multi- lingual, multi-ethnic, multi religious as cultural Hence differences are to occur among these groups from time to time giving rise to conflict and strife. It is this diverse nature of our country that is responsible for creating social and economic disparities among our people.

- The causes of regional disputes basically lay in the inter-state disparities and are briefly explained as follows: There are inter-state disparities in the per capita incomes of various states. Certain states like Maharashtra, Punjab, Gujarat enjoy higher levels of Per Capita Income while the BIMARU states i.e., Bihar, Madhya Pradesh and Orissa have low levels of PCI. The gap in purchasing power creates discontent.

- Older event in the post independent period was considered as a case study to be more prevalent

- You-Tube videos that clarified concept were used as a tool to frame the questions regarding the concept of regionalism and linguistic concept

- Late google forms were used to take surveys to understand a general thought process of the society towards the regionalism and linguistic

- A wide array of aspects related to regional language designs are addressed, such as: linguistic rights, conflicting conceptualizations of linguistic regionalism, the role of the internet in identity modelling, the role of linguistics in language planning and research, etc.

- Language contact and conflict are seen as interdependently related elements applicable both to individuals and to language communities, yet these phenomena occur only between speakers of languages, not between languages .

- Many regionalisms [in the U.S.] are relics," notes R.W. Burchfield: "words brought over from Europe, chiefly the British Isles, and preserved in one area or another either because of the continuance of older ways of life in these localities, or because a particular type of English was early established and has not been fully overlaid or undermined

- In practice, dialect expressions and regionalisms often overlap, but the terms are not identical. Dialects tend to be associated with groups of people while regionalisms are associated with geography.

Google survey of topic :

Do you know about regionalism??

79 responses

- Yes
- No
- Maybe
- I am indian

84.8%

10.1%
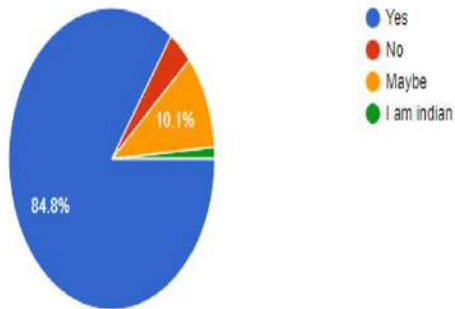
Which language should be considered as primary communicating tool in the region

79 responses

- Regional
- National
- State

58.2%

7.6%

34.2%
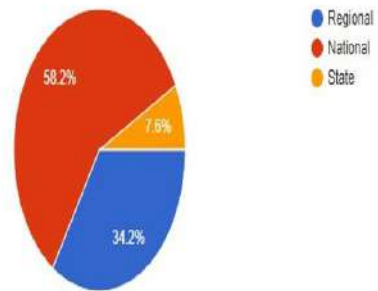
Should language based/regional politics be primary agenda or modern poltics??

75 response

- Yes
- NO
- Neutral

31.6%

51.3%

17.1%
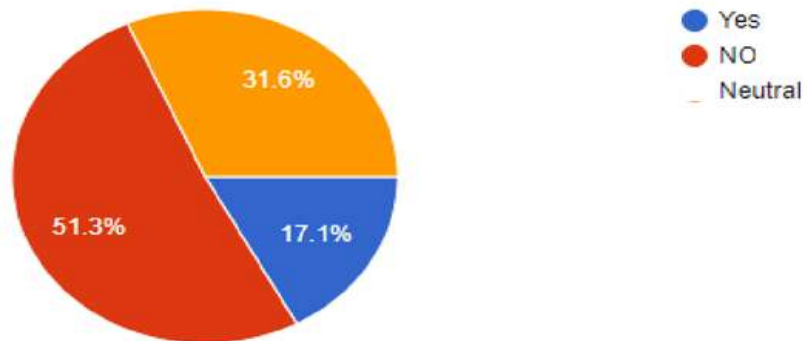
Does regionalism harm the identity of region?

Legend:
- ● Yes
- ● NO
- ● MAYBE

38.5%
28.2%
33.3%
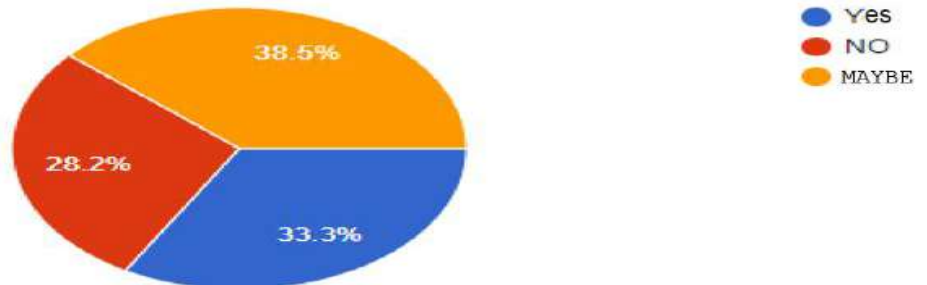
Which language should be considered as primary communicating tool in the region

75 response
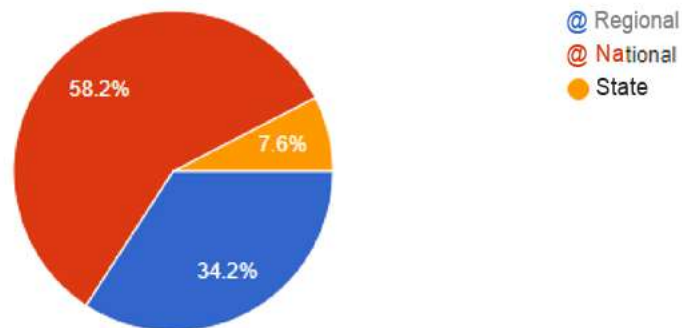
Legend:
- @ Regional
- @ National
- ● State

58.2%
7.6%
34.2%

Will you be able to adopt the regional language and culture if you moved or migrate to another region??

75 responses

Legend:
- ● Yes
- ● NO
- ● Maybe

33.3%
25.3%
41.3%
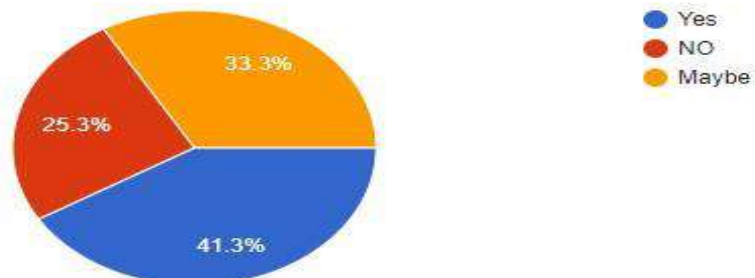
What is the official language in India??

78 responses
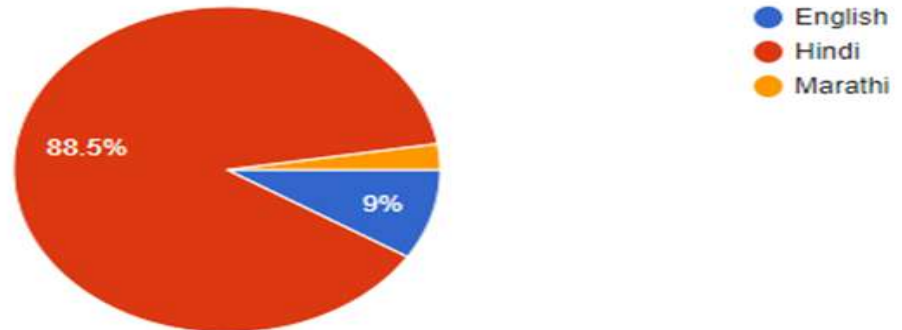
- English
- Hindi
- Marathi

88.5%

9%

Will you be able to adopt the regional language and culture if you moved or migrate to another region??

75 responses

- Yes
- NO
- Maybe

33.3%

25.3%

41.3%
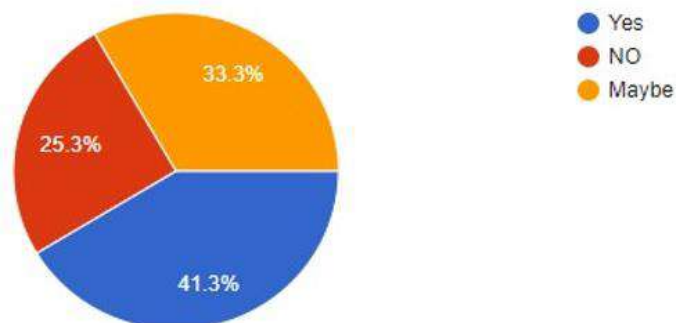
Is it to be made mandatory for one should know the regional languages and culture first then the other language and culture ??

78 responses

- Yes
- NO
- Neutral

29.5%

30.8%

39.7%
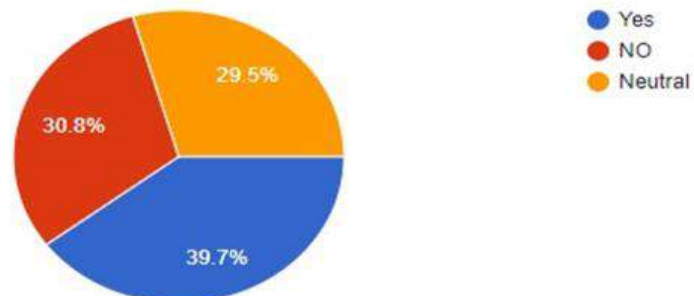
How does the regionalism affects the integrity of India ??

76 responses
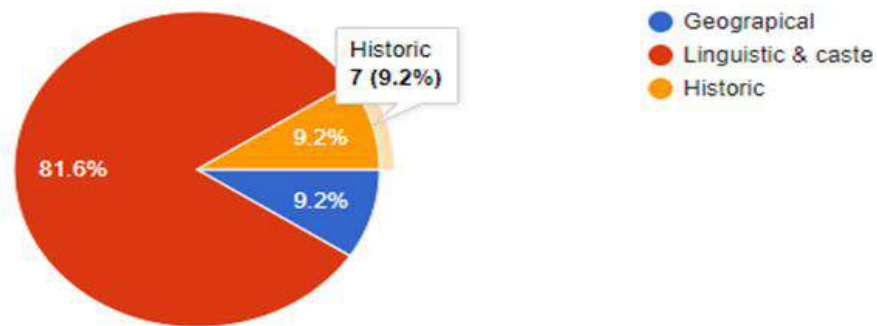
RECOMMENDATION:

- In practice, dialect expressions and regionalisms often overlap, but the terms are not identical.

- Dialects tend to be associated with groups of people while regionalisms are associated with geography.

- To overcome the issues and conflicts and try to develop as a wholesome nation together

- Regionalism cannot be good for a democratic country like India. In a country like ours, where we have multi-racial cultures, languages and traditions, the color of India is made of all this. India's glory lies in its diversity, but it does not mean that one region or state is supported and other is kept deprived.

CONCLUSION:

- Regionalism is one aspect of the process of globalization and different parts of the globe are looking for different ways to accommodate themselves within the globalized world and regional arrangements are one important way of doing so.

- The creation of regional governance structures is not a contradiction of globalization but the expression of local attempts to accommodate and respond to its challenges.

- Despite the observation of a global trend wards greater regionalism, important differences remain between the depth and the scope of regional institutions that develop in different parts of the globe

REFERENCES:

❖ **survey form :**

https://docs.google.com/forms/d/e/1FAIpQLSfnJyTDq01dX3G - xy3F56lqssoQGu8K9-Q4VIwfsvDBgW5lLA/viewform?usp=sf_

THANK YOU…

<u>Vidyalankar school of Information Technology.</u>

CHALLENGES FACED BY MENTALLY DISABLED PEOPLE

BACHELOR OF ACCOUNTING AND FINANCE

BY

<u>NAME AND ROLL NO</u>

1. **KHUSHI DICHOLKAR -   21305B0019**

2. **SAMIKSHA CHAVAN -   21305B0009**

3. **SIDDHI SAWANT -   21305B0011**

4. **NAVED WARSI -   21305B0013**

5. **SANSKRUTI WAGHMARE- 21305B0018**

6. **AYUSH WAGHMARE -   201305B0017**

7. **PRIYANSHU KORI   -   21305B0012**

8. **KUMARI NIDDHI YADAV - 21305B0010**

Under the guidance of

MS. Sidra Usmani.

Assistant Professor

Date of Submission – 11/12/2021

Index

2. INTRODUCTION

In our daily life, we face various challenges which show us the limit of our human nature. When we face those challenges and overcome them, we truly become God's greatest creation. Scott Hamilton said that "The only disability in life is a bad attitude." This kind of mentality is what is required for everyone who wants to find happiness in life. No benefit comes from thinking over spilled milk, one should always have a positive attitude and know that there is light at the end of the tunnel.

Mental health is a state of well-being in which a person understands his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community. Both physical and mental health are the result of a complex interplay between many individual and environmental factors, including: family history of illness and disease/genetics lifestyle and health behaviours (e.g., smoking, exercise, substance use)levels of personal and workplace stress exposure to toxins exposure to trauma personal life circumstances and history access to supports (e.g., timely healthcare, social supports)coping skills When the demands placed on someone exceed their resources and coping abilities, their mental health will be negatively affected Economic hardship, unemployment, underemployment and poverty also have the potential to harm mental health.

A mental disorder, also called a mental illness or psychiatric disorder, is a behavioural or mental pattern that causes significant distress or impairment of personal functioning. Such features may be persistent, relapsing and remitting, or occur as single episodes. Many disorders have been described, with signs and symptoms that vary widely between specific disorders. Such disorders may be diagnosed by a mental

Other names for mental Disability

1. Psychiatric disorder
2. Psychological disorder
3. Mental illness
4. Mental disease
5. Mental breakdown
6. Nervous breakdown

2. Aims and objective

1. To identify and Rehabilitate the persons with Mental Retardation .To provide the Education for the Children with Mental Retardation.
2. To provide the Vocational Training and Job placement for the persons with mental retardation .To provide the residential facilities.
3. To integrate the mentally handicapped children with normal children .It will raise the funds through donations from organizations and individuals.
4. To improve the over all quality of life of the rural people and weaker sections of the society, particularly disabled, women, children and aged.
5. To undertake and participate in programmes pertaining to health, education, employment, and rehabilitation of the disabled.
6. To seek the collaboration and co-operation of other voluntary and Government agencies for development activities and programmes.
7. To conduct and or participate in seminars, camps, conferences, research and training programs.
8. To aid and support deserving persons with disabilities and the aged wherever and whenever necessaries
9. To organise, undertake, co-ordinate guide, assist and promote integrated Rural Development approach.
10. To give orientation to participate towards developing modern self supporting Youth and Mahila Associations in the villages. To spread a sport culture among Rural Youth through co-operative and regular tournaments.
11. To help the rural innocent people in all activities and make them to participate in all existing Government programs through our societies activities.
12. To organise and undertake and develop Educational Institutions for needy and down trodden people, wherever and whenever necessary.
13. To mobilize and organise the Rural Community in awareness and general education for development activities.
14. To initiate and encourage the education of women, children and disabled on question regarding their rights and duties.

3. Challenges faced by mentally disabled people

1. Accessibility – The world around us is not a walk in the park. We have to face several obstacles in every step we take. This is much worse for physically disabled people. They mostly move around in wheelchairs or use crutches. So, moving around freely is not a luxury that they can afford. Moreover, the public places that we have, are rarely made keeping in mind the comfort of people with disabilities. There are no ramps, or the hallways are too narrow for them to move. Nowadays, many wheelchairs are automated, and buildings are constructing a private residential elevator to make the movement of the disabled people a little bit easier.

2. Education – education is a basic right for all humans, in a perfect world, education would be free and available to everyone, as dreamed by Gurudev Rabindranath Tagore, but the reality is far from it. A large number of children with disabilities remain out of school and thus they are deprived of basic education. They are not able to run the race of life like the other normal kids. To solve this issue, several education institutions have been opened which focuses on the education of these kids with special needs, they learn the Braille System and adaptive technology helps them lead a better life.

3. Access to healthcare – In a country of 1.3 billion people, the health care system is already very stretched. Poor people do not have access to proper healthcare and the people with disabilities are worse off. Often, people with intellectual disabilities are mistreated by the health workers and this makes matters worse. This can be only solved by proper awareness and empathy. The disabled people find the speck of good in these situations and help each other in whatever way possible. Thus, it is requested that everyone should make a donation to ensure NGOs are able to cater to their healthcare needs in a much better way.

4. Myths and stereotypes – Certain sections of the Indian population have had financial development in the last decades, there have been social upliftment and overall progress but still there remains a dark orthodox nature in our culture which seems to have stuck with us like a leech. When we interact with people with disabilities, we fall victim to certain myths that are born out of our lack of knowledge and empathy towards such people.
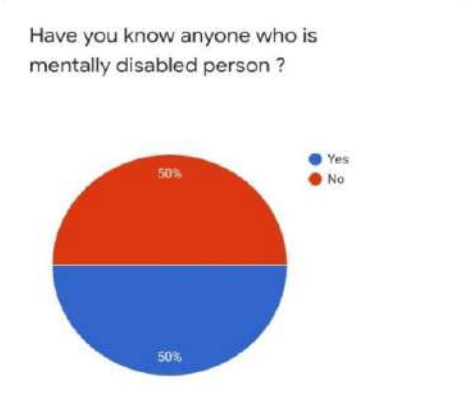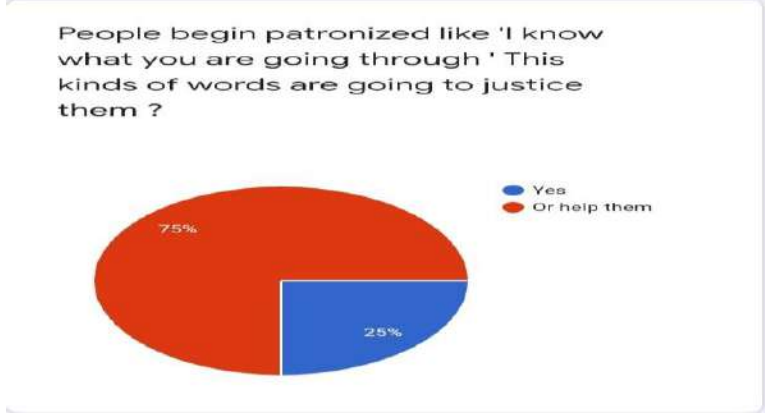
5. Feeling of being ignored – When we interact with a physically challenged person, it does not mean that, he is also suffering from visual or hearing impairment. This thought process often stops us from interacting and communicating with such people. These disability barriers need to be torn down, which is only possible for more awareness.

6. Lack of employment – Employment of any citizen is based upon his education and skills he has picked up along the way. When these people are deprived of basic education, they are bound to fall behind other candidates for that job. The government has introduced schemes which should guarantee jobs for disabled people.

7. Feeling of being incompetent – Disabled people need more time to do a particular work than other normal people. The disability barriers stop him from performing basic tasks with ease. This makes the person with disabilities that he is pulling his mates down and if filled with sorrow and anger.

8. Teased and abused – Often people find satisfaction in putting others down. They find superiority in bullying the weak and underprivileged. Disabled people often find themselves at the receiving end of such violent and disgusting actions.

9. Being patronized – People with special needs often hear things like, "I know what you are going through" or "I know this must be hard." These kinds of words never do justice to the problems those people face and the troubles they go through every day. A normal person can't know exactly what that person is feeling.

10. Relationships – Human beings are complicated. They judge others on a set of parameters that may or may not apply to all situations. These prejudices are the root cause of all mistrust and misunderstanding. Most disabled people are desired as life partners, this often brings sadness and loneliness to their live

4. RECOMMENDATION

All these issues can be dealt with if people become more understanding and have patience when they deal with people with special needs. Work for disabled should be made available, this will give them financial independence and provide them with satisfaction in life. We should make our surroundings more accessible to disabled people. The homes for the disabled should be designed in such a way that it is more comforting to them.All these issues can be dealt with if people become more understanding and have patience when they deal with people with special needs. Work for disabled should be made available, this will give them financial independence and provide them with satisfaction in life. We should make our surroundings more accessible to disabled people. The homes for the disabled should be designed in such a way that it is more comforting to them. Also, no matter how small the contribution is, one can always help the needy in their own little ways

5.PROCEDURE OR METHOD

- The data for presentation was collected by our group members from the internet through various websites, this primary data was collected and sorted under different heading such as introduction , aims , etc. This classification helped in clear and smooth understanding and explanation of the topic.
- The data for graphic presentation was collected was collected by a google form survey, This survey involved a questionnaire, which was done online through circulation on google form was on whatsapp this helped the google form to reach many people and answer the survey , which helped is the graphic presentation
- This data collected with the help of goggle form was lastly converted into a graphic presentation
- The graphic presentation is presented below.

Problems faced by mentally disabled people ?

- Lack of equal opportunity in education and employment
- Communication barrier
- Physical barrier
- All of the above

75%

25%

People who abused mentally disabled people are which type of person ?

- Stereotypes
- Holy being person

100%

People begin patronized like 'I know what you are going through ' This kinds of words are going to justice them ?

- Yes
- Or help them

75%

25%

Have you know anyone who is mentally disabled person ?

- Yes
- No

50%

50%

6. CONCLUSION

In conclusion, people with intellectual disabilities can live meaningful, satisfying, and productive lives, within their own communities, when provided adequate supports. We salute the courage and dedication of families and other advocates who have tirelessly worked to improve the lives of these deserving citizens. Everyone of us should have respect people undergoing such challenges , we should see that these people are not teased anymore and they are also treated as normal people . we must encourage them and should try to develop their senses

7. APPENDIX

8. References

https://www.google.com/url?sa=t&source=web&rct=j&url=https://www1.health.gov.au/internet/publications/publishing.nsf/Content/mental-pubs-p-mono-toc~mental-pubs-p-mono-ref&ved=2ahUKEwiU_bXpzfv0AhUtw4sBHSnvB8IQFnoECDYQAQ&usg=AOvVaw1K1UcbvlPjiOzyYkPs4T7j

https://www.cdc.gov/ncbddd/disabilityandhealth/features/mental-health-for-all.html

https://www.narayanseva.org/blog/10-problems-faced-by-people-with-disabilities

https://docs.google.com/forms/d/e/1FAIpQLSfpt57lLzNqEmL35w6wHzdCMlWVRDE-BiHB43hX3RL1DFlO5w/viewform?usp=sf_link

Batteries: Increasing Energy Efficiency & Recycling

A Project Report

Submitted in fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Tanmay Nerurkar

Seat No.: 21302F0044

And

Om Kharade

Seat No.: 21302F0037

Under the esteemed guidance of

Ms. Madhavi Amondkar

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 – 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that the project entitled, **" Batteries: Increasing Energy Efficiency & Recycling"**, is Bonafide work of **TANMAY NERURKAR** and **OM KHARADE** bearing Seat No: 21302F0044 and 21302F0037 submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY in the subject **Green Computing** from University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

TABLE OF CONTENTS:

Abstract

Ever-growing energy needs and depleting fossil-fuel resources demand the pursuit of sustainable energy alternatives, including both renewable energy sources and sustainable storage technologies. It is therefore essential to incorporate material abundance, eco-efficient synthetic processes and life-cycle analysis into the design of new electrochemical storage systems. At present, few existing technologies address these issues, but in each case, fundamental and technological hurdles are still to be overcome. Here we provide an overview of the current state of energy storage from a sustainability perspective. We introduce the notion of sustainability through discussion of the energy and environmental costs of state-of-the-art lithium-ion batteries, considering elemental abundance, toxicity, synthetic methods and scalability. The complexity and importance of recycling battery materials is also discussed. With the same themes in mind, we also highlight current and future electrochemical storage systems beyond lithium-ion batteries.

Introduction

Today, global warming, energy production and energy storage are all popular topics of discussion in society. To cope with the energy demands of the ever-increasing global population, we must double our present rate of energy production of 14 TW by 2050 [4,5]. This equates to 130,000 TWh or the equivalent of 10^{10} tons of oil yearly. This increase, which must be achieved without increasing CO_2 emissions or relying solely on finite fossil fuel resources, has made the development of advanced renewable energy technologies a global imperative.

There are several renewable energy sources, for example, wind, solar, tidal, biomass and geothermal, but these are all inherently intermittent and generally dispersed relative to the isolated large-scale facilities that currently supply most of the electrical energy. To make the best use of these energy sources, we need good energy-storage systems. Unfortunately, we currently only have the capacity to store around 1% of the energy consumed worldwide, most of which (98%) is through pumped-storage hydroelectricity. While such hydroelectricity is widely used, it stores just 3 Wh for every 1 m^3 (ton) of water lifted by 1 m. This nicely illustrates other overriding selection parameters that must be taken into consideration besides energy density, such as capital cost per cycle, scalability, safety, ease of use and cost of maintenance. It is also important to keep in mind that durability of the system can mitigate, compensate or even annihilate extra cost. Before shifting from a fossil-fuel economy to one based on renewable technologies, there is clearly a pressing need to significantly improve our ability to store energy. If we are unsuccessful in jointly capturing, managing and storing energy at a large scale and low cost, our only recourse will be to drastically reduce our total energy consumption. Considering the increasing per capita energy dependence and consumption over recent years, significant decreases in energy use over a short time period would prove difficult to achieve in our modern society.
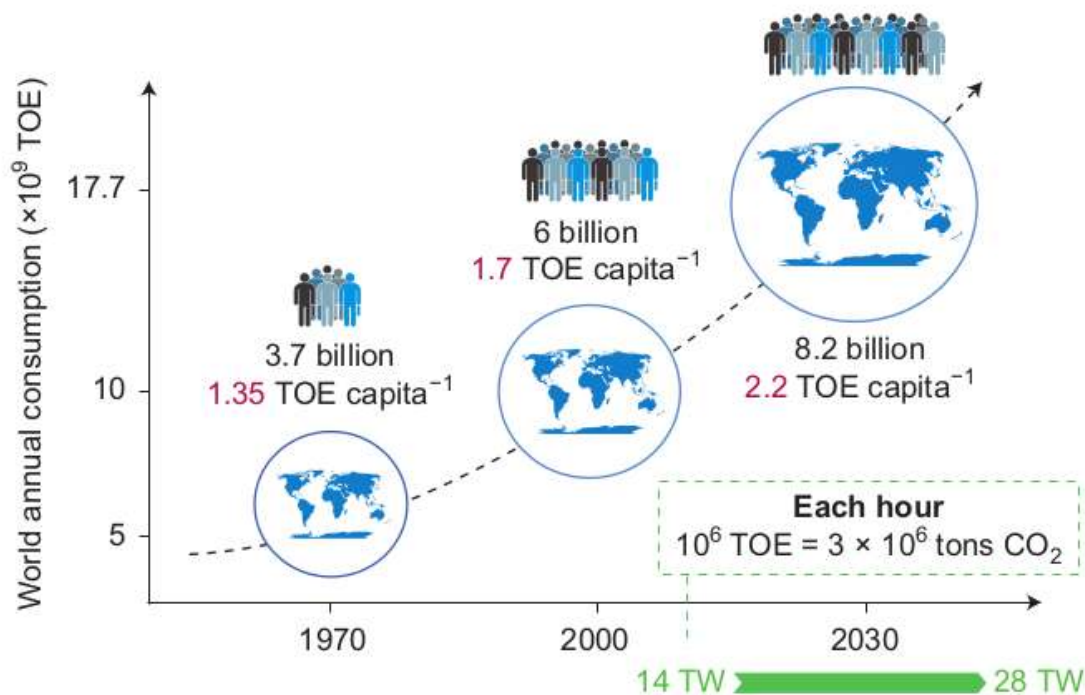
Figure 1 | Past, present and forecast of the world's energy needs up to 2050. With the changing lifestyles of an increasing number of inhabitants, our energy rate demand will double from 14 TW (2010) to 28 TW (2050). TOE = ton of oil equivalent. Map: © Macmillan Mexico/Haide Ortiz Ortiz, Mario Enrique Ramí-rez Ruiz.

In this Review, we introduce the concept of sustainability within the framework of electrochemical storage by discussing the state-of-the-art Li-ion batteries and the energy cost of their electrode materials. Guided by element abundance and toxicity, we offer guidelines for identifying sustainable electrode candidates. Having identified desirable electrode materials, available synthetic methods are discussed along with relative scalability and sustainability ratings for each method. We then present a comparison of existing, upcoming and future electrochemical storage systems beyond Li-ion batteries; new developments, challenges and promising research directions are highlighted for each technology. Finally, in the context of life-cycle analysis (LCA), we discuss the pressing need for recycling efforts to increase the overall sustainability of battery technologies.

Costs of electrochemical storage

Perhaps, the most important consideration in our market economy is the cost associated with producing conversion and storage devices, such as photovoltaic cells and batteries, which is now driven by both the abundance of the materials and the fabrication processes. It is essential to consider sustainability, renewability and 'green chemistry' when selecting materials for storage devices (for example, electrodes, catalysts), especially when used in applications with large markets and volume (vehicles, grid). Inevitably, the proliferation of renewable energy sources will rely heavily on innovations at the material level.

Using fuel cells to convert energy from chemical fuels obtained from renewable sources is an attractive route to more sustainable energy use. They are not limited by Carnot's principle, and hence, in theory, could have significantly higher efficiencies compared with thermal systems. Furthermore, the nature of oxidants and level of CO_2 emissions in fuel cells depend on the fuel used. For example, in a hydrogen fuel cell, there are no direct CO_2 emissions and H_2O is produced. Vapour H_2O is a powerful greenhouse gas, but when a maximum threshold limit in atmospheric pressure is reached, it rains; the production of water by fuel cells thus has no additional effect on climate change. In contrast, CO_2 accumulates in the atmosphere due to the significant difference in rates of CO_2 release and CO_2 capture (by photosynthesis or sequestration and dissolution in oceans). While hydrogen fuel cells are CO_2 free, there is no sustainable (non-fossil fuel) and economical way to obtain the pure H_2 fuel required for use in these systems. Although fuel cells are an attractive technology, there are several materials challenges (Pt-based catalyst, lifetime, H_2 production and storage) and high costs that need to be overcome before they can be commercially used.

The attractiveness of Li-ion battery technology resides in its versatility; it covers a wide range of applications requiring dozens of watt-hours (portable electronics), dozens of kilowatt hours (electric vehicles) and tens of megawatt-hours

(grid applications), with design capabilities to meet autonomy and power requirements. However, developing Li-ion batteries for transport and that are able to deal with society's fluctuating energy needs is a formidable challenge, especially from a materials perspective. In addition to the classical figures of merit (specific energy and power, lifetime, cost and safety), other issues are not yet fully recognized, such as the low relative abundance of materials (lithium is already viewed by some alarmists as the gold of this next century) and the large energy cost of battery manufacture and recycling. In addition to the foreseen shortage of some of the chemical elements currently used in electrodes (for example, cobalt), early integrated LCA estimations 6–9 (for example, considering the production of batteries, materials and recycling) have revealed that more than 400 kWh are needed to make a 1 kWh Li-ion battery (Fig. 2), resulting in the emission of about 75 kg of CO_2 — as much as burning 35 l of gasoline. In comparison, the production of 1 kWh of electricity from coal produces around 1 kg of CO_2 [6,7] . Even though the CO_2 generated by battery manufacturing is undesirable, the associated energy cost is still a bigger concern. In other words, under these conditions, batteries will only begin to have an environmental benefit beyond hundreds of cycles. [1]
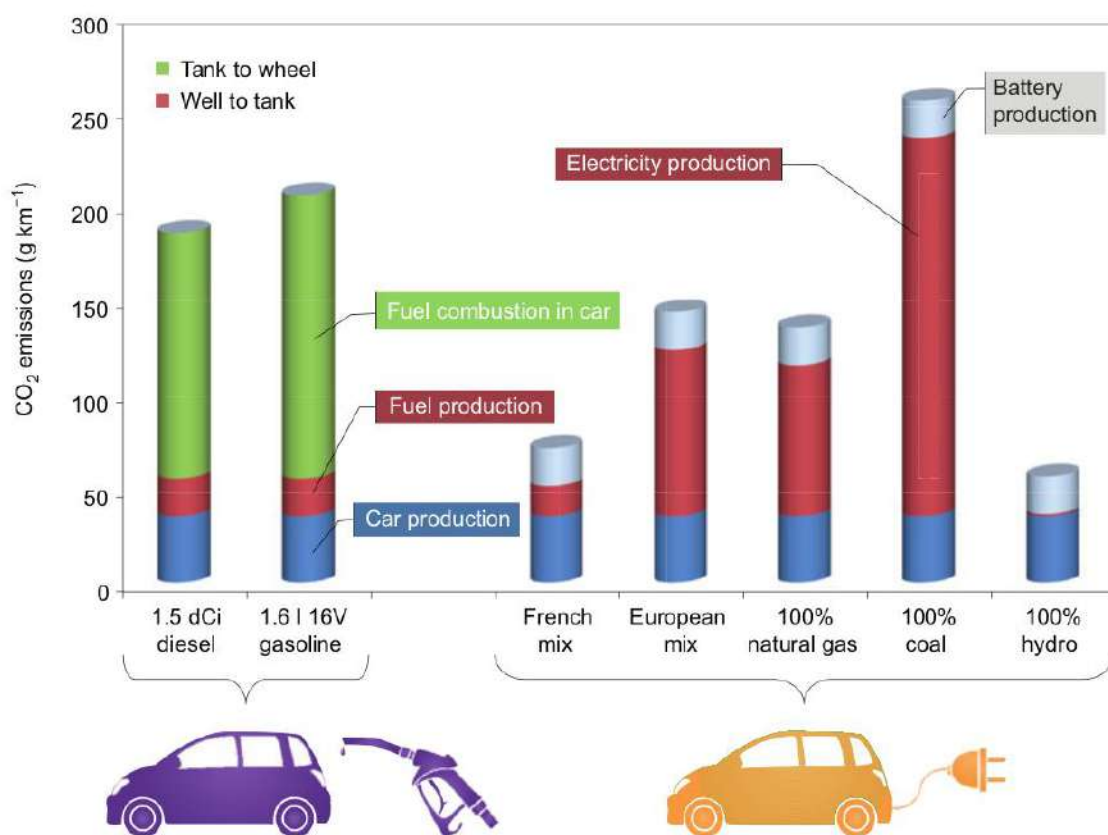
Figure 2 | The CO 2 benefit of electric vehicles relies heavily on the origin of the electricity.

This also questions the benefits of developing batteries for electric vehicles to decrease greenhouse-gas emissions when we heavily rely on coal-fired plants to produce primary electricity. Figure 2 shows that a standard internal combustion engine car can release less CO_2 per kilometer than an electric vehicle recharged with electricity coming from coal combustion. This comparison considers recently reported efficiencies for the combustion of various fossil fuels and burning conditions as well as the degradation of energy during electricity transport (~10%) and could therefore evolve depending on the progress made in these energy processes. However, coal has the highest carbon content (and the lowest hydrogen content) among fossil fuels, and is thus the worst choice in terms of CO_2 emissions per kWh produced (twice that of methane).

At this point it is worth noting that early LCA reports dealing with energy-storage systems have mainly focused on energy demands and their global warming potential (that is, how much CO_2 they emit). They have generally discarded other concerns such as NO_x, SO_x, dusts and particulates (PM_{10}), heavy metals, and soil and

water contamination, which can have deleterious health impacts or global and local environmental effects. Gladly, more recent analyses now consider more diverse aspects and their various impacts. Despite the very large discrepancy in reported LCA data regarding the relative impacts of materials production versus cell assembly, it is clear (Fig. 2) that 'materials production' is a main contributor to CO_2 emissions and energy costs. It includes various aspects such as mining, ore transport, ore treatment, and so on. In fact, a large part of this energy is utilized in mining scarce elements and achieving the high temperatures required to make the electrode materials.

Consequently, the only viable path towards a 'greener and more sustainable' battery is rooted in our ability to design electroactive materials that have comparable performances to today's electrodes but cost less energy and release less CO_2 during production. There are various approaches that have been explored towards this goal:

- o the development of novel eco-efficient processes 18 such as hydro-, solvo- and ionothermal and bio-inspired approaches for the synthesis of inorganic compounds;
- o the promotion of a new concept of renewable electrodes based on the use of organic compounds synthesized using 'green chemistry' from natural resources;
- o the development of new technologies beyond Li-ion batteries such as Li–S and Li–air (Li–O_2 ;), Al–air, Na-ion, Mg, Ca and redox-flow systems, in combination with an increasing interest in recycling processes. Li–O_2 cells are often synonymously called Li–air cells even though they currently use pure O_2 rather than 'air'. Prior to discussing the details of these approaches, we show that they can be justified by cost, chemistry and availability of elements.

Electronic Vehicle (EV) Battery

The electric-vehicle revolution, driven by the imperatives to decarbonize personal transportation in order to meet global targets for reductions in greenhouse gas emissions and improve air quality in urban centers, is set to change the automotive industry radically.

Figure 3 | The benefit of electric vehicles towards a greener future

In 2017, sales of electric vehicles exceeded one million cars per year worldwide for the first time. Making conservative assumptions of an average battery pack weight of 250 kg and volume of half a cubic meter, the resultant pack wastes would comprise around 250,000 tones and half a million cubic meters of unprocessed pack waste, when these vehicles reach the end of their lives [2].

Although re-use and current recycling processes can divert some of these wastes from landfill, the cumulative burden of electric-vehicle waste is substantial given the growth trajectory of the electric-vehicle market. This waste presents a number of serious challenges of scale; in terms of storing batteries before repurposing or final disposal, in the manual testing and dismantling processes required for either, or in the chemical separation processes that recycling entails.

Waste may also represent a valuable resource. Elements and materials contained in electric-vehicle batteries are not available in many nations and access to resources is crucial in ensuring a stable supply chain. In the future, electric vehicles may prove to be a valuable secondary resource for critical materials, and it has been argued that <u>high-cobalt-content batteries</u> should be recycled immediately to bolster <u>cobalt</u> supplies

Recycling

Batteries have traditionally been considered to be potentially hazardous to the environment due to the wide use of toxic lead, cadmium, mercury, and so on. Li-ion batteries do not contain any of these materials but 3d metals such as nickel or cobalt are used in most of them. Their use together with lithium is problematic due to limited supply, their continuously increasing cost and the environmentally questionable extraction methods. Furthermore, a wide spread use of Li-ion batteries for automotive or grid applications will, over time, require that either the 3d metals (cobalt, nickel) are partially substituted and/or that an efficient recovery or recycling method for batteries is adopted.

In today's Li-ion batteries for portable electronics, cobalt and lithium contents range between about 5 and 15 wt.% and 2 and 7 wt.%, respectively [8]. Several hundred thousand tons of batteries are sold annually; this constitutes an 'urban mine' for the recovery of thousands of tons of metal with cost advantages over direct mining. For instance, to obtain 1 ton of lithium we need to handle 250 tons of mineral or 750 tons of brine compared with 28 tons of used batteries [1]. The recycling process of e-waste should reduce scrap volume, separate battery components and enrich valuable metals, and eliminate or reduce the danger of waste release to the environment.
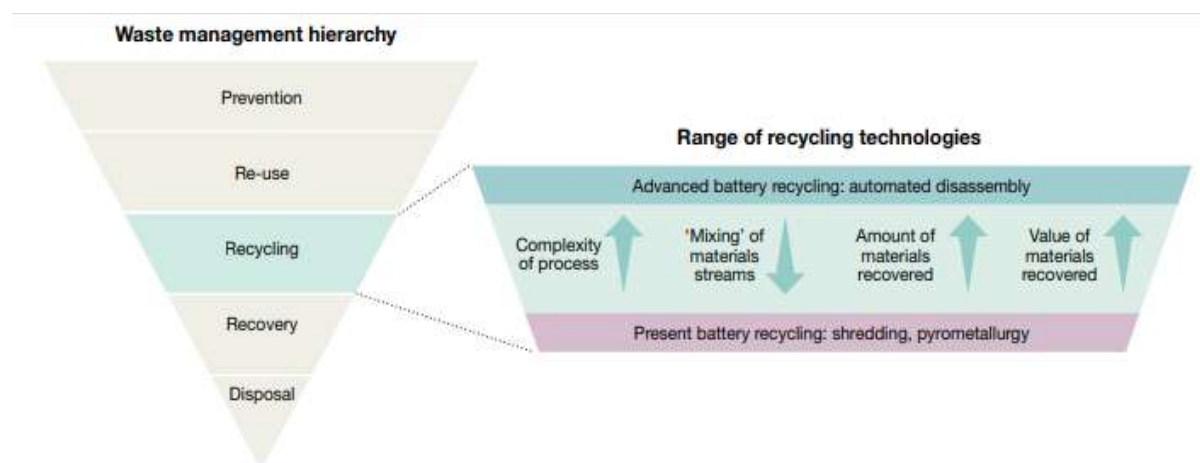
Figure 4 | The waste management hierarchy and range of recycling options. The waste management hierarchy is a concept that was developed from the Council Directive 75/442/EEC of 15 July 1975 (https://eur-lex.europa.eu/legal-content/ EN/TXT/?uri=CELEX%3A31975L0442)

At present, various classes of recovery processes are being pursued, the main ones being pyrometallurgy and hydrometallurgy processes, which proceed at high (pyrolysis) and low (solution chemistry) temperatures, respectively. The low-temperature process presents advantages, as it has high yields and is realized at temperatures ranging between 80 and 100 °C (thus saving energy). It is also not affected by the eventual loss of some elements by evaporation. The high-temperature process, in contrast, presents advantages in terms of materials purity, duration of treatments and not needing 7 m^3 of water per ton of treated batteries as estimated for the hydro process. Irrespective of the process, lithium-bearing metallurgical slag coming from battery recycling is now used as additives in the concrete industry [9].

Keeping in mind the chemical complexity of a battery, it is expected that recycling processes will require multi-step treatments. For instance, hydrometallurgy involves acid–base leaching, solvent extraction, chemical precipitation and electrochemical processes. The economy and greenness of the recycling process must be considered, and its overall benefit must be computed (using LCA). Aware of such an issue, bio-hydrometallurgy processes using microorganisms are at present being investigated for their efficiency, low cost and manufacturing ease. For instance,

Acidithiobacillus ferro oxidants (found in pyrite deposits) can metabolize sulfur and iron, and produce sulphuric acid to leach metals (bioleaching). Other biological means (hyper-accumulators) can also be envisaged to concentrate scarce metals from contaminated soils and waters, as many plants are reported to efficiently and naturally accumulate nickel and cobalt.

There is no doubt that the chemistry of recycling will become more important than ever in the coming decades, not only for batteries but also for the storage and conversion field in general. Although 'recycling chemistry' is not particularly fashionable today, it encompasses a discipline that is very important for the future of our planet. Efficient and practical recycling technologies devoted to both the recovery of valuable metals and the disposal of materials harmful to the environment need to be developed. Within the field of batteries, a few companies have already acknowledged the importance of recycling, and have acted accordingly on scientific and political levels to try to set up networks for battery collection and recycling, as well as enforcing European norms regarding the minimum threshold of materials to be recovered. Recycling batteries is also starting to become accepted at the citizen level.

Cost wise, for specific chemical elements (iron, manganese) the benefit of recycling can be negative. Hence, the cost of recycling will have to be borne by the customer as part of the tax on the purchase price of the battery. Aside from the set-up of efficient disposal and collection networks, end-of-life batteries from electric vehicles can also be of potential interest for stationary grid storage [10]. Recycling is definitively the missing link to close the loop in most of today's energy-related processes. Life is a complex combination of completely closed cycles, that is to say perfect recycling processes, without any loss or by-products, and should constitute the zero-impacts LCA reference. The reason why we are facing the present global energy and environment crisis is because we have violated the time–matter cycle by rapidly consuming for the past 200 years fossil fuels that took millions of years to be formed and accumulated. It's time to manage our energy-resource consumption to return to eco-balance.

Graphene

Since its discovery a decade ago, dozens of potential uses for graphene have been proposed, from faster computer chips and flexible touchscreens to hyper-efficient solar cells and desalination membranes. One exciting property that has sparked significant interest is its ability to store electrical charge. A single sheet of graphene sufficient in size to cover an entire American football field would weigh just a fraction of a gram. This huge surface area associated with this small amount of graphene can be squeezed inside an AA battery, enabling the design of new energy-storage devices with the ability to store massive amounts of charge. In this Review, we discuss the inherent properties of graphene and what it has to offer for energy storage.
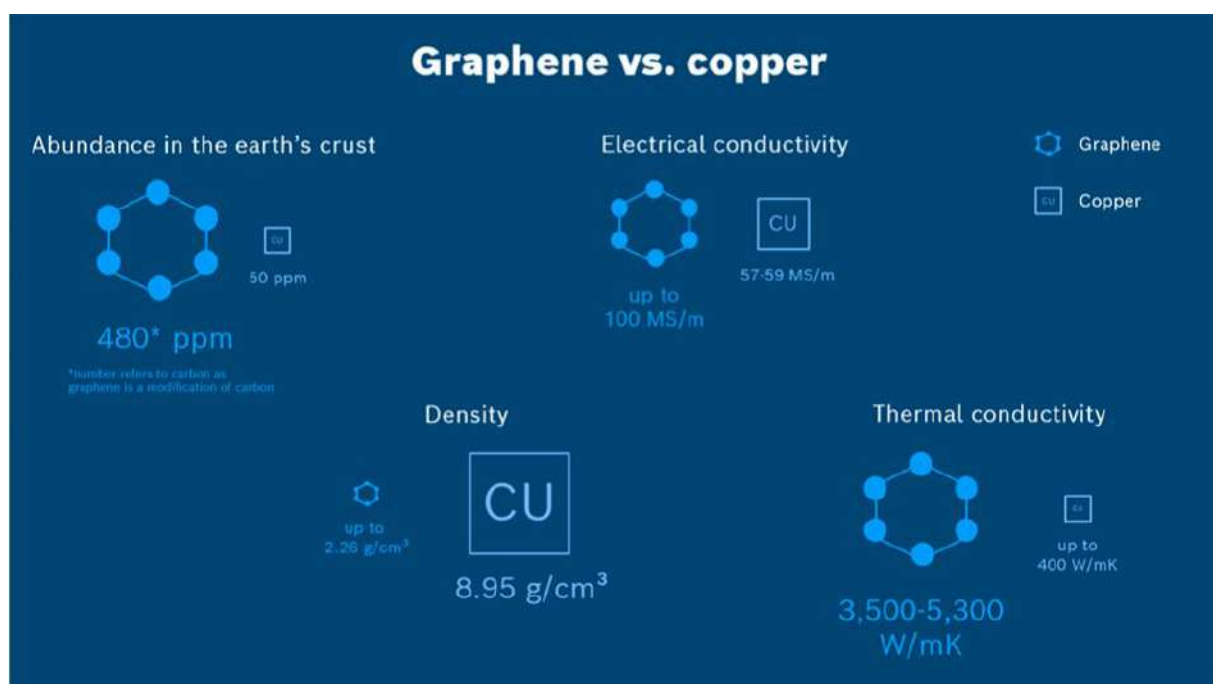
Figure 5 | Graphene vs copper.

Much of the Review covers the synthesis and assembly of graphene into macrostructures that exploit the unique features of individual graphene sheets to build new materials for various applications. Particular attention is paid to the processing of graphene into electrodes, which is an essential step in the production of devices.

Graphene can be useful by itself, but it is also promising — as we discuss — for composites with superior performance compared with existing materials.
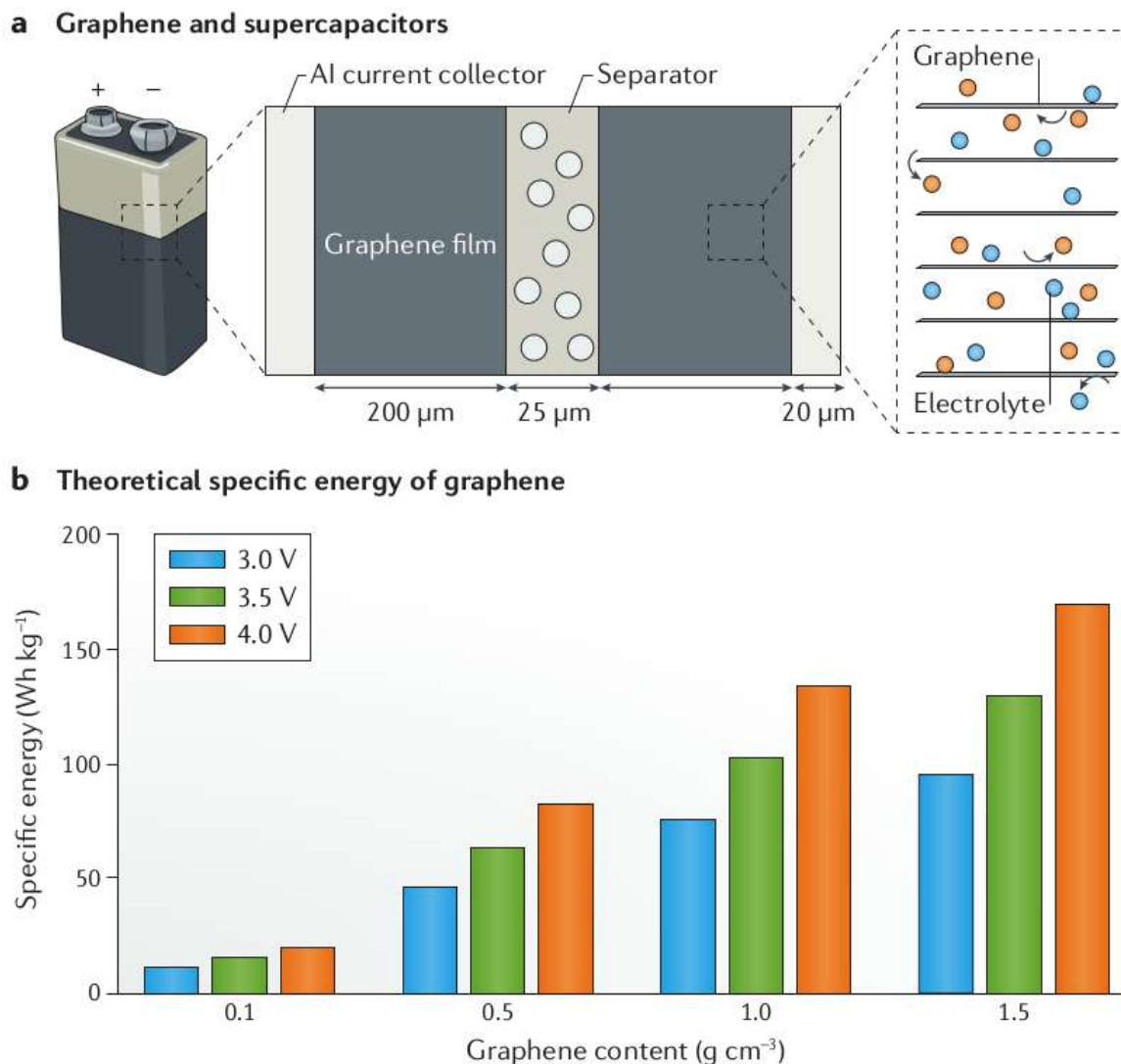
Figure 6 | Graphene and supercapacitors. Owing to its remarkable quantum capacitance and excellent electrical and mechanical properties, calculations show that graphene has the potential to help realize supercapacitors with the energy density of batteries that can be recharged in seconds. a | Representation of the structure of graphene supercapacitors with increasingly magnified views. b | Maximum theoretical energy density of a fully packaged graphene supercapacitor for different densities of the graphene film and voltage windows of the cell. [3]

Currently, graphene is the most studied material for charge storage and the results from many laboratories confirm its potential to change today's energy-storage

landscape. Specifically, graphene could present several new features for energy-storage devices, such as smaller capacitors, completely flexible and even rollable energy-storage devices, transparent batteries, and high-capacity and fast-charging devices. These and other features are explored in this Review. Despite notable progress, the future of graphene in the energy-storage market is uncertain because of several challenges. We discuss and propose solutions to these challenges and also briefly discuss the potential of other emerging 2D materials for energy-storage applications.

Graphene for energy storage

The fundamental properties of graphene make it promising for a multitude of applications. In particular, graphene has attracted great interest for supercapacitors because of its extraordinarily high surface area of up to $2,630 \, m^2 \, g^{-1}$. Recently, the intrinsic capacitance of single-layer graphene was reported to be $\sim 21 \, \mu F \, cm^{-2}$; this value sets the upper limit for electric double-layer (EDL) capacitance for all carbon-based materials. Thus, supercapacitors based on graphene could, in principle, achieve an EDL capacitance as high as $\sim 550 \, F \, g^{-1}$ if the entire surface area can be fully utilized. However, to understand the limits of graphene in supercapacitors, it is important to know the energy density of a fully packaged cell and not just the capacitance of the active material. In addition to the capacitance of graphene, the maximum energy density of graphene-based supercapacitors depends on several other parameters, such as the thickness and density of the graphene film and other cell components, including the current collector and the separator, the nature and density of the electrolyte, the operating voltage window of the cell and the packaging efficiency [3].

When using a standard current collector, separator and acetonitrile-based electrolyte, the two key parameters that control the energy density of graphene supercapacitors are the density of the graphene film and the voltage of the cell. For an electrochemical cell using 200-μm-thick graphene electrodes with a density of 1.5 g cm^{-3} and an operating voltage of 4 V, the maximum theoretical energy density is

~169 Wh kg -1 on a gravimetric basis and ~303 Wh l -1 on a volumetric basis [3]. If achieved, these values could put graphene supercapacitors on par with nickel metal hydride and lithium-ion batteries (LIBs) with the additional advantages of higher power density and longer cycle life. In practice, the energy density of graphene supercapacitors achieved so far is between 15 and 35 Wh kg -1 , and less than 60 Wh -1 — far below the theoretical values. Graphene is also very useful in a wide range of batteries including redox flow, metal–air, lithium–sulfur and, more importantly, LIBs. For example, first-principles calculations indicate that lithium ions can be stored on both sides of graphene, forming C_3 Li [11] . Accordingly, graphene can deliver a theoretical capacity of 744 mAh g -1 , which is about twice the capacity of conventional graphite electrodes. While these calculations were carried out on perfect and crystalline graphene, real graphene electrodes use chemically modified and defective forms of graphene. The performance of these graphene electrodes varies between 100 and 1,000 mAh g -1 depending on the properties of graphene, electrode processing, mass loading, structural defects and surface area. A few reports show that specially designed graphene electrodes can exceed 1,000 mAh g -1 , mainly when tested in a half cell, but normally, smaller values are obtained in full-cell measurements. Graphene can be chemically processed into various forms suitable for both the positive and negative electrodes, enabling the fabrication of an all- graphene battery with an ultra- high energy density. Graphene is a great substrate for anchoring LIB anode and cathode materials to create high-energy-density, flexible, stretchable, fast-charging and longer-lasting batteries.

In addition to LIBs, graphene hybrids have also been shown to achieve excellent performance in a range of other batteries: for example, serving as electrodes in Na + and Al 3+ batteries, and as a high- efficiency catalyst in metal–air batteries. Although graphite is an excellent anode in LIBs, it cannot be utilized in Na + and Al 3+ batteries because these ions are too large to effectively intercalate into graphite under ambient conditions, so alternative anode materials are required, such as porous graphene composites, to achieve high energy-storage performance.

Energy-storage devices with new features

Now that smartphones and other portable electronic devices have become ubiquitous, one major problem remains: battery technology has not kept up with the demands placed on them. In addition, the lack of a reliable battery still holds back electric vehicles from being readily adopted over vehicles using an internal combustion engine. Soon, graphene could establish a new generation of energy-storage devices with new features not possible with current technology.

Supercapacitors with AC line filtering.

Capacitors are essential components in almost all electronic devices. They are primarily used as electronic filters to smooth out the ripples from power supplies because they have a very fast response time — on the sub millisecond timescale. However, unlike transistors and other electronic components that are constantly shrinking over time, capacitors are still bulky and often limit the miniaturization of the entire system. Commercial-grade carbon-based supercapacitors charge and discharge in seconds, which is much faster than batteries but not quite fast enough to be used as electronic filters. In 2010, it was reported that an EDL capacitor based on vertically oriented graphene sheets could be charged and discharged in less than a millisecond, which is similar to the performance of capacitors but with a capacitance per volume at least ten times higher. This ultrafast supercapacitor could replace the large electro-lytic capacitors used in today's electronics and may someday help make electronic devices smaller and lighter. The key to achieving ultrafast charging and dis-charging is to vertically orient graphene electrodes with external rather than internal surface area. This leads to a high-frequency response and eliminates the slow diffusion of ions, which has so far limited the speed of carbon-based supercapacitors. This work has inspired several research efforts to design new electrodes with ultrahigh power density by controlling pore size and distribution. Various materials, including electrochemically reduced graphene oxide, graphene quantum dots 8, a graphene–CNT carpet, graphene–PEDOT: PSS and conducting polymers, have been developed and tested for alternating current (AC) line filtering.

Flexible, rollable and twistable energy-storage devices.

The market for flexible and printed electronics is rap-idly growing, with products now ranging from flexible solar-cell arrays to flexible displays and wearable electronics. The rise of this technology is mainly due to rapid progress in the production of flexible electronic devices over large areas at a fraction of the cost of traditional semiconductor technology. In the field of energy storage, various devices, such as flexible super-capacitors and thin LIBs with variable sizes, shapes and mechanical properties, are being developed. Current batteries and supercapacitors come in several sizes and shapes but are all rigid; therefore, bending them may cause cell damage and electrolyte leakage. In brief, this is because the current technology relies on particulate-like energy-storage materials, which lose their mechanical integrity upon bending. With its 2D one-atom-thick structure, graphene can adapt to mechanical stress by deforming in the direction nor-mal to its surface. This inherent mechanical flexibility together with exceptional electrical properties and large surface area makes graphene attractive for flexible energy-storage devices. Interesting research activities in this area are discussed in detail in recent reviews.

Stretchable batteries and supercapacitors.

Stretchable electronics is an emerging field featuring materials and devices that can sustain large deformations while maintaining normal function and reliability. Stretchable devices will help monitor body functions, make portable electronics more comfortable and perhaps even wearable. Inspired by human skin, crumpled graphene was used to develop supercapacitors that can be stretched up to eight times their length. This was accomplished by attaching graphene paper to an elastomer that had been pre-stretched up to five times its original dimensions. When the pre-stretched parts were released, the lateral dimensions of the graphene paper were reduced by the same ratio. An alternative approach was adopted in another study, in which a wrinkled graphene film was first synthesized by chemical vapour deposition. Transfer of the graphene film to a polydimethylsiloxane substrate resulted in supercapacitors that were both stretchable and transparent.

Energy-storage devices for wearable electronics.

Portable electronics have revolutionized our everyday lives and have driven the development of other future electronic devices (for example, wearable electronics that can be incorporated into clothing and accessories and worn comfortably on the body). These smart garments are expected to communicate with the user to give them access to information in real time. In 2011, the first textile-based batteries and super-capacitors were obtained by coating graphene and CNTs onto cotton fabrics. Recently, research efforts have been directed towards the development of coaxial and core–sheath electrodes that combine the current collector and electrode material in a single yarn, which can be knitted or woven directly into textiles. Graphene is a great candidate as it can be readily tailored and assembled into multifunctional microfibers and woven into fabrics. For example, graphene core–sheath microfibers were used to demonstrate spring-like supercapacitors that are flexible, stretchable, all solid-state and can be incorporated into textiles using conventional weaving technology. Similarly, a coaxial wet-spinning strategy was used to produce polyelectrolyte-wrapped graphene/CNT core– sheath yarns, but unlike most yarn electrodes that suffer from low areal capacitance, this one produced up to $269\,\mathrm{mF\ cm^{-2}}$.

Transparent batteries and supercapacitors.

Imagine an electronic display nearly as clear as a window or a flexible smartphone that you can see through. This may not be too far off owing to recent advances in transparent electronics that have focused on the use of wide-bandgap semiconductors for the realization of invisible electronic circuits. Although researchers have shown that transistors, organic light-emitting diodes and other electronic components can be made transparent, the development of a transparent power source remains a challenge. This is because of the traditional multilayer structure of a battery comprising two electrodes, a separator, an electrolyte and packaging to hold these layers together. This means that each of these layers will have to be clear for the battery to be transparent. Unfortunately, only the electrolyte is inherently transparent, whereas the other components are opaque, with the electrodes being the most difficult component to make transparent. One way to make a transparent electrode is to make it very thin — on the nanometer scale. But thin

electrodes do not store much charge. Another approach is to make patterned electrodes with design features smaller than the detection limit of the human eye. In either case, graphene can have a key role in making transparent batteries more efficient because of its high conductivity and good transparency (up to 97.7% transmittance). These characteristics make graphene an ideal electrode material not only for transparent energy-storage devices, but also for solar cells, smart windows and other optoelectronic devices.

Fast-charging lithium-ion batteries.

First commercialized by Sony in 1991, LIBs represent a major technological advancement from lead–acid batteries, which have been dominant since the late 1850s. Owing to their low weight and high energy density, LIBs have become the technology of choice for consumer electronics. However, they suffer from long recharge times (typically hours), whereas battery users are looking for a battery that recharges in minutes or even seconds. The use of graphene allows faster electron and ion transport in the electrodes, which controls the speed over which the battery can be charged and discharged. For example, a fast-charging LIB was developed by loading nanoscale $Li_4Ti_5O_{12}$ anode and $LiFePO_4$ cathode materials on flexible graphene foam without the use of conducting additives or binders. The excellent electrical conductivity and the open pore structure of the hybrid electrodes allowed the battery to become fully charged in only 18 s. Pure graphene can also be used as the anode for LIBs with an improved capacity, and ultrafast charge and discharge rate. Few-layered graphene may have an important role in the progress of other battery chemistries. For example, an aluminum-ion battery was recently reported that can be fully charged in under one minute because of the ultrafast ion intercalation into 3D graphene foams.

Limitations of graphene and possible solutions

Graphene batteries and supercapacitors have witnessed rapid developments and substantial achievements during the past few years, but there are still many challenges to be addressed to realize their practical applications. Although researchers have

demonstrated graphene-based batteries and supercapacitors with performance characteristics far exceeding those of commercially available ones, the lack of feasible techniques for the mass production of high-quality graphene limits their potential. Estimates for the cost of production of graphene vary depending on the quality of the material from tens to thousands of dollars per kilogram, but it is still not competitive with state-of-the-art materials. For example, the very low cost of activated carbon currently used in supercapacitors (US$15 per kilogram) presents a difficult barrier to the entry of other materials [3].

Most techniques that have shown potential for largescale production depend on the exfoliation of expanded graphite or the reduction of graphite oxide. The former often results in multilayered graphene platelets with limited surface area, which is a critical parameter for supercapacitors 88, and the latter form of graphene has relatively low electronic conductivity caused by residual oxygen and structural defects. In addition, reduction of graphite oxide is still challenging as it involves complicated procedures and purification methods, and often employs toxic and corrosive chemicals leading to environmental concerns. The conductivity of reduced graphene oxide needs to be further enhanced with more efficient reduction methods. Ultrathin graphene flakes, when processed, result in electrodes with low densities and large pore volumes. The addition of an electrolyte causes huge 'dead mass' that adds weight and volume, but does not contribute to charge storage; this kills the performance of graphene electrodes on the device level. It is necessary to find simple methods for making graphene electrodes with large packing densities without affecting their accessible surface area.

Some recent studies have addressed this issue, but the solutions are not yet practical. The processing of electrodes is another important parameter that defines the viability of new technologies. Current battery and supercapacitor technologies use roll coating for manufacturing electrodes. This process is in--expensive, efficient and fast, producing up to several meters of electrodes per minute. Most devices made out of graphene use techniques that are limited to research laboratories and difficult to scale up. Future studies on graphene should focus on competitive processing techniques and

not just laboratory-feasible preparation methods. Finally, the properties of graphene electrodes are determined by their microstructure; however, precise control of the pore size and porosity of graphene is a big technical challenge. Most of the 3D graphene electrodes reported thus far feature pores that vary in size between hundreds of nanometers and several micrometers. To address this issue and to increase the capacity of graphene electrodes, it would be interesting to introduce micropores into the structure of graphene through assembly from porous graphene sheets or by using a chemical activation process of the type that is widely used nowadays for the preparation of activated carbon.

Graphene is widely used in batteries either as the active component or inactive conductive additive. In the latter case, graphene forms a 3D electron conducting network offering electron 'superhighways' that promote the charge transfer exchange rate of active materials. This increases electron conductivity and therefore rate capability of the electrode under investigation. Graphene can also buffer the volume changes during charge and discharge, and therefore increase the cycling stability of the active mat-erials. However, in most cases, large amounts of graphene (10–20% w/w) are normally used in these hybrid electrodes. It should be noted that too much graphene does not help because of its low packing density, which can reduce the energy density of the battery. It is thus advisable to reduce the amount of graphene in the hybrid electrodes while maintaining good electrochemical performance.

The low electrical conductivity of chemically derived graphene — which is almost always lower than carbon black — is another challenge. Improving the conductivity of graphene for conductive additive applications should be a priority at this stage. Solution processing of graphene oxide offers a great opportunity for large-scale production of chemically derived graphene, although stronger reducing agents are needed. Graphitization of the produced graphene through chemical and thermal methods holds great promise too. There are several methods in which graphene can be hybridized with battery materials to produce composites with improved electrochemical performance. Specifically, the battery materials can be anchored to the graphene surface, wrapped by graphene sheets, encapsulated in a graphene shell or

sandwiched between two graphene monolayers. In addition, graphene can be assembled with 2D battery materials forming layered heterogeneous structures. However, it is not clear which of these structures produces graphene composites with the best electrochemical performance.

More efforts are needed to gain a fundamental understanding of the molecular interaction between graphene and other battery components in both the bulk and at the electrode/electrolyte interface. This will allow the design of novel materials and composites with custom properties and could enable the practical use of graphene-based materials in energy-storage devices. Another issue to be considered in graphene composites is the accessibility of the active materials to the electrolyte. Although ion diffusion may occur through surface defects and grain boundaries, the diffusion through the basal plane is rather limited. A small amount of graphene may thus provide a good balance between improved electron transport and fast ion diffusion, whereas too much graphene may isolate the active material from reaching the electrolyte because of complete wrapping. This also depends on the structure of the graphene; for example, the narrow width of graphene nanoribbons provides more grain boundaries and therefore faster ion diffusion than normal graphene sheets.

Another strategy to combat this problem is to open nanopores in the basal plane of graphene through chemical activation. Although graphene is attractive as an anode for LIBs with a capacity of more than 1,000 mAh g -1 already achieved, it suffers from low first-cycle Coulombic efficiency. This is mainly attributed to the high surface area of graphene and structural defects associated with the different synthetic routes. The storage of lithium ions at defects causes very high initial irreversible capacity, which results in poor energy efficiency. Unless a solution is found, this problem may hinder the practical application of graphene anodes. One possible solution is to carefully design the structure of graphene to lower the surface area contacting the electrolyte and reduce the defects on graphene to avoid side reactions.

Knowing that reduced graphene oxide is the most common form of graphene currently explored in LIBs, the progressive reduction of oxygenated functional groups

should produce fewer defects and may help improve the Coulombic efficiency of graphene anodes. Another strategy is to make hybrid electrodes from graphene and other battery materials to reduce or dilute the negative effect of graphene on the Coulombic efficiency.

Conclusion

`   Concerns regarding the 'green' quality of batteries have long existed and over the years these concerns have been addressed in a variety of ways. We must now address the issue of chemical toxicity in batteries head-on by identifying non-toxic elements and additive alternatives with similar performance to their toxic counterparts.

Along the same lines, we need to be aware that fluorine-based compounds present in Li-ion batteries are not ideal. This is the reason why researchers are eagerly looking for alternatives. Until an alternative can be found, it will be necessary to design batteries with sufficient confinement in the event of cell malfunction, looking at the NaN_3 -based airbag technology can be of great help in handling such confinement and toxicity issues. In contrast, sustainable development, which has been ignored for many years, is becoming a worldwide objective. This has resulted in the enabling of new plans and programmes that tackle shortcomings and take into consideration energy and development. Most of these programmes stress the importance of education, research and public funding to achieve sustainable production and consumption patterns. Within the field of transportation, the European Union is active by supporting initiatives, such as the European Green Cars Initiative, to promote cars, trucks and 'green' buses, to meet tomorrow's demands of cleaner and more sustainable transportation.

Scientists are actively integrating the principles of sustainability in their day-to-day research. Present work on Na-ion systems, Li-ion systems based on renewable electrodes, aqueous metal–air systems and aqueous redox-flow systems are some of the many examples. Similar initiatives are being taken in other energy-related fields such as photovoltaics, where research on organic photovoltaics and dye sensitized solar cells is gaining momentum. There is little doubt that within the foreseeable future, the billions of batteries produced annually will have to be recycled. Companies have started to address this issue of reclaiming lithium into a valuable secondary raw

material. Recycling relies not only on the power of chemistry but also on the culture (that is, people's initiative to recycle). Here again, we have witnessed great progress over the past decade, with most families routinely separating recycling from garbage, reusing shopping bags, and so on. The change in attitudes towards sustainability in society is promising.

Concomitantly, LCA is also coming into play with numerous ongoing studies. Caution must be exercised, however, as they are quite complex owing to numerous uncertainties and assumptions. Staunch believers in LCA should recall the Heisenberg uncertainty principle: the more accurate the calculations are, the tinier the target is, the larger the number of parameters is, the more non-assessed time and energy spent to reach the results will be. This should motivate the LCA community to promote the assets of approximation and error bars, and to convince other communities of LCA's accuracy and utility. It would not be a surprise if some philosophers soon address LCA and show the basic contradiction inherent to tracking the footprint of everything. While LCA is an absolute necessity, it should remain an estimate if it is to be the fast and efficient decision lever, we all need. At present, impact calculations resulting from LCA are geographically, politically and highly time dependent. Once a comparative LCA of different processes is achieved, one should also question the weight their comparative costs will have in the final industrial choice. Depending on this weight, LCA could appear as a decision tool for the price to be paid to pollute. Here, a new tripartite decision equilibrium will have to hatch between politicians, scientists and economists.

There is no doubt that graphene has changed the landscape of energy storage because of its outstanding electrochemical properties and unique combination of large surface area, high electronic conductivity and excellent mechanical properties. Innovative techniques have been demonstrated for the fabrication of energy storage devices with new features not possible with current state-of-the-art technology. However, the full potential of energy-storage devices built from graphene has yet to be realized. Many challenges remain, particularly with regard to feasible techniques for the low-cost mass production of graphene with controlled microstructure and low

residual oxygen content. More research efforts should be made for resolving the existing challenges using theoretical calculations together with experimental investigations. Further understanding of the interaction of graphene sheets at the nanoscale to form self-assembled structures of different shapes and dimensionalities will drive more potential applications for graphene. Graphene research is expected to continue to expand rapidly during the next decade with the promise that it will make a real impact on our lives.

In summary, our society is more aware than ever before of sustainability issues and less willing to compromise on upcoming technologies. Scientists are on the same wavelength and are already engaged in a paradigm shift judging by the way that research directions have evolved — sustainability is now being considered as an extra dimension in addition to structure, composition and morphology when designing new materials. Moreover, the chemistry of recycling will become more important than ever and let's hope that chemists can successively give a second life to waste. Undoubtedly, sustainable batteries can be made and bring major advances in the protection of our environment, provided we realize such an effort is only worthwhile if we use CO_2 -free electricity. This is just a matter of time. The real question is can such electrochemical storage at large scale and low cost be made in the allocated time to assist in the use of an extra 130,000 TWh yr. $^{-1}$ (14 TW) of CO_2 -free energy by the year 2050?

References

[1] Larcher, D., & Tarascon, J. M. (2015). Towards greener and more sustainable batteries for electrical energy storage. Nature chemistry, 7(1), 19-29.

[2] Harper, G., Sommerville, R., Kendrick, E., Driscoll, L., Slater, P., Stolkin, R., ... & Anderson, P. (2019). Recycling lithium-ion batteries from electric vehicles. nature, 575(7781), 75-86.

[3] El-Kady, M. F., Shao, Y., & Kaner, R. B. (2016). Graphene for batteries, supercapacitors and beyond. Nature Reviews Materials, 1(7), 1-14.

[4] Lewis, N. Powering the planet. MRS Bulletin 32, 808–820 (2007).

[5] International Energy Agency Key World Energy Statistics 2011 (IEA, 2011); available at http://www.iea.org/publications/freepublications/publication/ key_world_energy_stats-1.pdf.

[6] International Energy Agency CO2 Emissions from Fuel Combustion 2012 (IEA, 2012); available at www.iea.org/co2highlights/co2highlights.pdf.

[7] International Energy Agency Coal Information 2012 (IEA, 2012); available at www.iea.org/media/training/presentations/statisticsmarch/CoalInformation.pdf

[8] Xu, J. et al. A review of processes and technologies for the recycling of lithiumion secondary batteries. J. Power Sources 177, 512–527 (2008).

[9] . Yaziciogly, B. & Tytgat, J. Lithium-bearing slag as aggregate in concrete. Patent application WO/2011/141297 (2011).

[10] Caumon, P. Batteries de véhicule électrique: en route pour une seconde vie stationnaire? Rapport d'Ambassade / Consulat Général de France à SanFrancisco California (2011); available at http://www.bulletins-electroniques. com/rapports/smm11_034.htm

[11] Wang, G. et al. Sn/graphene nanocomposite with 3D architecture for enhanced reversible lithium storage in lithium ion batteries. J. Mater. Chem. 19, 8378–8384 (2009)

DECREASING CARBON FOOTPRINT IN THE AUTOMOBILE INDUSTRY

~By – Taiyeb Radiowala 21302F0017
Saaib Majeed 21302F0031

DECREASING CARBON FOOTPRINT IN THE AUTOMOBILE INDUSTRY

A Project Report

Submitted in partial fulfilment of the

requirements for the completion of

FIRST-YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By – Taiyeb Radiowala 21302F0017
Saaib Majeed 21302F0031

Under the esteemed guidance of

Ms Madhavi Amondkar

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

MAHARASHTRA

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Green Computing In Armed Forces "**, is bonafide work of **SAAIB MAJEED (seat no.21302F0031) and TAIYEB RADIOWALA (seat no. 21302F0017)** submitted in partial fulfilment of the requirements for the

completion of **FIRST YEAR BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY** in the subject of Green Computing from the University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

ACKNOWLEDGEMENT

The success and outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along with the completion of our assignment work.

I would express our special thanks of gratitude to our teacher Mrs Madhvi Amondkar ma'am as well as our principal Dr Rohini Kelkar ma'am gave us the golden opportunity to do this wonderful project and excel in our learning through the project on the topic **"Decreasing Carbon Footprint in Automobile Industry"**

INDEX:

INTRODUCTION:

Studies show that transport generates around 25-30% of the annual proportion of total CO2 emissions within the international organisation

A typical passenger vehicle emits about 4.6 metric tonnes of CO2 per annum. This assumes the typical gasoline vehicle on the road moment features an energy frugality of about 22.0 miles per gallon and drives around 11,500 miles per annum. Every gallon of gasoline burned creates about 8887 grams of CO2.

I today aim to give you the information to minimize that percentage and number.

Historically, vehicles that run primarily on gasoline or diesel have accounted for more than 99 per cent of car and passenger truck sales. However, sales of cars that run on alternative fuels, particularly electricity, are on the rise. Every year, new electric vehicle and plug-in hybrid electric vehicle models hit the market in greater numbers. Cars that run on compressed natural gas (CNG) or E85 are examples of alternative fuel vehicles (a mixture of about 85 per cent ethanol and 15 per cent gasoline).

Many alternative fuels "burn" cleaner than gasoline or diesel, resulting in fewer pollutants from the tailpipe. When fuel is created, the number of greenhouse gases (GHG) released is determined.

A green vehicle, clean vehicle, eco-friendly vehicle or environmentally friendly vehicle may be a road machine that produces lower dangerous impacts to the terrain than similar conventional combustion machine vehicles running on gasoline or diesel, or one that uses certain indispensable energies. Furthermore,

lowering vehicle pollutants and improving fuel economy benefits both the environment and your wallet.

The purpose of this documentation is to decrease the carbon footprint you leave during transportation, moreover, we focus on helping you find the available cars in the market which leave the least carbon footprint as well as giving you tips about how you can decrease the carbon footprint in your car. Of course, our research is backed with hard data which we will present

Estimated reduction in life-cycle greenhouse gas emissions of new medium-size electric cars compared to gasoline cars*

■ Cars registered in 2021   ■ Cars registered in 2030

| Europe | United States | China | India |

- Europe: -66% (2021), -74% (2030)
- United States: -60% (2021), -62% (2030)
- China: -37% (2021), -48% (2030)
- India: -19% (2021), -30% (2030)

* Life-cycle emissions include emissions associated with vehicle and battery manufacture, fuel/electricity production and consumption, as well as maintenance. Figures show lower bound of estimates based on electricity mix according to current policies.

REVIEW OF LITERATURE :

How electric vehicles help to tackle climate change

The lifecycle emigrations numbers were revised to reflect newer data on electricity carbon intensity and battery manufacture.

Electric vehicles (EVs) are a pivotal part of meeting global pretensions on global climate change. They feature prominently in mitigation pathways that limit warming to well- below 2C or1.5 C, which might be in line with the Paris Agreement's targets.

Still, while no hothouse emigration emigrations directly come from EVs, they run on electricity that is, in large part, still produced from fossil energies in numerous corridors of the earth. Energy is also used to manufacture the vehicle – and, especially, the battery.

Then, in response to recent deceiving media reports on the subject, Carbon Detail provides an in-depth check out of the climate impacts of EVs. during this analysis, Carbon Detail finds

EVs are liable for vastly lower emigrations over their continuance than conventional (internal combustion machine) vehicles across Europe as an entire.

In countries with coal-ferocious electricity generation, the advantages of EVs are lower and can have analogous continuance emigrations to the foremost effective conventional vehicles – like mongrel-electric models.

Still, as countries decarbonise electricity generation to satisfy their climate targets, driving emigrations will fall for being EVs and manufacturing emigrations will fall for brand bouncing new EVs.

within the UK in 2019, the continuance emigrations per kilometre of driving a Nissan Leaf EV were about 3 times lower than for the typical conventional auto,

indeed before counting for the falling carbon intensity of electricity generation during the auto's continuance.

Comparisons between electric vehicles and traditional vehicles are complex. They depend upon the confines of the vehicles, the delicacy of the energy-frugalityenergy-frugality estimates used, how electricity emigrations are calculated, what driving patterns are assumed, and indeed the rainfall in regions where the vehicles are used. there is no single estimate that applies to veryplaceevery place.

There also are large misgivings around the emigrations related to electric vehicle battery products, with different studies producing extensively differing figures. As battery prices fall and vehicle manufacturers start including larger batteries with longer driving ranges, battery product emigrations can have a bigger impact on the climate benefits of electrical vehicles.

Around half the emigrations from the battery, products come from the electricity employed in manufacturing and assembling the batteries. Producing batteries in regions with fairly low- carbon low-carbon electricity or in manufactories powered by renewable energy, as is going to be the case for the batteries employed in the best-dealing Tesla Model 3, can mainly reduce battery emigrations.

METHODOLOGY:

A typical passenger vehicle emits about 4.6 metric tonnes of CO_2 per annum. This assumes the typical gasoline vehicle on the road moment features an energy frugality of about 22.0 miles per gallon and drives around 11,500 miles per annum. Every gallon of gasoline burned creates about 8887 grams of CO_2.

WHAT ARE THE GREENHOUSE EMISSION EMISSIONS OF CARS?

Systematic studies show that transport generates around 25-30% of the annual proportion of total CO_2 emissions within the international organisation. . Automotive, however, isn't only about transport but also about industry and therefore the energy sector. In practice, the emissions generated by this market as an entire are often shockingly high. This consists of transporting oil from Africa to Europe, producing electricity in environmentally unfriendly coal-fired power stations, manufacturing vehicle parts and even maintaining the infrastructure related to the transmission of gas. Today's society is more mobile than ever before, but it's worth noting that each one of these processes is mutually reinforcing. the main target should, therefore, get on regulating the direction of development. Automotive-related CO_2 emissions are huge but official statistics might not depict the complete extent of the matter. HOW MUCH gas IS PRODUCED BY CARS? The amount of CO_2 produced by a selected car depends on many factors. However, it's important to seem at the larger picture – when considering the complete transport sector, passenger cars generate the foremost greenhouse emission. Road vehicular traffic accounts for 72% of total emissions, while passenger cars are chargeable for the maximum amount of 60.7% of this figure (European Parliament data, 2016). Therefore, this represents 43.7% of the full value. this can be considerably over maritime transport (13.6% of the total) or transport (13.4%). Therefore, cars generate an unlimited amount of CO_2. within the coming decades, the statistics on emissions from passenger vehicles don't seem to be optimistic – currently,

they're assumed to remain at an analogous level or maybe extend, rather than decrease. See also: Packaging in logistics – the way to optimize the logistics during a production company? HOW TO REDUCE THE CARBON FOOTPRINT? Carbon emissions from cars and lorries are a large contributor to total CO2 emissions. Therefore, it's worth following the EU Commission's guidelines. "A European strategy for low-emission mobility" could be a set of guidelines geared toward reducing greenhouse emission emissions into the atmosphere. These include increasing the efficiency of the transport system. In Europe, travel style continues to be an issue, with most drivers travelling alone. the utilization of technology may change attitudes towards conveyance somewhat, but this may not result in an entire elimination of CO2 emissions. The implementation of other energy sources is, therefore, an especially important issue. It is worth noting that if the energy demand related to EV development exceeds our production capacity in terms of green energy, we'll not be able to reduce our carbon footprint to any significant extent. the EU Commission is additionally prepared for such a scenario – in the meantime, while modern EV-related infrastructure is being developed, alternatives to move electrification are being emphasized. Improving burning engines and specialising in energy from hydrogen, biofuels and other alternative sources offers a chance to scale back CO2 emissions. This research is meant to permit a faster transition to electric vehicles, but it assumes a particular balance – a properly planned development.

WHAT IS AN ECO-FRIENDLY OR GREEN CAR?

A green vehicle, clean vehicle, eco-friendly vehicle or environmentally friendly vehicle may be a road machine that produces lower dangerous impacts to the terrain than similar conventional combustion machine vehicles running on gasoline or diesel, or one that uses certain indispensable energies.

 Green vehicles are frequently powered by indispensable energies and advanced vehicle technologies and include cold-blooded electric vehicles, plug-in mongrel electric vehicles, battery electric vehicles, compressed- air vehicles, hydrogen and energy-cell vehicles, neat ethanol vehicles, flexible-energy vehicles, gas vehicles, clean diesel vehicles, and a many sources also include

vehicles using composites of biodiesel and ethanol energy or gasohol. In 2021, with an EPA-rated energy frugality of 142 country miles per gallon gasoline fellow (mpg-e) (1.7 L/ 100 km), the 2021 Tesla Model 3, Standard Range Plus RWD came to the foremost effective EPA- certified vehicle considering all energies and every one time, surpassing the 2020 Tesla Model 3 Standard Range Plus and 2019 Hyundai Ioniq Electric. (8)
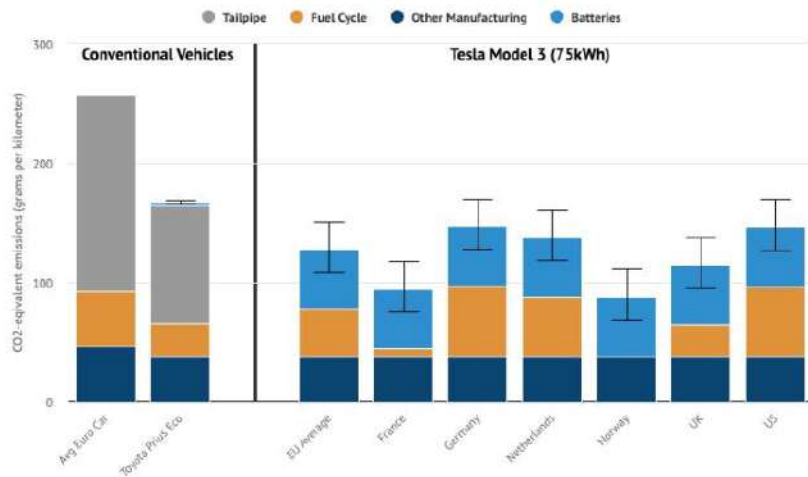
Several authors also include conventional motorcars with high energy frugality.

An environmental analysis extends beyond just the operating effectiveness and emigrations. A life-cycle assessment involves product and post-use considerations. A cradle-to-cradle design is more important than attention to one factor like energy effectiveness.

A green vehicle, clean vehicle, eco-friendly vehicle or environmentally friendly vehicle may be a road machine that produces lower dangerous impacts to the terrain than similar conventional combustion machine vehicles running on gasoline or diesel, or one that uses certain indispensable energies. Presently, in some countries, the term is employed for any vehicle complying or surpassing the more strict European emigration norms (similar to Euro6), or California's zero- emigrations vehicle norms (similar to ZEV, ULEV, SULEV, PZEV), or the low- carbon energy norms legislated in several countries.

Green vehicles are frequently powered by indispensable energies and advanced vehicle technologies and include cold-blooded electric vehicles, plug-in mongrel electric vehicles, battery electric vehicles, compressed- air vehicles, hydrogen and energy-cell vehicles, neat ethanol vehicles, flexible-energy vehicles, gas vehicles, clean diesel vehicles, and a many sources also include vehicles using composites of biodiesel and ethanol energy or gasohol. (4) (7) In 2021, with an EPA-rated energy frugality of 142 country miles per gallon gasoline fellow (mpg-e) (1.7 L/ 100 km), the 2021 Tesla Model 3 Standard Range Plus RWD came to the foremost effective EPA- certified vehicle considering all energies and every one time, surpassing the 2020 Tesla Model 3 Standard Range Plus

Lifecycle greenhouse gas emissions: conventional v Tesla (Asian battery)

GOING GREEN - EASY AND AFFORDABLE WAYS TO FORM YOUR CAR MORE ECO-FRIENDLY:

Reducing the proverbial carbon footprint may be a huge topic of dialogue lately and your vehicle may be a big part of the conversation. you do not get to park your car to scale back your auto emissions – just drive it smarter! Monitor your driving habits, continue with routine car maintenance, and lighten your load to scale back your carbon emissions and drive a greener car.

A well-maintained car is an environmentally conscious vehicle, so, if you've got been maintaining it together with your recommended maintenance schedule, you're doing all of your parts already. You'll use several other techniques to make sure your vehicle is as environmentally friendly as possible. Most of the subsequent tips will also prevent money on gas and reduce your tire print on our precious Earth.

Keep Your Car Tuned:

All your green intentions go down the drain if you do not take a daily look under the hood. ensuring your car is correctly tuned will make it run more efficiently, reduce emissions, and prevent money.

A typical tune-up improves mileage by about four per cent but by the maximum amount of 40 per cent when fixing a serious maintenance problem. Having the oil changed regularly also contributes to a greener, smoother-running engine.

Your regular tune-up can include checking, cleaning, and/or replacing spark plugs and wires, fuel and air filters, the ignition, emissions system, engine timing, and onboard computer system.

Ensure Your Tires Are Properly Inflated

Keep your tires properly inflated. it'll boost your mileage, increase safety, and extend the lifetime of your tires. Under-inflated tires have a negative effect hurt fuel economy. consistent with the U.S. Department of Energy, for each 1 PSI drop by pressure, mileage is reduced by 0.2%.

Keep in mind, that the weather affects your tire pressure. Colder weather significantly lowers it, so, if you last checked the pressure during the heat of summer or fall, confirm to see it again on the primary chilly morning. Cars that sit outside all night are going to be more suffering from the cold than cars kept in a garage.

Check your tire pressure monthly and when tires are cold. As you drive, heat from friction increases the pressure and should provide a misleadingly high reading. confirm your tires are inflated to the PSI indicated in your owner's manual.

Your Car's Not a Storage Unit:

Remember this easy rule: The heavier your car, the more gas it'll guzzle. So, lighten up! you'll improve your fuel economy by two per cent for each every 100 pounds.

Empty the trunk. Why haul around your golf clubs all year long once you only hit the links every few weeks? Clean out the rear seats. Why are you lugging around that booster seat your child outgrew a year ago?

Ditch the luggage rack :

Ever wonder about the countless cars on the roads that have roof racks but no cargo? They're wasting fuel due to the additional drag with or without cargo. Removing the luggage rack can decrease fuel consumption by a whopping 20 per cent. So, ditch the rack.

There are a couple of options. If you simply use it during camping or cycling season, remove it during the off-season. you'll keep and therefore the rack and add a streamlined fairing—a strip of fabric that deflects the wind over your rack. If you've got a trailer hitch, consider a platform bike carrier. Or consider purchasing one that's light and aerodynamic.

Also, remove unnecessary accessories that cause extra drag, like brush guards, running bars, and push bars.

Lose the Lead Foot:

Maintaining a gentle speed and reducing the quantity of braking saves on fuel. Driving 55 miles an hour during a 45-mph zone isn't only illegal but can reduce your car's mileage by 15 per cent. The optimal speed for fuel efficiency varies, from car to car, but studies have pegged it at between 35 and 50 miles an hour.

Braking and accelerating from a standstill are two major eco-unfriendly culprits. So, when accelerating, use the "pulse and glide" or "burn and coast" method—accelerate quickly, then cruise at one speed. Contrary to public opinion, this method burns less fuel to urge ising speed. Once at optimum speed, cruise within the highest gear possible.

Brake Properly:

It's not rocket science: Braking burns gas. The fuel economy is maximized when braking is minimized. So, anticipate the road ahead to scale back the

necessity for pointless braking. You'll even be amazed to seek out a smooth commute versus an erratic stop-start ride is significantly less stressful.

Choose routes that will not be clogged with traffic so you'll travel at a continuing pace.

Unexpected events on the road involve quick braking, but cruising at a lower slower speed will offer you longer to excuse on the accelerator and coast.

Don't Race the Red Lights:

Why race to a red light and then hit the brakes? When approaching a red light, hamper and coast and avoid coming to a period if possible. Accelerating again, even from a couple of miles per hour, is more fuel-efficient than accelerating from a dead stop.

Approach busy highway driving an equivalent way. Why race to urge thereto bottleneck up ahead only to slap on the brakes? Anticipate traffic slowdowns so you are not forced to brake for a period.

Don't Idle:

We all roll in the hay. You're expecting a food order, learning your kids, or shivering in a cold car expecting it to warm abreast of a frosty winter morning. a couple of seconds can become a couple of minutes before you recognize it, and, all the while, your car is guzzling gas and spewing noxious fumes.

According to EcoWatch, if you idle for 12 minutes—say, five minutes learning your morning latte, three minutes at the bank drive-thru, and 4 minutes taking note of the top of a song—you've burned or wasted enough gas to drive 24 miles.

For every 10 minutes of idling, you release a pound of CO_2 into the air. Idling has been linked to increases in asthma, heart condition, and cancer, among other diseases.

Idling can ruin your car. It builds up fuel residue which will damage engine parts and, in turn, increase fuel consumption.

Restarting your car doesn't waste fuel.

Don't Misuse the AC:

Air conditioning may be a major contributor to heating and uses a huge amount of energy to work. It can increase fuel consumption by up to twenty per cent due to the additional load on the engine.

Decide if you truly got to crank up the AC. How about letting nature cool you off? Keep the windows rolled down and therefore the sunroof hospitable cool your car. Driving on the highway with the windows down, though, creates drag, so consider turning on the AC every half an hour approximately instead. Choose the re-circulating button. Re-circulating cools only the air that's already circulating inside your car, instead of having to chill the sweltering summer air from outside also.

Don't over-use air con. If you want to use the AC, adjust your temperature setting as you'd reception. Aim for comfortable, not freezing.

Park within the shade, or, if there is no shade to be found, use a reflective windshield shade to assist keep the car cool. Don't activate the AC as soon as you switch the ignition. avalanche the windows to let the recent interior air escape first.

Heating your car in the winter uses the heat of the engine, but, if you're defrosting the windows also, you're using AC. So, as soon because the windows are defrosted, close up the defrost function and leave only the warmth on.

Clean Green:

Think eco-friendly once you clean your car. a couple of changes can make an enormous difference.

Use a waterless car wash: You'll save on gallons of wasted water. consider what proportion of water is wasted whenever you set down the hose while leaving it gushing water. Waterless products clean your car and leave a protective finish. Just spray, finish, and buff.

Stay off the driveway: Everyone does it, but it's possibly the worst thanks to washing your car. You'll waste gallons of water, and therefore the water that runs off your car carries nasty chemicals, oil, gas, and residue from exhaust straight into the storm drains and into your neighbourhood river.

If you want to wash reception, park on the grass, dirt, or gravel. The natural surfaces will help filter the water.

Do it yourself: If you do not have an environment-friendly space during which to scrub reception, attend a do-it-yourself car wash where the captured water is funnelled to a water treatment plant.

Choose eco-friendly cleaning products: rather than using harsh cleaners with nasty chemicals, choose natural, biodegradable cleaning products.

Raid your kitchen: many cleaning products already reside in your kitchen. Vinegar is great for polishing glass, while bicarbonate of soda is often made into a cleaning product. Mix 1 / 4 cup each of bicarbonate of soda and dishwasher detergent. Mix that into an outsized pail of water.

Be efficient: Clean your car from the highest down. Towel dry with chamois cloths or cloth diapers instead of disposable paper towels.

Pool Your Efforts:

While most folks can't curb our cars permanently, we will reduce the number of cars on the road. Fewer cars mean reduced carbon emissions, traffic jams on the roads, and therefore the fight for parking spaces, making it much more environmentally friendly and sustainable thanks to travel.

Studies have shown that each carpool of 4 passengers can reduce gases by 12,000 pounds a year.

There are other bonuses also. Carpooling means less wear and tear on your car, so, less need for maintenance you'll have a couple of more minutes of shut-eye if you are not the one behind the wheel. Perhaps you'll make a few of my latest friends. Most big cities encourage carpooling with HOV lanes.

Carpooling is cool; it isn't only for soccer moms anymore. It's never been easier, with several ridesharing apps available.

The End of the Road:

When your car has travelled its walk, do something great for the earth and donate it to charity. it is a win-win. you will be helping a charitable cause and getting a tax benefit within the process.

Numerous environmentally friendly auto recyclers participate in charitable donation programs. they supply pick-up, then break down your car in an eco-friendly manner.

Green disposal includes draining and properly removing hazardous fluids so that they won't drain into the bottom and our ecosystem. The vehicles are dismantled, and any still usable parts are sold. The vehicle shells are shipped to steel mills, and therefore the metal is recycled.

Getting your old, polluting car off the road improves the air we breathe.

Buy Green:

When it finally does come time to shop for a replacement car, think environmentally friendly. The range of green cars—whether it's gasoline-only, gasoline-electric hybrid, all-electric, or clean diesel—is more extensive than ever before.

There are dozens of various vehicles with built-in technologies to deliver better fuel economy and produce fewer emissions, and they are stylish, comfortable, and fun to drive.

All-electric and plug-in cars can also be eligible for a federal tax credit.

Invest in reusable air filters:

An air cleaner that's clogged with dirt, dust, and other debris won't reach the engine with sufficient clean air. This creates a "rich" mixture that reduces engine efficiency and may cause long-term damage. Don't expect your car to run as you will not attempt to run a marathon while wearing a rubber Halloween mask. Replacing the

A clogged air cleaner can improve the performance and acceleration of the car, to not mention fuel savings of up to 10%. When replacing an air cleaner, spend extra cash investing in a reusable air cleaner. This reduces waste and saves costs by the end of the day.

WHAT IS A ZERO-EMISSIONS VEHICLE?

A zero-emission vehicle, or ZEV, could be a vehicle that doesn't emit exhaust gas or other pollutants from the onboard source of power. In several states and states, transport is cited because the main source of Greenhouse gases (GHG) and other pollutants. the will to cut back this can be thus politically strong

The Tesla Model S electric car is a zero-emission vehicle (ZEV) declared 2013 World Green Car of the Year.[18]

Well-to-wheel emissions:

Well-to-wheel emissions The term zero-emissions or ZEV, as originally coined by the California Air Resources Board (CARB), refers only to automobile emissions from the onboard source of power. Therefore, CARB's definition is accounting just for pollutants emitted at the purpose of the vehicle operation, and therefore the clean air benefits are usually local because counting on the source of the electricity wont to recharge the batteries, air pollutant emissions are shifted to the situation of the electricity generation plants.[8] From a broader perspective, the electricity wont to recharge the batteries must be generated from renewable or clean sources like wind, solar, hydroelectric, or atomic power for ZEVs to own almost none or zero well-to-wheel emissions. In other words, if ZEVs are recharged from electricity generated by fuel plants, they can not be considered zero emissions. However, the spread of electrical-powered vehicles can help the event of systems for charging the EV batteries from excess electricity which can't be used otherwise. as an example, electricity demand is lowest in the dead of night and also the excess generated electricity at this point
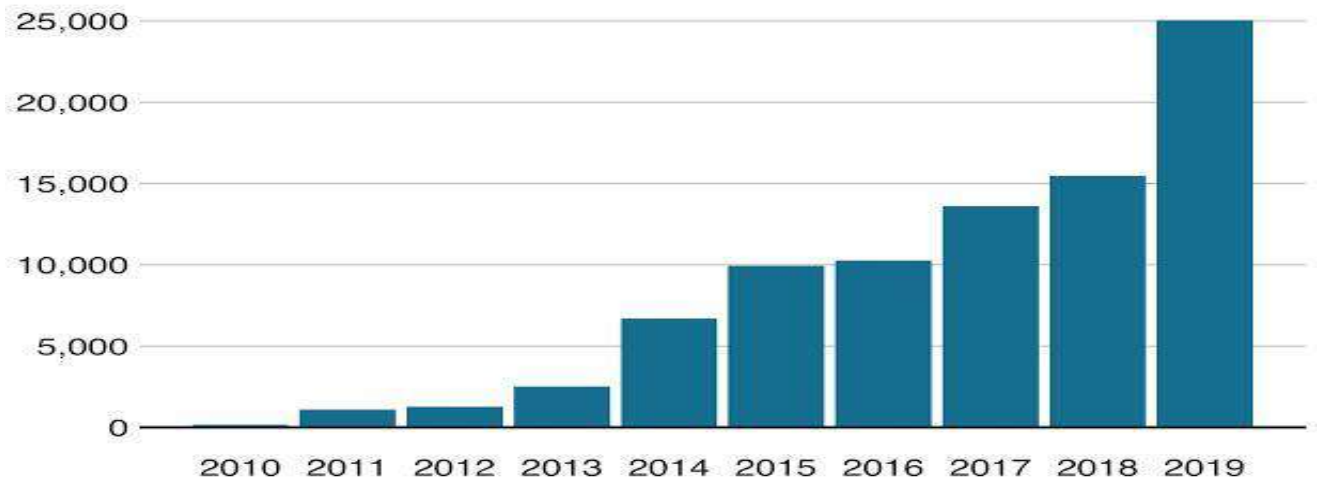
are often used for recharging the EVs' batteries. It's worth mentioning that renewable sources like wind turbines or solar panels are less controllable in terms of the number of generated electricity compared to fuel power plants; most renewable energy sources are intermittent energy sources. Therefore, the development of those resources will result in excess energy which might be better utilized by the development of EVs

Compressed hydrogen is often used as an energy storage element, while electricity must be stored in batteries. Hydrogen is often produced by electricity through electrolysis, and this electricity can come from green sources. Hydrogen will be produced in place, e.g. excess at powerhouse when the generated electricity isn't needed, or it will be connected to the grid to use the surplus electricity from the grid and produce electricity, e.g. at hydrogen pump stations

The emissions from manufacturing are many factors larger than the emissions from tailpipes, even in internal-combustion engine vehicles. Most reports on ZEVs' impact on the climate don't take under consideration these manufacturing emissions,[6][7] though over the lifetime of the car the emissions from manufacturing are relatively small.[14] Considering this U.S. energy mix, a ZEV would produce a median 58% reduction in dioxide emissions per mile driven.[15] Given the present energy mixes in other countries, it's been predicted that such emissions would decrease by 40% within the U.K.[16] and 19% in China.[17] Apart from animal-powered and human-powered vehicles, battery electric vehicles (which include cars, aircraft and boats) also don't emit any of the above pollutants, nor any CO_2 gases during use. this can be a very important quality in densely populated areas, where the health of residents may be severely affected. However, the assembly of the fuels that power ZEVs, like the assembly of hydrogen from fossil fuels, may produce more emissions per mile than the emissions produced from a traditional fossil-fueled vehicle. A well-to-wheel life cycle assessment is important to know the emissions implications related to operating a ZEV.

Zero-emission cars on the rise

Total UK annual registrations of battery electric cars

Note: 2019 shows data from January to September
Source: SMMT

BBC

TYPES OF ZERO-EMISSION VEHICLES:

BICYCLES:

Bicycle and Electric bicycles An e-bike in China. Here the rider isn't using the pedals. Pedelecs from the decision a motorbike bicycle hire scheme in Berlin. In the mid-19th Century, bicycle ownership became common (during the bike boom)—predating mass car ownership. within the 1960s, the Flying Pigeon bicycle became the one most well-liked mechanized vehicle in the world. Some 210 million electric bikes and bicycles are seen on the road in the streets of China.

MOTOR VEHICLES:

Trolleybus Other zero-emission vehicle technologies include plug-in hybrids (e.g. ICE/electric battery) when in electric mode, some plug-in hybrids in both recharging and electric mode (e.g. fuel cell/electric battery, compressed gas engine/electric battery), cryogen vehicles, hydrogen vehicles (utilizing fuel cells or converted combustion engines), and compressed gas vehicles typically recharged by slow (home) or fast (road station) electric compressors, flywheel energy storage vehicles, solar-powered cars, and tribrids. Segway Personal Transporters are two-wheeled, self-balancing, battery-powered machines that are eleven times more energy-efficient than the common American car. Operating on two lithium-ion batteries, the Segway PT produces zero emissions during operation and utilizes a negligible amount of electricity while charging via a typical wall outlet.

WIND-POWERED

 land vehicles operating on wind exist (using wind turbines and kites). For boats and other watercraft, regular and special sails (such as rotor sails, wing snails, turbo snails, and skysails) exist which will propel them without emissions. Lloyd's Register has partnered with a consortium of companies to develop an ammonia-fuelled ship.[21] Air Solar Impulse 2 Main article: Electric aircraft An electric aircraft is an aircraft powered by electric motors. Electricity is also supplied by a range of methods including batteries, ground power cables, solar cells, ultracapacitors, fuel cells and power beaming. ... Between 2015 and 2016, Solar Impulse 2 completed a circumnavigation of the planet using solar energy.

Solar Impulse 2

PlanetSolar

RESULT:

Our result is that we can at least decrease the carbon footprint of an international organisation from 25-30% to at least 15% or lesser using our findings.

CONCLUSION :

It is estimated that global greenhouse gas emissions need to decrease by 50-60% from 2000 to 2051, and by almost 100% by 2100. To achieve a 1.5-degree target with a probability of around 70%, zero emissions are needed globally as early as 2050. This nearly seems almost likely, thus such methods which have been mentioned here have to be used to achieve the same.

REFERENCES :

- https://en.wikipedia.org/wiki/Electric_car
- https://en.wikipedia.org/wiki/Electric_vehicle
- https://en.wikipedia.org/wiki/History_of_the_electric_vehicle
- https://en.wikipedia.org/wiki/Electric_car_use_by_country
- https://en.wikipedia.org/wiki/Category:Electric_vehicles
- https://www.evzlife.com/index_en.html
- https://www.cars24.com/blog/pros-and-cons-of-electric-cars/
- https://www.ergon.com.au/network/smarter-energy/electric-vehicles/benefits-of-electric-vehicles
- https://www.pocket-lint.com/cars/news/tesla/137055-tesla-everything-you-need-to-know

DECREASING CARBON FOOTPRINT IN THE AUTOMOBILE INDUSTRY

~By – Taiyeb Radiowala 21302F0017
Saaib Majeed 21302F0031

DECREASING CARBON FOOTPRINT IN THE AUTOMOBILE INDUSTRY

A Project Report

Submitted in partial fulfilment of the

requirements for the completion of

FIRST-YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By – Taiyeb Radiowala 21302F0017
Saaib Majeed 21302F0031

Under the esteemed guidance of

Ms Madhavi Amondkar

Assistant Professor, Department of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

MAHARASHTRA

2022-2023

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

CERTIFICATE

This is to certify that the project entitled, **"DECREASING CARBON FOOTPRINT IN AUTOMOBILE INDUSTRY"**, is

bonafide work of **SAAIB MAJEED (seat no.21302F0031) and TAIYEB RADIOWALA (seat no. 21302F0017)** submitted in partial fulfilment of the requirements for the

completion of **FIRST YEAR BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY** in the subject of Green Computing from the University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

ACKNOWLEDGEMENT

 The success and outcome of this assignment required a lot of guidance and assistance from many people and we are extremely fortunate to have got this all along with the completion of our assignment work.

I would express our special thanks of gratitude to our teacher Mrs Madhvi Amondkar ma'am as well as our principal Dr Rohini Kelkar ma'am gave us the golden opportunity to do this wonderful project and excel in our learning through the project on the topic **"Decreasing Carbon Footprint in Automobile Industry"**

<u>INDEX:</u>

INTRODUCTION:

Studies show that transport generates around 25-30% of the annual proportion of total CO2 emissions within the international organisation

A typical passenger vehicle emits about 4.6 metric tonnes of CO2 per annum. This assumes the typical gasoline vehicle on the road moment features an energy frugality of about 22.0 miles per gallon and drives around 11,500 miles per annum. Every gallon of gasoline burned creates about 8887 grams of CO2.

I today aim to give you the information to minimize that percentage and number.

Historically, vehicles that run primarily on gasoline or diesel have accounted for more than 99 per cent of car and passenger truck sales. However, sales of cars that run on alternative fuels, particularly electricity, are on the rise. Every year, new electric vehicle and plug-in hybrid electric vehicle models hit the market in greater numbers. Cars that run on compressed natural gas (CNG) or E85 are examples of alternative fuel vehicles (a mixture of about 85 per cent ethanol and 15 per cent gasoline).

Many alternative fuels "burn" cleaner than gasoline or diesel, resulting in fewer pollutants from the tailpipe. When fuel is created, the number of greenhouse gases (GHG) released is determined.

A green vehicle, clean vehicle, eco-friendly vehicle or environmentally friendly vehicle may be a road machine that produces lower dangerous impacts to the terrain than similar conventional combustion machine vehicles running on gasoline or diesel, or one that uses certain indispensable energies. Furthermore, lowering vehicle pollutants and improving fuel economy benefits both the environment and your wallet.

The purpose of this documentation is to decrease the carbon footprint you leave during transportation, moreover, we focus on helping you find the available cars in the market which leave the least carbon footprint as well as giving you tips about how you can decrease the carbon footprint in your car. Of course, our research is backed with hard data which we will present

Estimated reduction in life-cycle greenhouse gas emissions of new medium-size electric cars compared to gasoline cars*

Cars registered in 2021   Cars registered in 2030

Europe	United States	China	India
-66% / -74%	-60% / -62%	-37% / -48%	-19% / -30%

* Life-cycle emissions include emissions associated with vehicle and battery manufacture, fuel/electricity production and consumption, as well as maintenance. Figures show lower bound of estimates based on electricity mix according to current policies.

REVIEW OF LITERATURE :

How electric vehicles help to tackle climate change

The lifecycle emigrations numbers were revised to reflect newer data on electricity carbon intensity and battery manufacture.

Electric vehicles (EVs) are a pivotal part of meeting global pretensions on global climate change. They feature prominently in mitigation pathways that limit warming to well- below 2C or1.5 C, which might be in line with the Paris Agreement's targets.

Still, while no hothouse emigration emigrations directly come from EVs, they run on electricity that is, in large part, still produced from fossil energies in numerous corridors of the earth. Energy is also used to manufacture the vehicle – and, especially, the battery.

Then, in response to recent deceiving media reports on the subject, Carbon Detail provides an in-depth check out of the climate impacts of EVs. during this analysis, Carbon Detail finds

EVs are liable for vastly lower emigrations over their continuance than conventional (internal combustion machine) vehicles across Europe as an entire.

In countries with coal-ferocious electricity generation, the advantages of EVs are lower and can have analogous continuance emigrations to the foremost effective conventional vehicles – like mongrel-electric models.

Still, as countries decarbonise electricity generation to satisfy their climate targets, driving emigrations will fall for being EVs and manufacturing emigrations will fall for brand bouncing new EVs.

within the UK in 2019, the continuance emigrations per kilometre of driving a Nissan Leaf EV were about 3 times lower than for the typical conventional auto, indeed before counting for the falling carbon intensity of electricity generation during the auto's continuance.

Comparisons between electric vehicles and traditional vehicles are complex. They depend upon the confines of the vehicles, the delicacy of the energy-frugalityenergy-frugality estimates used, how electricity emigrations are calculated, what driving patterns are assumed, and indeed the rainfall in regions where the vehicles are used. there is no single estimate that applies to veryplaceevery place.

There also are large misgivings around the emigrations related to electric vehicle battery products, with different studies producing extensively differing figures. As battery prices fall and vehicle manufacturers start including larger batteries with longer driving ranges, battery product emigrations can have a bigger impact on the climate benefits of electrical vehicles.

Around half the emigrations from the battery, products come from the electricity employed in manufacturing and assembling the batteries. Producing batteries in regions with fairly low- carbon low-carbon electricity or in manufactories powered by renewable energy, as is going to be the case for the batteries employed in the best-dealing Tesla Model 3, can mainly reduce battery emigrations.

METHODOLOGY:

A typical passenger vehicle emits about 4.6 metric tonnes of CO_2 per annum. This assumes the typical gasoline vehicle on the road moment features an energy frugality of about 22.0 miles per gallon and drives around 11,500 miles per annum. Every gallon of gasoline burned creates about 8887 grams of CO_2.

WHAT ARE THE GREENHOUSE EMISSION EMISSIONS OF CARS?

Systematic studies show that transport generates around 25-30% of the annual proportion of total CO_2 emissions within the international organisation. . Automotive, however, isn't only about transport but also about industry and therefore the energy sector. In practice, the emissions generated by this market as an entire are often shockingly high. This consists of transporting oil from Africa to Europe, producing electricity in environmentally unfriendly coal-fired power stations, manufacturing vehicle parts and even maintaining the infrastructure related to the transmission of gas. Today's society is more mobile than ever before, but it's worth noting that each one of these processes is mutually reinforcing. the main target should, therefore, get on regulating the direction of development. Automotive-related CO_2 emissions are huge but official statistics might not depict the complete extent of the matter. HOW MUCH gas IS PRODUCED BY CARS? The amount of CO_2 produced by a selected car depends on many factors. However, it's important to seem at the larger picture – when considering the complete transport sector, passenger cars generate the foremost greenhouse emission. Road vehicular traffic accounts for 72% of total emissions, while passenger cars are chargeable for the maximum amount of 60.7% of this figure (European Parliament data, 2016). Therefore, this represents 43.7% of the full value. this can be considerably over maritime transport (13.6% of the total) or transport (13.4%). Therefore, cars generate an unlimited amount of CO_2. within the coming decades, the statistics on emissions from passenger vehicles don't seem to be optimistic – currently, they're assumed to remain at an analogous level or maybe extend, rather than decrease. See also: Packaging in logistics – the way to optimize the logistics during a production company? HOW TO REDUCE THE CARBON FOOTPRINT? Carbon emissions from cars and lorries are a large contributor to total CO_2 emissions. Therefore, it's worth following the EU Commission's

guidelines. "A European strategy for low-emission mobility" could be a set of guidelines geared toward reducing greenhouse emission emissions into the atmosphere. These include increasing the efficiency of the transport system. In Europe, travel style continues to be an issue, with most drivers travelling alone. the utilization of technology may change attitudes towards conveyance somewhat, but this may not result in an entire elimination of CO_2 emissions. The implementation of other energy sources is, therefore, an especially important issue. It is worth noting that if the energy demand related to EV development exceeds our production capacity in terms of green energy, we'll not be able to reduce our carbon footprint to any significant extent. the EU Commission is additionally prepared for such a scenario – in the meantime, while modern EV-related infrastructure is being developed, alternatives to move electrification are being emphasized. Improving burning engines and specialising in energy from hydrogen, biofuels and other alternative sources offers a chance to scale back CO_2 emissions. This research is meant to permit a faster transition to electric vehicles, but it assumes a particular balance – a properly planned development.

WHAT IS AN ECO-FRIENDLY OR GREEN CAR?

A green vehicle, clean vehicle, eco-friendly vehicle or environmentally friendly vehicle may be a road machine that produces lower dangerous impacts to the terrain than similar conventional combustion machine vehicles running on gasoline or diesel, or one that uses certain indispensable energies.

 Green vehicles are frequently powered by indispensable energies and advanced vehicle technologies and include cold-blooded electric vehicles, plug-in mongrel electric vehicles, battery electric vehicles, compressed- air vehicles, hydrogen and energy-cell vehicles, neat ethanol vehicles, flexible-energy vehicles, gas vehicles, clean diesel vehicles, and a many sources also include vehicles using composites of biodiesel and ethanol energy or gasohol. In 2021, with an EPA-rated energy frugality of 142 country miles per gallon gasoline fellow (mpg-e) (1.7 L/ 100 km), the 2021 Tesla Model 3, Standard Range Plus RWD came to the foremost effective EPA- certified vehicle considering all

energies and every one time, surpassing the 2020 Tesla Model 3 Standard Range Plus and 2019 Hyundai Ioniq Electric. (8)
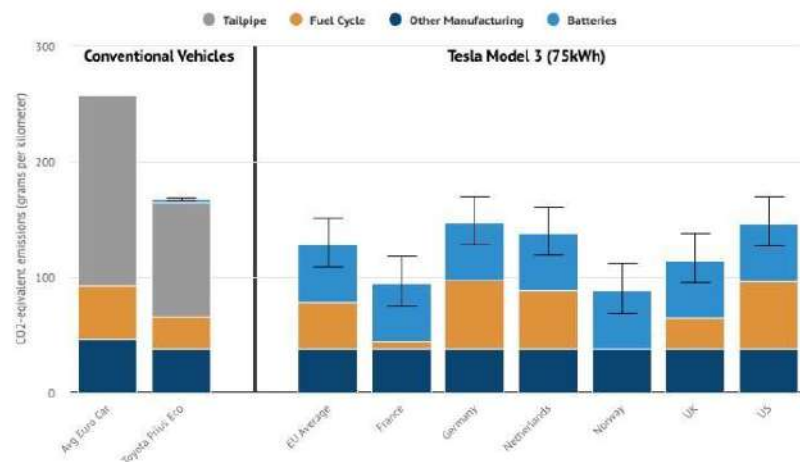
Several authors also include conventional motorcars with high energy frugality.

An environmental analysis extends beyond just the operating effectiveness and emigrations. A life-cycle assessment involves product and post-use considerations. A cradle-to-cradle design is more important than attention to one factor like energy effectiveness.

A green vehicle, clean vehicle, eco-friendly vehicle or environmentally friendly vehicle may be a road machine that produces lower dangerous impacts to the terrain than similar conventional combustion machine vehicles running on gasoline or diesel, or one that uses certain indispensable energies. Presently, in some countries, the term is employed for any vehicle complying or surpassing the more strict European emigration norms (similar to Euro6), or California's zero- emigrations vehicle norms (similar to ZEV, ULEV, SULEV, PZEV), or the low- carbon energy norms legislated in several countries.

Green vehicles are frequently powered by indispensable energies and advanced vehicle technologies and include cold-blooded electric vehicles, plug-in mongrel electric vehicles, battery electric vehicles, compressed- air vehicles, hydrogen and energy-cell vehicles, neat ethanol vehicles, flexible-energy vehicles, gas vehicles, clean diesel vehicles, and a many sources also include vehicles using composites of biodiesel and ethanol energy or gasohol. (4) (7) In 2021, with an EPA-rated energy frugality of 142 country miles per gallon gasoline fellow (mpg-e) (1.7 L/ 100 km), the 2021 Tesla Model 3 Standard Range Plus RWD came to the foremost effective EPA- certified vehicle considering all energies and every one time, surpassing the 2020 Tesla Model 3 Standard Range Plus

Lifecycle greenhouse gas emissions: conventional v Tesla (Asian battery)

GOING GREEN - EASY AND AFFORDABLE WAYS TO FORM YOUR CAR MORE ECO-FRIENDLY:

Reducing the proverbial carbon footprint may be a huge topic of dialogue lately and your vehicle may be a big part of the conversation. you do not get to park your car to scale back your auto emissions – just drive it smarter! Monitor your driving habits, continue with routine car maintenance, and lighten your load to scale back your carbon emissions and drive a greener car.

A well-maintained car is an environmentally conscious vehicle, so, if you've got been maintaining it together with your recommended maintenance schedule, you're doing all of your parts already. You'll use several other techniques to make sure your vehicle is as environmentally friendly as possible. Most of the subsequent tips will also prevent money on gas and reduce your tire print on our precious Earth.

Keep Your Car Tuned:

All your green intentions go down the drain if you do not take a daily look under the hood. ensuring your car is correctly tuned will make it run more efficiently, reduce emissions, and prevent money.

A typical tune-up improves mileage by about four per cent but by the maximum amount of 40 per cent when fixing a serious maintenance problem. Having the oil changed regularly also contributes to a greener, smoother-running engine.

Your regular tune-up can include checking, cleaning, and/or replacing spark plugs and wires, fuel and air filters, the ignition, emissions system, engine timing, and onboard computer system.

Ensure Your Tires Are Properly Inflated

Keep your tires properly inflated. it'll boost your mileage, increase safety, and extend the lifetime of your tires. Under-inflated tires have a negative effect hurt fuel economy. consistent with the U.S. Department of Energy, for each 1 PSI drop by pressure, mileage is reduced by 0.2%.

Keep in mind, that the weather affects your tire pressure. Colder weather significantly lowers it, so, if you last checked the pressure during the heat of summer or fall, confirm to see it again on the primary chilly morning. Cars that

sit outside all night are going to be more suffering from the cold than cars kept in a garage.

Check your tire pressure monthly and when tires are cold. As you drive, heat from friction increases the pressure and should provide a misleadingly high reading. confirm your tires are inflated to the PSI indicated in your owner's manual.

Your Car's Not a Storage Unit:

Remember this easy rule: The heavier your car, the more gas it'll guzzle. So, lighten up! you'll improve your fuel economy by two per cent for each every 100 pounds.

Empty the trunk. Why haul around your golf clubs all year long once you only hit the links every few weeks? Clean out the rear seats. Why are you lugging around that booster seat your child outgrew a year ago?

Ditch the luggage rack :

Ever wonder about the countless cars on the roads that have roof racks but no cargo? They're wasting fuel due to the additional drag with or without cargo. Removing the luggage rack can decrease fuel consumption by a whopping 20 per cent. So, ditch the rack.

There are a couple of options. If you simply use it during camping or cycling season, remove it during the off-season. you'll keep and therefore the rack and add a streamlined fairing—a strip of fabric that deflects the wind over your rack. If you've got a trailer hitch, consider a platform bike carrier. Or consider purchasing one that's light and aerodynamic.

Also, remove unnecessary accessories that cause extra drag, like brush guards, running bars, and push bars.

Lose the Lead Foot:

Maintaining a gentle speed and reducing the quantity of braking saves on fuel. Driving 55 miles an hour during a 45-mph zone isn't only illegal but can reduce your car's mileage by 15 per cent. The optimal speed for fuel efficiency varies, from car to car, but studies have pegged it at between 35 and 50 miles an hour.

Braking and accelerating from a standstill are two major eco-unfriendly culprits. So, when accelerating, use the "pulse and glide" or "burn and coast" method—accelerate quickly, then cruise at one speed. Contrary to public opinion, this method burns less fuel to urge ising speed. Once at optimum speed, cruise within the highest gear possible.

Brake Properly:

It's not rocket science: Braking burns gas. The fuel economy is maximized when braking is minimized. So, anticipate the road ahead to scale back the necessity for pointless braking. You'll even be amazed to seek out a smooth commute versus an erratic stop-start ride is significantly less stressful.

Choose routes that will not be clogged with traffic so you'll travel at a continuing pace.

Unexpected events on the road involve quick braking, but cruising at a lower slower speed will offer you longer to excuse on the accelerator and coast.

Don't Race the Red Lights:

Why race to a red light and then hit the brakes? When approaching a red light, hamper and coast and avoid coming to a period if possible. Accelerating again, even from a couple of miles per hour, is more fuel-efficient than accelerating from a dead stop.

Approach busy highway driving an equivalent way. Why race to urge thereto bottleneck up ahead only to slap on the brakes? Anticipate traffic slowdowns so you are not forced to brake for a period.

Don't Idle:

We all roll in the hay. You're expecting a food order, learning your kids, or shivering in a cold car expecting it to warm abreast of a frosty winter morning. a couple of seconds can become a couple of minutes before you recognize it, and, all the while, your car is guzzling gas and spewing noxious fumes.

According to EcoWatch, if you idle for 12 minutes—say, five minutes learning your morning latte, three minutes at the bank drive-thru, and 4 minutes taking note of the top of a song—you've burned or wasted enough gas to drive 24 miles.

For every 10 minutes of idling, you release a pound of CO2 into the air. Idling has been linked to increases in asthma, heart condition, and cancer, among other diseases.

Idling can ruin your car. It builds up fuel residue which will damage engine parts and, in turn, increase fuel consumption.

Restarting your car doesn't waste fuel.

Don't Misuse the AC:

Air conditioning may be a major contributor to heating and uses a huge amount of energy to work. It can increase fuel consumption by up to twenty per cent due to the additional load on the engine.

Decide if you truly got to crank up the AC. How about letting nature cool you off? Keep the windows rolled down and therefore the sunroof hospitable cool your car. Driving on the highway with the windows down, though, creates drag, so consider turning on the AC every half an hour approximately instead. Choose the re-circulating button. Re-circulating cools only the air that's already circulating inside your car, instead of having to chill the sweltering summer air from outside also.

Don't over-use air con. If you want to use the AC, adjust your temperature setting as you'd reception. Aim for comfortable, not freezing.

Park within the shade, or, if there is no shade to be found, use a reflective windshield shade to assist keep the car cool. Don't activate the AC as soon as you switch the ignition. avalanche the windows to let the recent interior air escape first.

Heating your car in the winter uses the heat of the engine, but, if you're defrosting the windows also, you're using AC. So, as soon because the windows are defrosted, close up the defrost function and leave only the warmth on.

Clean Green:

Think eco-friendly once you clean your car. a couple of changes can make an enormous difference.

Use a waterless car wash: You'll save on gallons of wasted water. consider what proportion of water is wasted whenever you set down the hose while leaving it gushing water. Waterless products clean your car and leave a protective finish. Just spray, finish, and buff.

Stay off the driveway: Everyone does it, but it's possibly the worst thanks to washing your car. You'll waste gallons of water, and therefore the water that runs off your car carries nasty chemicals, oil, gas, and residue from exhaust straight into the storm drains and into your neighbourhood river.

If you want to wash reception, park on the grass, dirt, or gravel. The natural surfaces will help filter the water.

Do it yourself: If you do not have an environment-friendly space during which to scrub reception, attend a do-it-yourself car wash where the captured water is funnelled to a water treatment plant.

Choose eco-friendly cleaning products: rather than using harsh cleaners with nasty chemicals, choose natural, biodegradable cleaning products.

Raid your kitchen: many cleaning products already reside in your kitchen. Vinegar is great for polishing glass, while bicarbonate of soda is often made into a cleaning product. Mix 1 / 4 cup each of bicarbonate of soda and dishwasher detergent. Mix that into an outsized pail of water.

Be efficient: Clean your car from the highest down. Towel dry with chamois cloths or cloth diapers instead of disposable paper towels.

Pool Your Efforts:

While most folks can't curb our cars permanently, we will reduce the number of cars on the road. Fewer cars mean reduced carbon emissions, traffic jams on the roads, and therefore the fight for parking spaces, making it much more environmentally friendly and sustainable thanks to travel.

Studies have shown that each carpool of 4 passengers can reduce gases by 12,000 pounds a year.

There are other bonuses also. Carpooling means less wear and tear on your car, so, less need for maintenance you'll have a couple of more minutes of shut-eye if you are not the one behind the wheel. Perhaps you'll make a few of my latest friends. Most big cities encourage carpooling with HOV lanes.

Carpooling is cool; it isn't only for soccer moms anymore. It's never been easier, with several ridesharing apps available.

The End of the Road:

When your car has travelled its walk, do something great for the earth and donate it to charity. it is a win-win. you will be helping a charitable cause and getting a tax benefit within the process.

Numerous environmentally friendly auto recyclers participate in charitable donation programs. they supply pick-up, then break down your car in an ecofriendly manner.

Green disposal includes draining and properly removing hazardous fluids so that they won't drain into the bottom and our ecosystem. The vehicles are dismantled, and any still usable parts are sold. The vehicle shells are shipped to steel mills, and therefore the metal is recycled.

Getting your old, polluting car off the road improves the air we breathe.

Buy Green:

When it finally does come time to shop for a replacement car, think environmentally friendly. The range of green cars—whether it's gasoline-only, gasoline-electric hybrid, all-electric, or clean diesel—is more extensive than ever before.

There are dozens of various vehicles with built-in technologies to deliver better fuel economy and produce fewer emissions, and they are stylish, comfortable, and fun to drive.

All-electric and plug-in cars can also be eligible for a federal tax credit.

Invest in reusable air filters:

An air cleaner that's clogged with dirt, dust, and other debris won't reach the engine with sufficient clean air. This creates a "rich" mixture that reduces engine efficiency and may cause long-term damage. Don't expect your car to run as you will not attempt to run a marathon while wearing a rubber Halloween mask. Replacing the

A clogged air cleaner can improve the performance and acceleration of the car, to not mention fuel savings of up to 10%. When replacing an air cleaner, spend extra cash investing in a reusable air cleaner. This reduces waste and saves costs by the end of the day.

WHAT IS A ZERO-EMISSIONS VEHICLE?

A zero-emission vehicle, or ZEV, could be a vehicle that doesn't emit exhaust gas or other pollutants from the onboard source of power. In several states and states, transport is cited because the main source of Greenhouse gases (GHG) and other pollutants. the will to cut back this can be thus politically strong

The Tesla Model S electric car is a zero-emission vehicle (ZEV) declared 2013 World Green Car of the Year.[18]

Well-to-wheel emissions:

Well-to-wheel emissions The term zero-emissions or ZEV, as originally coined by the California Air Resources Board (CARB), refers only to automobile emissions from the onboard source of power. Therefore, CARB's definition is accounting just for pollutants emitted at the purpose of the vehicle operation, and therefore the clean air benefits are usually local because counting on the source of the electricity wont to recharge the batteries, air pollutant emissions are shifted to the situation of the electricity generation plants.[8] From a broader perspective, the electricity wont to recharge the batteries must be generated from renewable or clean sources like wind, solar, hydroelectric, or atomic power for ZEVs to own almost none or zero well-to-wheel emissions. In other words, if ZEVs are recharged from electricity generated by fuel plants, they can not be considered zero emissions. However, the spread of electrical-powered vehicles can help the event of systems for charging the EV batteries from excess electricity which can't be used otherwise. as an example, electricity demand is lowest in the dead of night and also the excess generated electricity at this point are often used for recharging the EVs' batteries. It's worth mentioning that renewable sources like wind turbines or solar panels are less controllable in terms of the number of generated electricity compared to fuel power plants; most renewable energy sources are intermittent energy sources. Therefore, the development of those resources will result in excess energy which might be better utilized by the development of EVs

Compressed hydrogen is often used as an energy storage element, while electricity must be stored in batteries. Hydrogen is often produced by electricity through electrolysis, and this electricity can come from green sources. Hydrogen will be produced in place, e.g. excess at powerhouse when the generated electricity isn't needed, or it will be connected to the grid to use the surplus electricity from the grid and produce electricity, e.g. at hydrogen pump stations

The emissions from manufacturing are many factors larger than the emissions from tailpipes, even in internal-combustion engine vehicles. Most reports on ZEVs' impact on the climate don't take under consideration these manufacturing emissions,[6][7] though over the lifetime of the car the emissions from manufacturing are relatively small.[14] Considering this U.S. energy mix, a ZEV would produce a median 58% reduction in dioxide emissions per mile driven.[15] Given the present energy mixes in other countries, it's been predicted that such emissions would decrease by 40% within the U.K.[16] and 19% in China.[17] Apart from animal-powered and human-powered vehicles, battery electric vehicles (which include cars, aircraft and boats) also don't emit any of the above pollutants, nor any CO2 gases during use. this can be a very important quality in densely populated areas, where the health of residents may be severely affected. However, the assembly of the fuels that power ZEVs, like the assembly of hydrogen from fossil fuels, may produce more emissions per mile than the emissions produced from a traditional fossil-fueled vehicle. A well-to-wheel life cycle assessment is important to know the emissions implications related to operating a ZEV.

Zero-emission cars on the rise

Total UK annual registrations of battery electric cars

Note: 2019 shows data from January to September
Source: SMMT   BBC

TYPES OF ZERO-EMISSION VEHICLES:

BICYCLES:

Bicycle and Electric bicycles An e-bike in China. Here the rider isn't using the pedals. Pedelecs from the decision a motorbike bicycle hire scheme in Berlin. In the mid-19th Century, bicycle ownership became common (during the bike boom)—predating mass car ownership. within the 1960s, the Flying Pigeon bicycle became the one most well-liked mechanized vehicle in the world. Some 210 million electric bikes and bicycles are seen on the road in the streets of China.

MOTOR VEHICLES:

Trolleybus Other zero-emission vehicle technologies include plug-in hybrids (e.g. ICE/electric battery) when in electric mode, some plug-in hybrids in both recharging and electric mode (e.g. fuel cell/electric battery, compressed gas engine/electric battery), cryogen vehicles, hydrogen vehicles (utilizing fuel cells or converted combustion engines), and compressed gas vehicles typically recharged by slow (home) or fast (road station) electric compressors, flywheel energy storage vehicles, solar-powered cars, and tribrids. Segway Personal Transporters are two-wheeled, self-balancing, battery-powered machines that are eleven times more energy-efficient than the common American car. Operating on two lithium-ion batteries, the Segway PT produces zero emissions during operation and utilizes a negligible amount of electricity while charging via a typical wall outlet.

WIND-POWERED

 land vehicles operating on wind exist (using wind turbines and kites). For boats and other watercraft, regular and special sails (such as rotor sails, wing snails, turbo snails, and skysails) exist which will propel them without emissions. Lloyd's Register has partnered with a consortium of companies to develop an ammonia-fuelled ship.[21] Air Solar Impulse 2 Main article: Electric aircraft An electric aircraft is an aircraft powered by electric motors. Electricity is also supplied by a range of methods including batteries, ground power cables, solar cells, ultracapacitors, fuel cells and power beaming. ... Between 2015 and 2016, Solar Impulse 2 completed a circumnavigation of the planet using solar energy.

Solar Impulse 2

PlanetSolar

RESULT:

Our result is that we can at least decrease the carbon footprint of an international organisation from 25-30% to at least 15% or lesser using our findings.

CONCLUSION :

It is estimated that global greenhouse gas emissions need to decrease by 50-60% from 2000 to 2051, and by almost 100% by 2100. To achieve a 1.5-degree target with a probability of around 70%, zero emissions are needed globally as early as 2050. This nearly seems almost likely, thus such methods which have been mentioned here have to be used to achieve the same.

REFERENCES :

- https://en.wikipedia.org/wiki/Electric_car

- https://en.wikipedia.org/wiki/Electric_vehicle

- https://en.wikipedia.org/wiki/History_of_the_electric_vehicle

- https://en.wikipedia.org/wiki/Electric_car_use_by_country

- https://en.wikipedia.org/wiki/Category:Electric_vehicles

- https://www.evzlife.com/index_en.html

- https://www.cars24.com/blog/pros-and-cons-of-electric-cars/

- https://www.ergon.com.au/network/smarter-energy/electric-vehicles/benefits-of-electricvehicles

- https://www.pocket-lint.com/cars/news/tesla/137055-tesla-everything-you-need-to-know

Digilocker

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Laksh Anil Budhrani

Seat Number: 21302F0006

Under the esteemed guidance of

Ms. Madhavi Amondkar

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Digilocker "**, is bonafied work of **LAKSH ANIL BUDHRANI** bearing Seat No: 21302F0006   submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY in the subject **Green Computing** from University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my friend **Mr. Pranay Maloo** as well as our guide **Ms. Madhavi Amondkar** who gave me the golden opportunity to do this wonderful project on the topic **"Digilocker"**, which also helped me in doing a lot of research and I came to know about so many new things.

I am really thankful to them.

Secondly, I would also like to thank my parents who helped me a lot in finishing this project within the limited time.

It helped me increase my knowledge and skills.

Thanks again to all who supported.

3. Index

1. INTRODUCTION :

Digital locker was launched by the Indian Prime Minister Sh. Narendra Modi on 1ˢᵗ July, 2015. This development will allow the Citizens of the country to hold documents such as mark sheets, PAN card, passport etc., in the digital format.

It was designed with the motive to provide effective services. The digital locker aims at rendering help to both consumers as well as service provider. With this new development, storing and securing government documents by maintaining their authenticity becomes easier.

At the same time it seeks to reduce government expenditure thus minimizing the overhead cost to be borne by the government otherwise.

It has three major components :

- Creating digital infrastructure
- Digital delivery of services
- Digital Literacy

By linking each members ADHAAR number (a unique number given to all the holders of the card) digital locker reduces the dangers of losing important documents. Also, the possibility of documents being forged gets minimized, therefore allows secure access to Government issued documents. Paper work and red tapirs also decreases.

Digital locker is also attributed with the advantage of saving a lot of time effort and money on part of both- the service providers and the service consumers, as these documents are made available anywhere and anytime. Besides they can be shared via the online system. Carrying Physical copies of documents will become a redundant concept soon.

The digital locker renders its services throughout all major departments viz., education, healthcare, railway and other ministries. It seeks to bring together various existing schemes and programs. These existing plans of action are restructured and reconstructed.

DigiLocker is an online service provided by Ministry of Electronics and IT (MeitY), Government of India under its Digital India initiative. DigiLocker provides an account in cloud to every Indian citizen to access authentic documents/certificates such as driving license, vehicle registration, academic mark list in digital format from the original issuers of these certificates. It also provides 1GB storage space to each account to upload scanned copies of legacy documents.
Users need to possess an Aadhar card to use DigiLocker. For sign-up, the Aadhar card number and the one-time password sent to the Aadhar-associated mobile number

needs to be entered. For later log-ins, the user can set their own password or link the account to Facebook or Google logins.

The beta version of the service was rolled out in February 2015, and launched by the Prime Minister on 1 July 2015. The storage space provided was 100 MB initially but was later increased to 1 GB. The individual file size for upload cannot exceed 10 MB.

In July 2016, DigiLocker recorded 20.13 lakh users with a repository of 24.13 lakh documents. The number of users saw a large jump of 7.53 lakh in April when the government urged all municipal bodies to use DigiLocker to make their administration paperless.

From 2017, the facility was extended to allow students of ICSE board to store their class X and XII certificates in DigiLocker and share them with agencies as required. In February 2017, Kotak Mahindra Bank started providing access to documents in DigiLocker from within its net-banking application, allowing users to e-sign them and forward as needed. In May 2017, over 108 hospitals, including the Tata Memorial Hospital were planning to launch the use of DigiLocker for storing cancer patients' medical documents and test reports. According to a UIDAI architect, patients would be provided a number key, which they can share with another hospital to allow them to access their test reports.

As of December 2019, DigiLocker provides access to over 372+ crore authentic documents from 149 issuers. Over 3.3 crore users are registered on DigiLocker. 43 requester organisations are accepting documents from DigiLocker.

There is also an associated facility for e-signing documents. The service is intended to minimise the use of physical documents, reduce administrative expenses, provide authenticity of the edocuments, provide secure access to government-issued documents and to make it easy for the residents to receive services.

1.1 ABOUT DIGILOCKER

Targeted at the idea of paperless governance, DigiLocker is a platform for issuance and verification of documents & certificates in a digital way, thus eliminating the use of physical documents. Indian citizens who sign up for a DigiLocker account get a dedicated cloud storage space that is linked to their Aadhaar (UIDAI) number. Organizations that are registered with Digital Locker can push electronic copies of documents and certificates (e.g., driving license, Voter ID, School certificates) directly into citizens lockers. Citizens can also upload scanned copies of their legacy documents in their accounts. Using the eSign facility, these legacy documents can be signed electronically.

The platform has the following benefits:

- Citizens can access their digital documents anytime, anywhere and share it online. This is convenient and time saving.
- It reduces the administrative overhead of Government departments by minimizing the use of paper.
- Digital Locker makes it easier to validate the authenticity of documents as they are issued directly by the registered issuers.
- Self-uploaded documents can be digitally signed using the eSign facility (which is similar to the process of self-attestation).

2. REVIEW OF LITERATURE

2.1 KEY STAKEHOLDERS IN THE DIGILOCKER SYSTEM

The following are the key stakeholders in the DigiLocker system:

- **Issuer:** Entity issuing e-documents to individuals in a standard format and making them electronically available e.g., CBSE, Registrar Office, Income Tax department, etc.
- **Requester:** Entity requesting secure access to a particular edocument stored within a repository (e.g., University, Passport Office, Regional Transport Office, etc.)
- **Resident:** An individual who uses the Digital Locker service based on Aadhaar number.

2.2 MAIN TECHNOLOGY COMPONENTS OF DIGILOCKER SYSTEM

The main technology components of the DigiLocker system are:

- **Repository:** Collection of e-documents that is exposed via standard APIs for secure, real-time access.
- **Access Gateway:** Secure online mechanism for requesters to access e-documents from various repositories in real-time using URI (Uniform Resource Indicator).
- **DigiLocker Portal:** Dedicated cloud based personal storage space, linked to each resident's Aadhaar for storing e-documents, or URIs of e-documents.

2.3 SECTIONS OF DIGILOCKER

Each user's digital locker has the following sections.
- **My Certificates:** This section has two subsections:
  - Digital Documents: This contains the URI's of the documents issued to the user by government departments or other agencies.
  - Uploaded Documents: This subsection lists all the documents which are uploaded by the user. Each file to be uploaded should not be more than 10MB in size. Only pdf, jpg, jpeg, png, bmp and gif file types can be uploaded.
- **My Profile:** This section displays the complete profile of the user as available in the UIDAI database.
- **My Issuer:** This section displays the issuers' names and the number of documents issued to the user by the issuer.
- **My Requester:** This section displays the requesters' names and the number of documents requested from the user by the requesters.
- **Directories:** This section displays the complete list of registered issuers and requesters along with their URLs.

2.4 AMENDMENTS TO IT ACT FOR DIGITAL LOCKER

Digital Locker is not merely a technical platform. Ministry of Electronics and IT, Government of India also notified Information Technology (Preservation and Retention of Information by Intermediaries Providing Digital Locker Facilities) Rules, 2016 for Digital Locker. Amendments made to these rules in February 2017 state that the issued documents provided and shared through Digital Locker are at par with the corresponding physical certificates.

According to this Rule, –

1. Issuers may start issuing and Requesters may start accepting digitally (or electronically) signed certificates or documents shared from subscribers' Digital Locker accounts at par with the physical documents in accordance with the provisions of the Act and rules made thereunder.
2. When such certificate or document mentioned in sub-rule
3. Has been issued or pushed in the Digital Locker System by an issuer and subsequently accessed or accepted by a requester through the URI, it shall be deemed to have been shared by the issuer directly in electronic form.

District collector Bala Kiran intends to say that digital locker scheme being launched by the Indian Prime Minister Sh. Narendra Modi would help the citizens to secure their e-Documents and to share in the uniform resource identifier to various departments where a copy is to be produced.

Departments of Electronics and Information technology, along with Government of India initiated the facility of digital locker scheme under the digital India campaign to provide a secure dedicated personal electronic space for storing the documents of resident Indian citizens.

Vimal Sharma ICT Expert, intends to say that, the DigiLocker, the National Digital Locker system launched by the Government of India, is aimed at the concept of paperless. According to Department of Electronics and Information Technology in early 2015, this new development seeks to create an electronic space for storing the documents which is further linked to the AADHAR number of the user and thus can be utilized for securing personal documents such as
PAN card etc of the citizens of India.

2.5 TERMS ASSOCIATED WITH DIGITAL LOCKER

- An **e-document** is an electronic document issued to one or more individuals (Aadhaar holders) in appropriate formats (both as XML and printable) compliant to digital locker technical specifications. You may also upload govt. issued scanned documents and also digitally sign the same, if required.
- **Repository** is a Collection of e-Documents
- **Issuer** is an entity issuing e-documents to individuals in a standard format and making them electronically available. e.g., CBSE, Registrar Office, Income Tax department, etc.
- **Requester** is an entity (person or organization) requesting secure access to a particular e-document stored
- **Access Gateway** provides a secure online mechanism for requesters to access e- documents from various repositories in real-time using e-Document URI (Uniform Resource Indicator). The gateway will identify the address of the repository where the e-Document is stored based on the URI and will fetch the e-Document from that repository. Please refer to the DigiLocker Technical specifications available on the portal for further information.
- **A URI is a Uniform Resource Indicator** generated by the issuer department, which is mandatory for every e-document of the digital locker system. This unique URI can be resolved to a full URL (Uniform Resource Locator) to access the actual document in appropriate repository.

2.6 COMPARING DIGITAL LOCKER WITH EXISTING SITES LIKE GOOGLE DRIVE AND DROPBOX

Free cloud storage like Google Drive and Dropbox also let you upload and store the documents; allows you create folders and categorise to make browsing easy.

There are private businesses like Kleeto.in that provide secure online storage for a fee ranging from 200 Rupees to 2,000 Rupees. For a basic yearly subscription package of 200 Rupees, Kleeto securely stores 15 documents of 5 pages each with an online storage of up to 50 MB. They will pick-up, scan, upload and keep the papers safe. The original documents will be sent to you within 2-3 days when you need them.

Private e-locker services are also available now. ICICI bank has a similar e-locker service which customers can use by login in through their internet banking or ICICI Direct account login.

However, with other websites cyber law and jurisdiction is a concern.

When people upload their personal information into these websites they have no idea where the data is stored(somewhere in cloud), who else has access to the information,

what polices these companies have in regards to employees access to customer data or what polices they have in regards to things like legal subpoenas and requests from law enforcement and governments.

If you store anything in DropBox or Google drive, you are governed under US regulations and there is no direct protection under the Information Technology (IT) Act.

So how does Digital Locker differ from websites like Google Drive and Dropbox?

Digital Locker offers much more than a place to store the documents.

- Scanned copies of documents can be uploaded, like in other websites but these scanned documents which, if required, can be digitally signed thus making the e-document at par with the original one.
- The locker acts as repository or store house of all government issued e-documents. These e-documents are uploaded by issuers, government departments or agencies such as CBSE, registrar office, income tax department etc.
- The uploaded documents can be shared via email. The e-documents from governments agencies can be viewed by an authorised list of requestors such as a bank, university , the passport office or the transport department.

3. METHODOLOGY

Digital locker is one of the key initiatives under Digital India Program launched by the Prime Minister of India. It is aimed at minimizing the usage of physical documents and enable sharing of edocuments across agencies. It is an online application, developed in collaboration with software development companies in India, which provides facility of online document storage of important documents including Voter ID card, PAN card, Driving license etc.

It is mandatory to have Aadhaar number to use DigiLocker facility. Residents can upload their own electronic documents and digitally sign them using the e-sign facility. All e-documents are linked to Aadhaar number and can be treated as authorized documents by Government and its other entities. Therefore, physical documents need not to be carried while applying for jobs or government certificates or educational institutions etc.

Digital locker system in India is a good initiative taken by India towards e-document and e-economy. For the research study purpose secondary data is heavily used to express views. For this purpose, books, magazines, government official letters, newspapers and websites are used.

4. FINDINGS

 Despite its benefits, digital locker is characterized by some limitations. These are as follows:

•An issue that can be easily attributed to a project like digital locker is the adversities associated with achieving the desired results because of the existing track record of failure of such large-scale projects. The associated risks need to be carefully evaluated and courses of action to minimize the risk should be worked upon as the project approaches the initial stages.

•This initiative is supported by broadband highway, universal access to phone, e-governance etc. These pillars individually face challenges and thus require immediate attention for the success of Digital locker.

4.1 DIGITAL LOCKER SYSTEM :

What is DigiLocker?

Dedicated personal storage space, linked to each resident's Aadhaar number. DigiLocker can be used to securely store e-documents as well as store Uniform Resource Identifier (URI) link of e-documents issued by various issuer departments. The e-Sign facility provided as part of DigiLocker system can be used to digitally sign e-documents.

How does DigiLocker work?

To Sign-up for the DigiLocker you need to have an Aadhaar and mobile number registered with Aadhaar. Type your Aadhaar number and the captcha code. After clicking signup button, an OTP (One Time Password) will be sent to the registered mobile number and email-id. Enter OTP and click on "Validate OTP" button to complete the sign up and login.

How is DigiLocker going to help me?

It will minimize the use of physical documents and will provide authenticity of the e-documents It will provide secure access to Govt. issued documents. It will also reduce administrative overhead of Govt. departments and agencies and make it easy for the residents to receive services

Send your queries to : support@digitallocker.gov.in

A "digital locker" introduced in February 2016 and the service was launched by the Government of India in July 2015 to provide a secure dedicated personal electronic space for storing the documents of resident Indian citizens. The storage space of 1GB is linked to the Unique Identification Authority of India (Aadhaar number) of the user, which can be utilised for storing personal documents like University certificates, Permanent account number (PAN) cards, voter id cards, the URIs of the e-ds.

The numerous physical documents can be a huge administrative burden. The DigiLocker system shall help in reducing the burden both for the department and the citizen. Furthermore, the digital system will help in easing the authenticity troubles confronted by the Government of India.

The issue of providing multiple copies for a job can be resolved by this innovative move. The e-locker shall save our income certificate, birth certificate, education certificate, etc. which can be made easily accessible to the government departments one seeks to apply.

One can also e-share their documents with any registered agency or department. The access to government issued documents through this portal and mobile application will be hindrance-free.

For instance, when applying for a driving license, the Regional Transport Office can issue the document and thus, upload it in the designated repository. The document will then be pushed to the concerned resident's Aadhar card number. In this case, RTO is called the 'issuer'.

Another major advantage of this system is that one can e-sign the documents and have a monopoly over 10 MB personal space which might be increased to 1 GB if need be. Since the data will be a part of the personal account, it ensures privacy. Moreover, for those who do not have a Unique Identification Number, e-Aadhar can be downloaded from the DigiLocker portal.

The stakeholders of the Digital System are the ones who can access the accounts which include the residents, issuers, and requesters. However, soon the government is planning to be the issuer or requesting agency on the board.

- **Issuers of documents can be** – Registrar office, Income Tax department, RTO, educational institutions etc. Basically, it is the authority that makes a document electronically available.

- **Requesters of documents can be** – Employers, Universities, Passport Office etc. This particular party wants to have a secure access to the documents.

- **Resident can be** – One who uses the Digital Locker service based on Aadhar and OTP (one time password) authentication.

The following are guidelines to activate the Digital Locker account:

1. Visit the website – digitallocker.gov.in
2. Enter your Unique identification number: AADHAR card number.
3. After signing up, a one time password will be sent by UIDAI to the registered email id and mobile number.
4. Enter your one time password, and validate it by clicking 'Validate OTP'.
5. The screen will show various menu options available.
6. One can upload various documents like Pan card, Voter Id, SSC Certificate etc. The documents put on the portal shall be available under 'Uploaded documents'.
7. One can share their documents by clicking 'Share' , under the menu 'My certificates'
8. My Profile – This section will explain the profile of the resident.
9. My Issuer – This section displays the Issuer name and the number of documents issued to the resident by the issuer.
10. My Requester – This section displays the Requester name and the number of documents requested from the resident by the requester.
11. Directories – This section displays the complete list of registered Issuers and Requesters along with their URL.

To share any document, one has to click the 'share' option against the document. On clicking, a box will pop up in which one has to enter the email address of the recipient. The document will be shared via

email. The recipient will receive an email from "no-reply@digitallocker.gov.in". The subject line will denote the document name and document type. The content of the email will have the URI – Uniform Resource Indicator link of the document and the sender name and UID number. The recipient can access the document using URI link provided.

In brief, the DigiLocker system is an imperative measure to collect our data and store it in one particular account. The insecurities regarding misplacing our documents are always present. The government of India has initiated a wonderful service that can potentially make it easy to accumulate our documents and acquire them from different authorities. The linkage of the system with the Unique Identification number is a significant measure to maintain the privacy of the citizens of India. We do hope for its success.

5. DISCUSSION

Objectives of DigiLocker:

- Enable digital empowerment of residents by providing them withDigital Locker on the cloud
- Enable e-Signing of documents and make them available electronically and online Minimize the use of physical documents
- Ensure authenticity of the e-documents and thereby eliminate usage of fake documents
- Secure access to Govt. issued documents through a web portal and mobile application for residents
- Reduce administrative overhead of Govt. departments and agencies and make it easy for the residents to receive services
- Anytime, anywhere access to the documents by the resident
- Open and interoperable standards based architecture to support a well-structured standard document format to support easy sharing of documents across departments and agencies
- Ensure privacy and authorized access to residents' data.

By linking each members AADHAAR number which is a unique number given to all the holders of the card, digital locker will reduce the dangers of losing important documents. Also the possibility of documents being forged will be minimized therefore it will allow secure access to Government issued documents. Digital locker is also attributed with the advantage of saving a lot of time effort and money on part of both the service providers and also the service consumers as these documents will be made available anywhere, anytime. Besides they can be shared via the online system. Carrying physical copies of documents will soon be a redundant concept. The digital locker will render it services throughout all major departments viz., education, healthcare, railway and other ministries. It seeks to bring together various existing schemes and programs.

1. To study digital India scheme.
2. To study prevailing digital locker system in India.

3. To analyze & assess the problem of digital locker system.

4. To study the existing feasibility of the digital locker system.

- Enable digital empowerment of residents by providing them with Digital Locker on the cloud

- Enable e-Signing of documents and make them available electronically and online

- Minimize the use of physical documents

- Ensure Authenticity of the e-documents and thereby eliminating usage of fake documents

- Secure access to Govt. issued documents through a web portal and mobile application for residents

- Reduce administrative overhead of Govt. departments and agencies and make it easy for the residents to receive services

- Anytime, anywhere access to the documents by the resident

- Open and interoperable standards based architecture

- Architecture to support a well-structured standard document format to support easy sharing of documents across departments and agencies

- Ensure privacy and authorized access to residents' data.

- The third and the most important challenge to be brought to light is the shortage of human resources. India despite being an IT giant is often faced by the problem of shortage of staff

This can severely impact the growth of the aforesaid initiative. Adequate personnel should be appointed to carry out the objectives of the initiative.

- Also it will be difficult to accumulate the required financial resources and is likely to increase government debt thus increasing the financial deficit of the country. It becomes necessary for the government to ensure that its ability to raise debt is not completely exhausted.

- Different departments and ministries would offer their services viz., healthcare, education, judicial services etc. thus for the program tube a success it becomes

imperative that there is absolute coordination between the departments and utmost commitment on part of the ministries.

- One of the most difficult challenges that the government is likely to face is creating awareness among the citizens of the country and educating them about the advantages of digital locker.

- Majority of the population in India is illiterate. Awareness creation will be a long process. Radio television, workshops held in villages can act as instruments to impart knowledge about the program.

- Those without ADHAAR Card will find it difficult to convert their physical documents into the electronic form. Thus issuing this card of identity shall continue to be an ongoing process.

How can digital locker be used?
- In Aug 2018, The Ministry of road transport and Highways led by Nitin Gadkari has finally issued a notification to all the Indian State's transport authorities directing them to legally accept the documents including Driving License and vehicle's Registration Certificates (RCs) on to the government's DigiLocker mobile app.

- CBSE opened 80 lakh digital lockers for class 10, 12 students. Digital lockers are a pathway to provide signed marks sheets, migration certificates and pass certificates to the board students

- In February 2017, Kotak Mahindra Bank started providing access to documents in DigiLocker from within its net-banking application, allowing users to e-sign them and forward as needed.

- In May 2017, over 108 hospitals, including the Tata Memorial Hospital were planning to launch the use of DigiLocker for storing cancer patients' medical documents and test reports. According to a UIDAI architect, patients would be provided with a number key, which they can share with another hospital to allow them to access their test reports.[9]

- There is also an associated facility for e-signing documents. The service is intended to minimise the use of physical documents, reduce administrative expenses, provide authenticity of the e-documents, provide secure access to

government-issued documents and to make it easy for the residents to receive services.

6. CONCLUSION:

Digital Locker scheme launched under the Digital India Campaign is an initiative taken by the Government of India to ensure safe custody of the important documents such as PAN card; ADHAAR Card etc. This move in turn results in much more transparency, authenticity and eradication of red Taoism and corruption to the maximum extent possible. This is a move for making India 'a digitized economy' and thereby ensuring broadband connectivity in the rural areas. Thus, for the program to be a success, it becomes imperative that there is absolute coordination between the various departments and utmost commitment on the part of government.

DigiLocker is an application that has been developed by software development company in India and launched by Indian government to store online documents safely. By connecting aadhar number, users can save all government issued documents online on the cloud storage system of 10MB space.

Digital India is promoted by Government to use maximum things in digital way so that corruption can be stopped. When everything is digital then things are visible to all with privacy.

One does not need to wait for documents as they are stored online. Even, the transaction of money is visible in various department offices etc. As in India, literacy rate is not high, so digilocker is govt. attempt to make people independent.

It also gives good contribution in Growth of India.

The main purpose of digilocker is to increase knowledge of people towards digital and make them independent.

All in all, through the study and research, we have learnt a lot about the paperless concept. We have learnt about the development of paperless concept through trends mapping, as well as the advantages of going paperless. For example, going paperless helps reduce cost and confer efficiency to a business. Besides, we have learnt about how paperless is going around the world. We realized that many schools around the world have started implementing this paperless concept. We think that we should take them as our examples. And, we never forget it can safeguard and protect our Mother Nature, which is the creation of God. Imagine, pristine forests are destroyed and so do the habitats of flora and fauna. We will not want that to happen as we cannot deny that our environment has a strong correlation with our quality of living. And, after researching into the paperless matter in USM, we have identified some hindrances that prevent us from going paperless and think of solutions to solve them, using the

tool of process mapping which we learnt through the subject of operations management. We do hope that USM will be the pioneer in adopting the paperless concept, and be the shining example among the universities in Malaysia. And we believe that, there is a will, there is a way! Let us hold our hands together and save our planet.

Document management and automated workflow are paving the way for electronic transformation and a paperless working environment. The focus on business processes and their automation is preparing organizations for e-commerce in the new economy. It forces organizations to be customer orientated and to operate across organizational boundaries in cross-functional teams, ensuring competitive advantage. Real business integration remains a major challenge that needs to address the seamless integration of existing applications, documents, items, paper, voice and data into the electronic workplace, addressing electronic mail, fax and telephone. The role of the enterprise information portal in this regard should make for interesting research.

7. REFERENCES

1. https://www.academia.edu/32276820/Digital_locker_project_sandesh

2. https://www.bemoneyaware.com/blog/digital-locker-what-is-digitallocker-how-to-register-and-use-digilocker/

3. https://digilocker.gov.in/about.php

4. https://www.ifourtechnolab.com/blog/digital-locker-online-documentstorage-facility

5. https://www.quora.com/What-is-the-conclusion-of-Digital-India

6. https://www.slideshare.net/neelamchhipa/digilockerpresentation

7. https://en.wikipedia.org/wiki/DigiLocker

8. https://economictimes.indiatimes.com/industry/miscellaneous/paperlessfuture-is-here-with-push-for-digital-locker/articleshow/62332053.cms? from=mdr

9. https://www.livemint.com/Technology/vt7Sx2J2DTaoyVpMqsRxiM/Whatis-DigiLocker-and-how-to-use-it-to-carry-all-documents.html

10. https://www.india.gov.in/spotlight/digilocker-online-document-storagefacility

11. https://www.revolutiondatasystems.com/blog/government-offices-gopaperless-with-document-management

12. https://www.researchgate.net/publication/252061532_Digital_todo_Paperless_literature_review

13. https://www.efilecabinet.com/7-simple-steps-for-going-paperless/

14. https://blog.constellation.com/2018/05/23/how-to-go-paperless-in-yoursmall-business/

Digilocker

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Pranay Maloo

Seat Number: <u>21302F0026</u>

Under the esteemed guidance of

Ms. Madhavi Amondkar

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Digilocker "**, is bonafied work of **PRANAY MALOO** bearing Seat No: _____21302F0026____ submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY in the subject **Green Computing** from University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my friend **Mr. Laksh Budhrani** as well as our guide **Ms. Madhavi Amondkar** who gave me the golden opportunity to do this wonderful project on the topic **"Digilocker"**, which also helped me in doing a lot of research and I came to know about so many new things.

I am really thankful to them.

Secondly, I would also like to thank my parents who helped me a lot in finishing this project within the limited time.

It helped me increase my knowledge and skills.

Thanks again to all who supported.

3. Index

1. INTRODUCTION :

Digital locker was launched by the Indian Prime Minister Sh. Narendra Modi on 1st July, 2015. This development will allow the Citizens of the country to hold documents such as mark sheets, PAN card, passport etc., in the digital format.

It was designed with the motive to provide effective services. The digital locker aims at rendering help to both consumers as well as service provider. With this new development, storing and securing government documents by maintaining their authenticity becomes easier.

At the same time it seeks to reduce government expenditure thus minimizing the overhead cost to be borne by the government otherwise.

It has three major components :

- Creating digital infrastructure
- Digital delivery of services
- Digital Literacy

By linking each members ADHAAR number (a unique number given to all the holders of the card) digital locker reduces the dangers of losing important documents. Also, the possibility of documents being forged gets minimized, therefore allows secure access to Government issued documents. Paper work and red tapirs also decreases.

Digital locker is also attributed with the advantage of saving a lot of time effort and money on part of both- the service providers and the service consumers, as these documents are made available anywhere and anytime. Besides they can be shared via the online system. Carrying Physical copies of documents will become a redundant concept soon.

The digital locker renders its services throughout all major departments viz., education, healthcare, railway and other ministries. It seeks to bring together various existing schemes and programs. These existing plans of action are restructured and reconstructed.

DigiLocker is an online service provided by Ministry of Electronics and IT (MeitY), Government of India under its Digital India initiative. DigiLocker provides an account in cloud to every Indian citizen to access authentic documents/certificates such as driving license, vehicle registration, academic mark list in digital format from the original issuers of these certificates. It also provides 1GB storage space to each account to upload scanned copies of legacy documents.
Users need to possess an Aadhar card to use DigiLocker. For sign-up, the Aadhar card number and the one-time password sent to the Aadhar-associated mobile number

needs to be entered. For later log-ins, the user can set their own password or link the account to Facebook or Google logins.

The beta version of the service was rolled out in February 2015, and launched by the Prime Minister on 1 July 2015. The storage space provided was 100 MB initially but was later increased to 1 GB. The individual file size for upload cannot exceed 10 MB.

In July 2016, DigiLocker recorded 20.13 lakh users with a repository of 24.13 lakh documents. The number of users saw a large jump of 7.53 lakh in April when the government urged all municipal bodies to use DigiLocker to make their administration paperless.

From 2017, the facility was extended to allow students of ICSE board to store their class X and XII certificates in DigiLocker and share them with agencies as required. In February 2017, Kotak Mahindra Bank started providing access to documents in DigiLocker from within its net-banking application, allowing users to e-sign them and forward as needed. In May 2017, over 108 hospitals, including the Tata Memorial Hospital were planning to launch the use of DigiLocker for storing cancer patients' medical documents and test reports. According to a UIDAI architect, patients would be provided a number key, which they can share with another hospital to allow them to access their test reports.

As of December 2019, DigiLocker provides access to over 372+ crore authentic documents from 149 issuers. Over 3.3 crore users are registered on DigiLocker. 43 requester organisations are accepting documents from DigiLocker.

There is also an associated facility for e-signing documents. The service is intended to minimise the use of physical documents, reduce administrative expenses, provide authenticity of the edocuments, provide secure access to government-issued documents and to make it easy for the residents to receive services.

1.1 ABOUT DIGILOCKER

Targeted at the idea of paperless governance, DigiLocker is a platform for issuance and verification of documents & certificates in a digital way, thus eliminating the use of physical documents. Indian citizens who sign up for a DigiLocker account get a dedicated cloud storage space that is linked to their Aadhaar (UIDAI) number. Organizations that are registered with Digital Locker can push electronic copies of documents and certificates (e.g., driving license, Voter ID, School certificates) directly into citizens lockers. Citizens can also upload scanned copies of their legacy documents in their accounts. Using the eSign facility, these legacy documents can be signed electronically.

The platform has the following benefits:

- Citizens can access their digital documents anytime, anywhere and share it online. This is convenient and time saving.
- It reduces the administrative overhead of Government departments by minimizing the use of paper.
- Digital Locker makes it easier to validate the authenticity of documents as they are issued directly by the registered issuers.
- Self-uploaded documents can be digitally signed using the eSign facility (which is similar to the process of self-attestation).

2. REVIEW OF LITERATURE

2.1 KEY STAKEHOLDERS IN THE DIGILOCKER SYSTEM

The following are the key stakeholders in the DigiLocker system:

- **Issuer:** Entity issuing e-documents to individuals in a standard format and making them electronically available e.g., CBSE, Registrar Office, Income Tax department, etc.
- **Requester:** Entity requesting secure access to a particular edocument stored within a repository (e.g., University, Passport Office, Regional Transport Office, etc.)
- **Resident:** An individual who uses the Digital Locker service based on Aadhaar number.

2.2 MAIN TECHNOLOGY COMPONENTS OF DIGILOCKER SYSTEM

The main technology components of the DigiLocker system are:

- **Repository:** Collection of e-documents that is exposed via standard APIs for secure, real-time access.
- **Access Gateway:** Secure online mechanism for requesters to access e-documents from various repositories in real-time using URI (Uniform Resource Indicator).
- **DigiLocker Portal:** Dedicated cloud based personal storage space, linked to each resident's Aadhaar for storing e-documents, or URIs of e-documents.

2.3 SECTIONS OF DIGILOCKER

Each user's digital locker has the following sections.
- **My Certificates:** This section has two subsections:
    - Digital Documents: This contains the URI's of the documents issued to the user by government departments or other agencies.
    - Uploaded Documents: This subsection lists all the documents which are uploaded by the user. Each file to be uploaded should not be more than 10MB in size. Only pdf, jpg, jpeg, png, bmp and gif file types can be uploaded.
- **My Profile:** This section displays the complete profile of the user as available in the UIDAI database.
- **My Issuer:** This section displays the issuers' names and the number of documents issued to the user by the issuer.
- **My Requester:** This section displays the requesters' names and the number of documents requested from the user by the requesters.
- **Directories:** This section displays the complete list of registered issuers and requesters along with their URLs.

2.4 AMENDMENTS TO IT ACT FOR DIGITAL LOCKER

Digital Locker is not merely a technical platform. Ministry of Electronics and IT, Government of India also notified Information Technology (Preservation and Retention of Information by Intermediaries Providing Digital Locker Facilities) Rules, 2016 for Digital Locker. Amendments made to these rules in February 2017 state that the issued documents provided and shared through Digital Locker are at par with the corresponding physical certificates.

According to this Rule, –

1. Issuers may start issuing and Requesters may start accepting digitally (or electronically) signed certificates or documents shared from subscribers' Digital Locker accounts at par with the physical documents in accordance with the provisions of the Act and rules made thereunder.
2. When such certificate or document mentioned in sub-rule
3. Has been issued or pushed in the Digital Locker System by an issuer and subsequently accessed or accepted by a requester through the URI, it shall be deemed to have been shared by the issuer directly in electronic form.

District collector Bala Kiran intends to say that digital locker scheme being launched by the Indian Prime Minister Sh. Narendra Modi would help the citizens to secure their e-Documents and to share in the uniform resource identifier to various departments where a copy is to be produced.

Departments of Electronics and Information technology, along with Government of India initiated the facility of digital locker scheme under the digital India campaign to provide a secure dedicated personal electronic space for storing the documents of resident Indian citizens.

Vimal Sharma ICT Expert, intends to say that, the DigiLocker, the National Digital Locker system launched by the Government of India, is aimed at the concept of paperless. According to Department of Electronics and Information Technology in early 2015, this new development seeks to create an electronic space for storing the documents which is further linked to the AADHAR number of the user and thus can be utilized for securing personal documents such as
PAN card etc of the citizens of India.

2.5 TERMS ASSOCIATED WITH DIGITAL LOCKER

- An **e-document** is an electronic document issued to one or more individuals (Aadhaar holders) in appropriate formats (both as XML and printable) compliant to digital locker technical specifications. You may also upload govt. issued scanned documents and also digitally sign the same, if required.
- **Repository** is a Collection of e-Documents
- **Issuer** is an entity issuing e-documents to individuals in a standard format and making them electronically available. e.g., CBSE, Registrar Office, Income Tax department, etc.
- **Requester** is an entity (person or organization) requesting secure access to a particular e-document stored
- **Access Gateway** provides a secure online mechanism for requesters to access e- documents from various repositories in real-time using e-Document URI (Uniform Resource Indicator). The gateway will identify the address of the repository where the e-Document is stored based on the URI and will fetch the e-Document from that repository. Please refer to the DigiLocker Technical specifications available on the portal for further information.
- **A URI is a Uniform Resource Indicator** generated by the issuer department, which is mandatory for every e-document of the digital locker system. This unique URI can be resolved to a full URL (Uniform Resource Locator) to access the actual document in appropriate repository.

2.6 COMPARING DIGITAL LOCKER WITH EXISTING SITES LIKE GOOGLE DRIVE AND DROPBOX

Free cloud storage like Google Drive and Dropbox also let you upload and store the documents; allows you create folders and categorise to make browsing easy.

There are private businesses like Kleeto.in that provide secure online storage for a fee ranging from 200 Rupees to 2,000 Rupees. For a basic yearly subscription package of 200 Rupees, Kleeto securely stores 15 documents of 5 pages each with an online storage of up to 50 MB. They will pick-up, scan, upload and keep the papers safe. The original documents will be sent to you within 2-3 days when you need them.

Private e-locker services are also available now. ICICI bank has a similar e-locker service which customers can use by login in through their internet banking or ICICI Direct account login.

However, with other websites cyber law and jurisdiction is a concern.

When people upload their personal information into these websites they have no idea where the data is stored(somewhere in cloud), who else has access to the information,

what polices these companies have in regards to employees access to customer data or what polices they have in regards to things like legal subpoenas and requests from law enforcement and governments.

If you store anything in DropBox or Google drive, you are governed under US regulations and there is no direct protection under the Information Technology (IT) Act.

So how does Digital Locker differ from websites like Google Drive and Dropbox?

Digital Locker offers much more than a place to store the documents.

- Scanned copies of documents can be uploaded, like in other websites but these scanned documents which, if required, can be digitally signed thus making the e-document at par with the original one.
- The locker acts as repository or store house of all government issued e-documents. These e-documents are uploaded by issuers, government departments or agencies such as CBSE, registrar office, income tax department etc.
- The uploaded documents can be shared via email. The e-documents from governments agencies can be viewed by an authorised list of requestors such as a bank, university , the passport office or the transport department.

3. METHODOLOGY

Digital locker is one of the key initiatives under Digital India Program launched by the Prime Minister of India. It is aimed at minimizing the usage of physical documents and enable sharing of edocuments across agencies. It is an online application, developed in collaboration with software development companies in India, which provides facility of online document storage of important documents including Voter ID card, PAN card, Driving license etc.

It is mandatory to have Aadhaar number to use DigiLocker facility. Residents can upload their own electronic documents and digitally sign them using the e-sign facility. All e-documents are linked to Aadhaar number and can be treated as authorized documents by Government and its other entities. Therefore, physical documents need not to be carried while applying for jobs or government certificates or educational institutions etc.

Digital locker system in India is a good initiative taken by India towards e-document and e-economy. For the research study purpose secondary data is heavily used to express views. For this purpose, books, magazines, government official letters, newspapers and websites are used.

4. FINDINGS

 Despite its benefits, digital locker is characterized by some limitations. These are as follows:

•An issue that can be easily attributed to a project like digital locker is the adversities associated with achieving the desired results because of the existing track record of failure of such large-scale projects. The associated risks need to be carefully evaluated and courses of action to minimize the risk should be worked upon as the project approaches the initial stages.

•This initiative is supported by broadband highway, universal access to phone, e-governance etc. These pillars individually face challenges and thus require immediate attention for the success of Digital locker.

4.1 DIGITAL LOCKER SYSTEM :

A "digital locker" introduced in February 2016 and the service was launched by the Government of India in July 2015 to provide a secure dedicated personal electronic space for storing the documents of resident Indian citizens. The storage space of 1GB is linked to the Unique Identification Authority of India (Aadhaar number) of the user, which can be utilised for storing personal documents like University certificates, Permanent account number (PAN) cards, voter id cards, the URIs of the e-ds.

The numerous physical documents can be a huge administrative burden. The DigiLocker system shall help in reducing the burden both for the department and the citizen. Furthermore, the digital system will help in easing the authenticity troubles confronted by the Government of India.

The issue of providing multiple copies for a job can be resolved by this innovative move. The e-locker shall save our income certificate, birth certificate, education certificate, etc. which can be made easily accessible to the government departments one seeks to apply.

One can also e-share their documents with any registered agency or department. The access to government issued documents through this portal and mobile application will be hindrance-free.

For instance, when applying for a driving license, the Regional Transport Office can issue the document and thus, upload it in the designated repository. The document will then be pushed to the concerned resident's Aadhar card number. In this case, RTO is called the 'issuer'.

Another major advantage of this system is that one can e-sign the documents and have a monopoly over 10 MB personal space which might be increased to 1 GB if need be. Since the data will be a part of the personal account, it ensures privacy. Moreover, for those who do not have a Unique Identification Number, e-Aadhar can be downloaded from the DigiLocker portal.

The stakeholders of the Digital System are the ones who can access the accounts which include the residents, issuers, and requesters. However, soon the government is planning to be the issuer or requesting agency on the board.

- **Issuers of documents can be** – Registrar office, Income Tax department, RTO, educational institutions etc. Basically, it is the authority that makes a document electronically available.

- **Requesters of documents can be** – Employers, Universities, Passport Office etc. This particular party wants to have a secure access to the documents.

- **Resident can be** – One who uses the Digital Locker service based on Aadhar and OTP (one time password) authentication.

The following are guidelines to activate the Digital Locker account:

1. Visit the website – digitallocker.gov.in
2. Enter your Unique identification number: AADHAR card number.
3. After signing up, a one time password will be sent by UIDAI to the registered email id and mobile number.
4. Enter your one time password, and validate it by clicking 'Validate OTP'.
5. The screen will show various menu options available.
6. One can upload various documents like Pan card, Voter Id, SSC Certificate etc. The documents put on the portal shall be available under 'Uploaded documents'.
7. One can share their documents by clicking 'Share' , under the menu 'My certificates'
8. My Profile – This section will explain the profile of the resident.
9. My Issuer – This section displays the Issuer name and the number of documents issued to the resident by the issuer.
10. My Requester – This section displays the Requester name and the number of documents requested from the resident by the requester.
11. Directories – This section displays the complete list of registered Issuers and Requesters along with their URL.

   To share any document, one has to click the 'share' option against the document. On clicking, a box will pop up in which one has to enter the email address of the recipient. The document will be shared via

email. The recipient will receive an email from "no-reply@digitallocker.gov.in". The subject line will denote the document name and document type. The content of the email will have the URI – Uniform Resource Indicator link of the document and the sender name and UID number. The recipient can access the document using URI link provided.

   In brief, the DigiLocker system is an imperative measure to collect our data and store it in one particular account. The insecurities regarding misplacing our documents are always present. The government of India has initiated a wonderful service that can potentially make it easy to accumulate our documents and acquire them from different authorities. The linkage of the system with the Unique Identification number is a significant measure to maintain the privacy of the citizens of India. We do hope for its success.

A- A A+

DigiLocker
Beta

Department of Electronics & Information Technology (DeitY)
Ministry of Communications & IT, Government of India

🏠 Home | **My Certificates** | My Profile | My Issuer | My Requester | Directories | Resources | FAQs | Contact Us | Logout ➡

Digital Documents

Sr. No.	URI	Certificate Name	Issued Date	Share
		NIL		

Uploaded Documents

Sr. No.	Certificate Name	Uploaded Date	Status	Action	Details	Share	DigiSign
			NIL				

You can download your eAadhaar and store it here.

Upload Documents

Select Document *

Upload Document *
(Max. Limit is 1MB)

Description *
(Max. 50 Characters)

10 MB Free of 10 MB

Note: All the images would be con

Select Document ▼

Select Document
SSC Certificate
HSC Certificate
Degree Certificate
RSBY Card
Govt ID Card
PAN Card
MNREGA Job Card
Voter ID Card
Passport
Driver's Licence
Electricity Bill
Water Bill
Rent Receipt
Telephone Bill
Ration Card
Property Tax Receipt
Residence Certificate
Other

17

5. DISCUSSION

Objectives of DigiLocker:

- Enable digital empowerment of residents by providing them withDigital Locker on the cloud
- Enable e-Signing of documents and make them available electronically and online Minimize the use of physical documents
- Ensure authenticity of the e-documents and thereby eliminate usage of fake documents
- Secure access to Govt. issued documents through a web portal and mobile application for residents
- Reduce administrative overhead of Govt. departments and agencies and make it easy for the residents to receive services
- Anytime, anywhere access to the documents by the resident
- Open and interoperable standards based architecture to support a well-structured standard document format to support easy sharing of documents across departments and agencies
- Ensure privacy and authorized access to residents' data.

By linking each members AADHAAR number which is a unique number given to all the holders of the card, digital locker will reduce the dangers of losing important documents. Also the possibility of documents being forged will be minimized therefore it will allow secure access to Government issued documents. Digital locker is also attributed with the advantage of saving a lot of time effort and money on part of both the service providers and also the service consumers as these documents will be made available anywhere, anytime. Besides they can be shared via the online system. Carrying physical copies of documents will soon be a redundant concept. The digital locker will render it services throughout all major departments viz., education, healthcare, railway and other ministries. It seeks to bring together various existing schemes and programs.

1. To study digital India scheme.
2. To study prevailing digital locker system in India.

3. To analyze & assess the problem of digital locker system.

4. To study the existing feasibility of the digital locker system.

- Enable digital empowerment of residents by providing them with Digital Locker on the cloud

- Enable e-Signing of documents and make them available electronically and online

- Minimize the use of physical documents

- Ensure Authenticity of the e-documents and thereby eliminating usage of fake documents

- Secure access to Govt. issued documents through a web portal and mobile application for residents

- Reduce administrative overhead of Govt. departments and agencies and make it easy for the residents to receive services

- Anytime, anywhere access to the documents by the resident

- Open and interoperable standards based architecture

- Architecture to support a well-structured standard document format to support easy sharing of documents across departments and agencies

- Ensure privacy and authorized access to residents' data.

- The third and the most important challenge to be brought to light is the shortage of human resources. India despite being an IT giant is often faced by the problem of shortage of staff

This can severely impact the growth of the aforesaid initiative. Adequate personnel should be appointed to carry out the objectives of the initiative.

- Also it will be difficult to accumulate the required financial resources and is likely to increase government debt thus increasing the financial deficit of the country. It becomes necessary for the government to ensure that its ability to raise debt is not completely exhausted.

- Different departments and ministries would offer their services viz., healthcare, education, judicial services etc. thus for the program tube a success it becomes

imperative that there is absolute coordination between the departments and utmost commitment on part of the ministries.

- One of the most difficult challenges that the government is likely to face is creating awareness among the citizens of the country and educating them about the advantages of digital locker.

- Majority of the population in India is illiterate. Awareness creation will be a long process. Radio television, workshops held in villages can act as instruments to impart knowledge about the program.

- Those without ADHAAR Card will find it difficult to convert their physical documents into the electronic form. Thus issuing this card of identity shall continue to be an ongoing process.

How can digital locker be used?
- In Aug 2018, The Ministry of road transport and Highways led by Nitin Gadkari has finally issued a notification to all the Indian State's transport authorities directing them to legally accept the documents including Driving License and vehicle's Registration Certificates (RCs) on to the government's DigiLocker mobile app.

- CBSE opened 80 lakh digital lockers for class 10, 12 students. Digital lockers are a pathway to provide signed marks sheets, migration certificates and pass certificates to the board students

- In February 2017, Kotak Mahindra Bank started providing access to documents in DigiLocker from within its net-banking application, allowing users to e-sign them and forward as needed.

- In May 2017, over 108 hospitals, including the Tata Memorial Hospital were planning to launch the use of DigiLocker for storing cancer patients' medical documents and test reports. According to a UIDAI architect, patients would be provided with a number key, which they can share with another hospital to allow them to access their test reports.[9]

- There is also an associated facility for e-signing documents. The service is intended to minimise the use of physical documents, reduce administrative expenses, provide authenticity of the e-documents, provide secure access to

government-issued documents and to make it easy for the residents to receive services.

6. CONCLUSION:

Digital Locker scheme launched under the Digital India Campaign is an initiative taken by the Government of India to ensure safe custody of the important documents such as PAN card; ADHAAR Card etc. This move in turn results in much more transparency, authenticity and eradication of red Taoism and corruption to the maximum extent possible. This is a move for making India 'a digitized economy' and thereby ensuring broadband connectivity in the rural areas. Thus, for the program to be a success, it becomes imperative that there is absolute coordination between the various departments and utmost commitment on the part of government.

DigiLocker is an application that has been developed by software development company in India and launched by Indian government to store online documents safely. By connecting aadhar number, users can save all government issued documents online on the cloud storage system of 10MB space.

Digital India is promoted by Government to use maximum things in digital way so that corruption can be stopped. When everything is digital then things are visible to all with privacy.

One does not need to wait for documents as they are stored online. Even, the transaction of money is visible in various department offices etc. As in India, literacy rate is not high, so digilocker is govt. attempt to make people independent.

It also gives good contribution in Growth of India.

The main purpose of digilocker is to increase knowledge of people towards digital and make them independent.

All in all, through the study and research, we have learnt a lot about the paperless concept. We have learnt about the development of paperless concept through trends mapping, as well as the advantages of going paperless. For example, going paperless helps reduce cost and confer efficiency to a business. Besides, we have learnt about how paperless is going around the world. We realized that many schools around the world have started implementing this paperless concept. We think that we should take them as our examples. And, we never forget it can safeguard and protect our Mother Nature, which is the creation of God. Imagine, pristine forests are destroyed and so do the habitats of flora and fauna. We will not want that to happen as we cannot deny that our environment has a strong correlation with our quality of living. And, after researching into the paperless matter in USM, we have identified some hindrances that prevent us from going paperless and think of solutions to solve them, using the

tool of process mapping which we learnt through the subject of operations management. We do hope that USM will be the pioneer in adopting the paperless concept, and be the shining example among the universities in Malaysia. And we believe that, there is a will, there is a way! Let us hold our hands together and save our planet.

Document management and automated workflow are paving the way for electronic transformation and a paperless working environment. The focus on business processes and their automation is preparing organizations for e-commerce in the new economy. It forces organizations to be customer orientated and to operate across organizational boundaries in cross-functional teams, ensuring competitive advantage. Real business integration remains a major challenge that needs to address the seamless integration of existing applications, documents, items, paper, voice and data into the electronic workplace, addressing electronic mail, fax and telephone. The role of the enterprise information portal in this regard should make for interesting research.

7. REFERENCES

1. https://www.academia.edu/32276820/Digital_locker_project_sandesh

2. https://www.bemoneyaware.com/blog/digital-locker-what-is-digitallocker-how-to-register-and-use-digilocker/

3. https://digilocker.gov.in/about.php

4. https://www.ifourtechnolab.com/blog/digital-locker-online-documentstorage-facility

5. https://www.quora.com/What-is-the-conclusion-of-Digital-India

6. https://www.slideshare.net/neelamchhipa/digilockerpresentation

7. https://en.wikipedia.org/wiki/DigiLocker

8. https://economictimes.indiatimes.com/industry/miscellaneous/paperlessfuture-is-here-with-push-for-digital-locker/articleshow/62332053.cms? from=mdr

9. https://www.livemint.com/Technology/vt7Sx2J2DTaoyVpMqsRxiM/Whatis-DigiLocker-and-how-to-use-it-to-carry-all-documents.html

10. https://www.india.gov.in/spotlight/digilocker-online-document-storagefacility

11. https://www.revolutiondatasystems.com/blog/government-offices-gopaperless-with-document-management

12. https://www.researchgate.net/publication/252061532_Digital_todo_Paperless_literature_review

13. https://www.efilecabinet.com/7-simple-steps-for-going-paperless/

14. https://blog.constellation.com/2018/05/23/how-to-go-paperless-in-yoursmall-business/

Vidyalankar School of Information Technology

FACTORS DECLINING GENDER RATIO IN INDIA

BACHELOR IN MANAGEMENT STUDIES

by

Awez Warwande (21302B0001)
Shahid Shaikh (21301C0045)
Anshuman Mondal (21301C0046)
Shivam Saroj (21301A0061)

Under the guidance of

Ms. RESHMA SURYAVANSHI

Assistant Professor

Date of Submission: 11 DECEMBER 2021

INDEX

Introduction

- ## SEX RATIO IN INDIA

Sex ratio in the Indian population is becoming adverse to women. It has been rapidly declining decade by decode. It widely differs among states and union territories. The major causes for declining sex ratio are sex ratio of birth, sex-selective abortions, sex ratio of children and sex-differentials in mortality etc. This in turn leads to several consequences to men and on the society.

Population enumeration in terms of gender composition is a key indicator to monitor the development pulse of a country and sex ratio is a tool to determine gender equity of the population. Sex ratio in India, is defined as the number of females per 1000 males in a population whereas internationally sex ratio is defined as number of males per 100 females.

In developing countries such as India, sex ratio is a generally skewed in favour of the males. The prevailing patriarchal society creates a gender imbalance by viewing the male as an asset and the female as a liability for the family.

Over the past few decades, a declining child sex ratio favourable to males has become a characteristic of India 's population pattern. This trend has been recorded in the country since the early 1980s and has not reversed since then. Sex ratios have declined in China and India for three decades, with no significant improvement.

Countries	2001	2011
India	933	940
China	944	926
Pakistan	938	943
Bangladesh	958	978
Sri Lanka	1010	1034
Nepal	1005	1014
Afghanistan	930	931
Bhutan	919	897
Myanmar	1011	1048

INDIA AMONG ITS NEIGHBOURS 2001-2011

According to the provisional population totals of Census 2011, out of a total population of 1,21,01,93,422 persons, 62,37,24,248 are males and 58,64,69,174 females. As per this, the sex ratio of India is 940. The sex ratio at the National level has risen by seven points since the last Census in 2001. This is the highest since 1971.

It has been estimated that around the year 2011, the world will have 984 females against 1000 males. As is evident from the Statement, in USA, Russian Federation, Japan and Brazil females outnumber males, in the other six countries the balance is tilted towards the males. When compared to the previous decade, China, Indonesia, Nigeria and USA have shown a decline in the sex ratio in the present decade.

The decline has been particularly sharp in Nigeria and Indonesia. The sex ratio in USA, Russian Federation and Japan has always remained above unity despite minor variations.

- **GENDER COMPOSITION OF POPULATION - WORLD TRENDS**

The composition of population by gender is not uniform and shows diverse patterns across different countries of the world. Following Statement and Figure present the sex ratio in the ten most populous countries in the world during 2001 and 2011.

Sl. No	Country	2001	2011
1	2	2	3
	World	986	984
1	China	944	926
2	India	933	940
3	U.S.A.	1,029	1,025
4	Indonesia	1,004	988
5	Brazil	1,025	1,042
6	Pakistan	938	943
7	Russian Fed.	1,140	1,167
8	Bangladesh	958	978
9	Japan	1,041	1,055
10	Nigeria	1,016	987

SEX RATIO OF SELECTED COUNTRIES

According to the Census of India, the number of females for every 1000 males has been steadily declining decade after decade since 1901. Sex ratio at birth is the relative number of male and female births in a population. Worldwide, the normal SRB is measured as the number of boys born per 100 girls born in a population. However, India measures the SRB on a higher denominator, i.e., the number of female births per 1000 male births.

The sex ratio for the age group of 0–6 years is called the Child Sex Ratio or juvenile sex ratio. The declining Sex Ratio in 1901 and 2011, as recorded by the Census, 1901 and 2011, demands attention. The general sex ratio for the population is the other measurement of long-term changes in the relative number of men and women in a population; this, too, has decreased substantially in India, from 972 in 1901 to 940 in 2011.

The sex composition of a population is the most basic of all demographic characteristics. It has many important implications, the most fundamental being to define the limits of the society's reproductive potential. Further, the sex composition is also the basic demographic determinant of births, deaths and marriages. Migration rates, occupational structure and virtually all other population characteristics may be influenced by the ratio between the sexes. However, the sex structure of the present population is determined by the past trends of fertility, mortality and migration.

The sex structure is conveniently described by sex ratios; most commonly as "the number of females per 1000 males" or "the number of males per 1000 females". In India, it is presented in the former way. In developed countries, the sex ratio is favourable to males, while in many developing countries, it is adverse to females.

This can be ascribed to high female mortality in the developing countries (Jain, 1976). Similarly in India also, the sex ratio has been declining decade by decade in the present century. This type of sex ratio is described as being "adverse to women". This unique feature of India has been highlighted by respective census reports and also studied by several authors' viz., Sexena (1982), Kanitkar (1992), and Premi (1991).

The declining sex ratio in India affects the socio-cultural, economic and demographic aspects of population. Because of its several significant implications, the dynamics of India's sex ratio constitute a central subject to research for social scientists, planners, and policy makers. However, the declining sex ratio in India is Ascribed to several causes, which in turn leads to several consequences. In this counted, on attempt is made in this paper based on empirical evidence.

According to the Census of India, the number of females for every 1000 males has been steadily declining decade after decade since 1901. Sex ratio at birth is the relative number of male and female births in a population. Worldwide, the normal SRB is measured as the number of boys born per 100 girls born in a population. However, India measures the SRB on a higher denominator, i.e., the number of female births per 1000 male births. The sex ratio for the age group of 0–6 years is called the Child Sex Ratio or juvenile sex ratio.
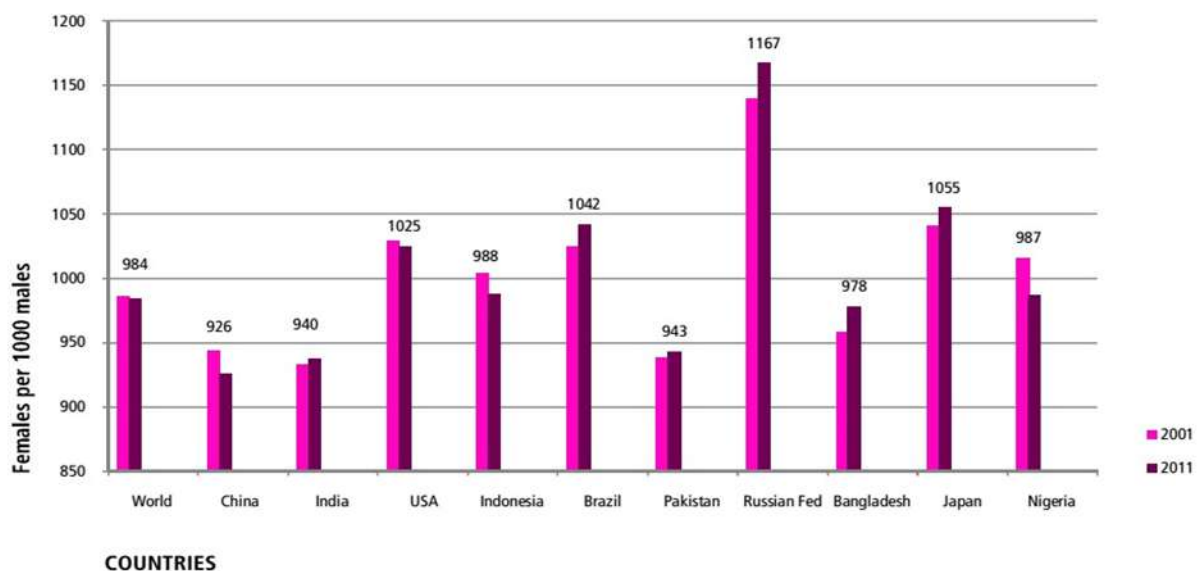
TRENDS OF SEX RATIO IN MOST POPULOUS COUNTRIES: 2001-2011

Objectives

The objective of this work is to carry out a review of existing research and other relevant documentation on pre-natal sex selection and declining numbers of girl children in India and thereby to prepare a synthesised summary report and an annotated bibliography on this issue of concern. This review report is expected to provide vital clues for policy makers while at the same time, also to decide on emerging areas for research.

According to the Census of India, the number of females for every 1000 males has been steadily declining decade after decade since 1901. Sex ratio at birth is the relative number of male and female births in a population. Worldwide, the normal SRB is measured as the number of boys born per 100 girls born in a population. However, India measures the SRB on a higher denominator, i.e. the number of female births per 1000 male births. The sex ratio for the age group of 0–6 years is called the Child Sex Ratio or juvenile sex ratio .
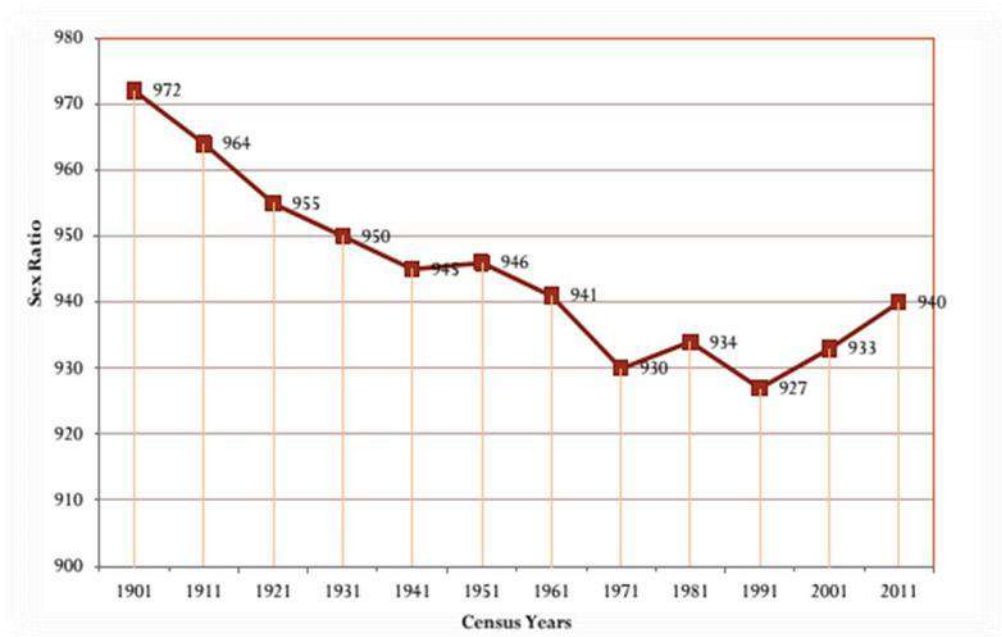

Trends of Sex Ratio in India: 1901- 20117*

* Provisional Population - Census 2011

Sex Ratio is defined as the number of females per thousands males

Child Sex Ratio, 1971-2011, and Relative Contribution of Sex Ratio at Birth and Sex Differential of Child Mortality to Overall Child Sex Ratio

The consistent decline in child sex ratio needs paramount attention. Though India has managed to improve the overall sex ratio from 930 females per 1000 males in 1971 to 940 females per 1000 males in 2011, the child sex ratio continued to decline from 976 females per 1000 males in 1961 to 914 females per 1000 males in 2011 (Figure 1). The results of the 2011 Census have drawn the attention of researchers and program and policy makers to glean the future direction of the child sex ratio. The convergence in statistics in the overall sex ratio and child sex ratio was recorded in 2001 (976 females per 1000 males) (Figure 1).

In India, the context of the child sex ratio must be interpreted with caution as age-specific sex ratios can be highly distorted by differential age misreporting by sex, and underreporting of female children, which seems to have been quite substantial between the 1981 and 1991 Censuses (Guillot, 2002). In order to understand the relative contribution of Sex Ratio at Birth and mortality differential to the Overall Child Sex Ratio, we have decomposed the change in sex ratio of the child population during 2001-2011. The required information is - Sex ratio of the child (0- 6 years) population (CSR); the estimated Sex Ratio of Survival Ratio (SRSR); and the Implied Sex Ratio at Birth (ISRB). The information on the CSR was obtained from two consecutive rounds (2001 and 2011) of the decennial population census conducted by the Ministry of Home Affairs, Government of India.

The estimates on SRSR (converse of mortality rates) were computed using the record of survival probabilities for the defined age groups. In this case, the survival ratios (7L0) were estimated for both male and female from the life tables provided by the Sample Registration Systems (SRS), Ministry of Home Affairs, Government of India. There have been discussions concerning the issue of female deficit ever since the first Census of British India in 1872. In fact, one scholar considers the female deficit to be about 5 million and speculates the reason behind this based on the findings of 1981 Census (Saraswathi, 1988).

The skewed sex ratios in the early Census periods were attributed to under-count of women; however, in recent periods it is traced to the masculine sex ratio at birth. The child sex ratio has registered a fourteen-point decline in rural areas and thirty-two points in urban areas, at the national level. The most disturbing aspect of the decline is in the rural areas of twenty-six states and union territories as per the 2001 Census. Such decline is extremely steep (seventyseven points) in Punjab followed by Haryana, Chandigarh, Delhi, Gujarat, Himachal Pradesh and Uttaranchal (Table 2). Although a marginal increase in general sex ratio at the national level was observed between 1981 and 2001, the child sex ratio continued to decline over the last five decades (976 in 1961 to 927 in 2001). The present review attempts at identifying and presenting the several threads of linkage with the masculinity of sex ratios.

Year	Sex ratio in age Group 0-6 years	Overall sex ratio
1961	976	941
1971	964	930
1981	962	934
1991	945	927
2001	927	933
2011	914	940
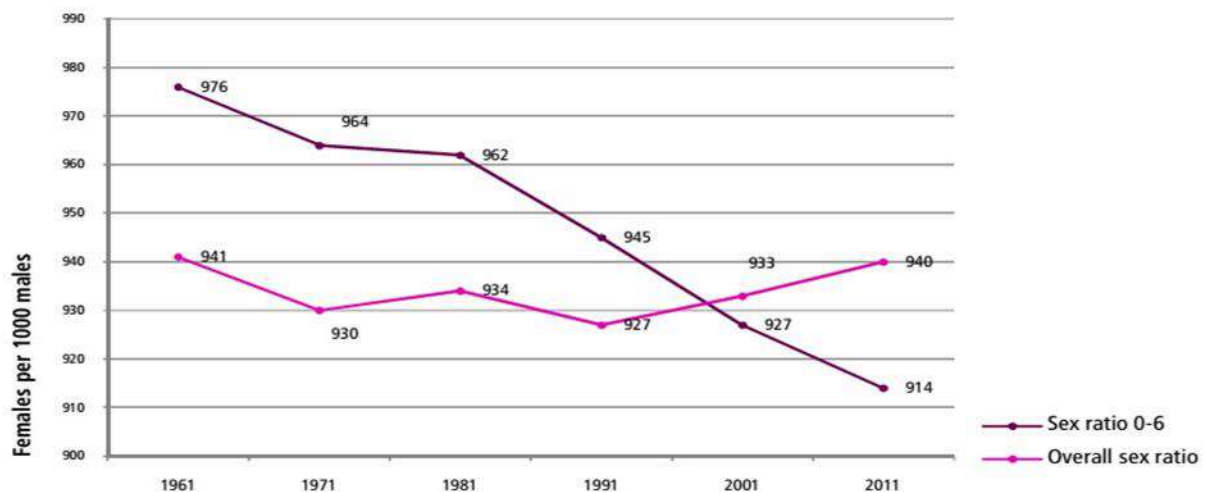
Sex ratio of total population and child population in the age group 0-6: 1961-2011

The Indian sex ratio has shown a secular decline since the beginning of the twentieth century excepting some reverse trend of improvement during 1951, 1981 and 2001. Along with rise in population size, there is evidence of masculinity in sex ratio in general as well as in child sex ratio in particular. Although the masculinity of sex ratio is a reality from the very beginning and more so in case of child population in India (Seth 1996), the concern regarding this phenomenon with the onset of this century is because of the startling fi gures exposed by the 2001 Census.

Not only has the child sex ratio in the age group 0-6 years declined from 945 to 927 within a decade at the national level, but also masculinity of the child sex ratios are more intense in particular regions. The sharpest decline in the sex ratio of the 0-6 year group was found in Haryana (820/1000) and Punjab (793/1000). The Census evidence points towards a strict cultural preference for male children as observed from the pattern that emerges across regions. The two kinds of explanation put forward for this deviant pattern are in terms of the practice of female infanticide, and sex-selective abortion as well as female child neglect, none of which is described in terms of its precise magnitude on its bearing on masculinity of sex ratios.

While these could be the immediate causes resulting in the distortion of sex ratios, the prime motivation for practice of such measures stems from the preferential sex composition of children. With the ongoing pace of fertility transition, couples are rather forced to achieve a desired sex composition of children within a limited allowance for the number of children. This is mentioned as another dimension intensifying preferential fertility regulation leading to the distortion in sex ratios.

Procedure

It was pre-decided that the study should be confined to empirical research, dealing with sex ratio at birth (SRB) and child sex ratio (0-6 years) in India. Hence, published and unpublished research including journal articles, books, mimeographed reports, unpublished papers and other relevant literature have been identified as far as accessible through library/internet search. Since the task was aimed at researching the phenomenon of pre-natal sex selection, female infanticide and the consequential fall in sex ratios, research materials exclusively focusing on gender discrimination were considered beyond the purview of this work. Also, newspaper articles and reports appearing in the electronic media were not included in this analysis.

The two rounds of National Family Health Surveys (1992-93 and 1998-99) provide information at the state level regarding sex ratio at birth (SRB). According to this source, sex ratio at birth has increased from 106 to 108 between 1978-92 and 1984-98. This trend is evidence to the increasing masculinity at birth, which was noted in the Census-based articles as well (Sudha and Rajan 1999). However, there exists a regional pattern in the sex ratio at birth with the southern states exhibiting a near ideal sex ratio at birth of 105 while the states of Haryana and Punjab experience a sex ratio at birth of 114 and 120 during 1984-98 (Rutherford and Roy, 2003). Such a large difference in sex ratio at birth supports the claim of sex selective abortions in these latter regions.

It is also seen that the practice of sex-selective abortions is relatively more among urban women, with higher education as well as in well-to-do households. This observation is frequently agreed to in the literature since the decline in sex ratio in urban areas is higher than in rural areas and sex-selective abortion is assumed to be responsible for the observed decline (Rao and Prasad, 2002). Arokiasamy (2005) observes a similar urban predominance in sex ratio distortion as well as the differential pattern of pre-natal and post-natal discrimination of the female child. This differential pattern relates to the rich and the affluent in the socio-economic hierarchy who are engaged more in pre-natal discrimination than the poor who practise post-natal discrimination. Post-natal discrimination of female children is observed in many different ways; however, its sex ratio implication could only be due to differentials in survival rates of children.

State/UT-wise child sex ratio (0-6 years) during 1991 & 2001

India and State/Union Territory	Child Sex Ratio (0-6 years)		
	1991	2001	Change
INDIA	**945**	**927**	-18
Punjab	875	798	-77
Haryana	879	819	-60
Chandigarh *	899	845	-54
Delhi *	915	868	-47
Gujarat	928	883	-45
Himachal Pradesh	951	896	-55
Uttaranchal	948	908	-40
Rajasthan	916	909	-7
Maharashtra	946	913	-33
Uttar Pradesh	927	916	-11
Daman & Diu *	958	926	-32
Madhya Pradesh	941	932	-9
Goa	964	938	-26
Jammu & Kashmir	NA	941	NA
Bihar	953	942	-11
Tamil Nadu	948	942	-6
Karnataka	960	946	-14
Orissa	967	953	-14

Manipur	974	957	-17
Andaman & Nicobar Islands *	973	957	-16
Lakshadweep *	941	959	+18
West Bengal	967	960	-7
Kerala	958	960	+2
Andhra Pradesh	975	961	-14
Sikkim	965	963	-2
Arunachal Pradesh	982	964	-18
Nagaland	993	964	-29
Mizoram	969	964	-5
Assam	975	965	-10
Jharkhand	979	965	-14
Tripura	967	966	-1
Pondicherry *	963	967	+4
Meghalaya	986	973	-13
Chhattisgarh	974	975	-1
Dadra & Nagar Haveli *	1013	979	-34

<u>* Indicates union territory</u>

The changes in sex ratio at birth between two periods by order of birth indicate the likelihood of elimination of the girl child in higher order births. This fact is particularly visible in Haryana, Himachal Pradesh, and Karnataka and to some extent Tamil Nadu, in which the sex ratio had been less adverse to the female sex. Over different time periods it is the second and higher order births which manifest lower sex ratios, which could also be a consequence of the declining fertility norm which allows less room for daughters in the family.

The observed variations in sex ratio at birth with increasing order of births as well as the differential sex ratio at birth between women with and without experience of still birth/induced abortions, suggests the likely role of sex-selective abortions contributing to distortion of child sex ratios (Arnold et. al 2001; Malaviya, 2005). In the context of order-specific variations in sex ratio at birth, it is also found that the sex ratio at birth of first order influences the sex ratio at birth to a large extent and that its association with prevailing levels of foetal wastage (intentional or unintentional) is highly significant (Jayraj, 1999).

Among the several reasons underlying changing sex ratio at birth, a possible one could be the substantial decline in foetal wastage, which remains selective to boys. The regional variations in sex ratio at birth in evidence, could perhaps be related to the differential fertility levels across states. The urban share in the distortion is much higher than in rural areas (Anil Kumar, 1999).

Prevalence of Sex Selective Abortions

The Medical Termination of Pregnancy Act of 1971 had been enacted as a health measure for women; it was later, modified in 1975 to permit abortions under the following conditions:

a) The pregnant woman has a serious medical disease or condition that would endanger her life if the pregnancy were to continue.

b) Continuation of pregnancy would entail a substantial risk of physical and mental handicap to the new-born child.

c) The pregnancy resulted from rape.

d) The socio-economic circumstances of the mother would endanger the health of the new-born child.

e) The pregnancy occurred because of failure of a contraceptive method.

An Act of this kind, no doubt, made abortion legally permissible and available on demand subject to qualifying under any of the stated criteria. Despite this legalisation, a major proportion of induced abortions effected were illegal, with the government statistics showing 0.6 million legal abortions as against abortions as high as 8 to 11 times than legal abortions (Chhabra, 1996). Birth histories collected during India's National Family Health Surveys (1992-93 and 1998-99) indicate unusually higher proportion of male births in specific c population groups, a piece of evidence which suggests that female foetuses were being aborted in large numbers.

Sex selective abortions are possible because of the availability of different methods. Three most popular methods available in India are amniocentesis, chorionic villus sampling and ultrasound scanning. With the increasing rates of pre-natal diagnostics done as part of ante-natal care, there is every possibility of executing sex selective abortions to avoid the birth of a child of unwanted sex (particularly daughters). In fact, Jeffery and Lyon (1984) observed that clinical services offering sex determination and abortion had spread in the villages in Uttar Pradesh by the early 1980s. A study conducted by Kulkarni (1986) revealed that 64 percent of the 42 gynaecologists interviewed were performing amniocentesis solely for the sex determination purpose. Only in less than 10 percent of the cases, it was genuinely for detection of genetic defects.

Recommendations

Coordinated and convergent efforts are needed to ensure survival, protection and education of a girl child. Government has adopted a multi-pronged strategy entailing schemes and programmes and awareness generation/advocacy measures to build a positive environment for the girl child through gender sensitive policies, provisions and legislation. The details of the major actions being taken by the Government is given below:

•The Pre-natal Diagnostic Techniques (Regulation and Prevention of Misuse) Act, 1994, was enacted and brought into operation from 1 January, 1996, in order to check female foeticide. Rules have also been framed under the Act. The Act prohibits determination and disclosure of the sex of foetus. It also prohibits any advertisements relating to pre-natal determination of sex and prescribes punishment for its contravention. The person who contravenes the provisions of this Act is punishable with imprisonment and fine. Recently, PNDT Act and Rules have been amended keeping in view the emerging technologies for selection of sex before and after conception and problems faced in the working of implementation of the ACT and certain directions of Hon'ble Supreme Court after a PIL was filed in May, 2000 by Centre for Enquiry into Health and Allied Themes (CEHAT), an NGO on slow implementation of the Act. These amendments have come into operation with effect from 14th February, 200318.

•The Government is rendering financial support to the States and UTs for operationalization of PNDT Cells, Capacity Building, Orientation & Sensitisation Workshop, Information, Education and Communication campaigns and for strengthening structures for the implementation of the Pre-Conception and Pre-natal Diagnostic Technique (PC-PNDT) Act under the National Health Mission (NHM).

•The Minister of Health and Family Welfare has requested all the State Governments to strengthen implementation of the Act and to ensure timely steps to stop sex determination.
•Program review at the State level has been intensified. Five regional review workshops for North, West, Central, North-East and Southern regions were organized at Chandigarh, Ahmedabad, Mumbai, Imphal and Bhubaneshwar during 2014-15.

•National Campaign "Beti Bachao, Beti Padhao" was launched in 100 gender critical districts in partnership with the Ministry of Woman and Child Development and the Ministry of Human Resourse Development. The Overall Goal of the "Beti Bachao, Beti Padhao (BBBP)" Scheme is to celebrate the girl child and enable her education. The objectives of the Scheme are to Prevent gender biased sex selective elimination; Ensure survival & protection of the girl child; Ensure education of the girl child.

While talking about the survival of the foetus in the context of Beti Bachao Beti Padhao, the health of the mother comes first. The Government has taken different initiative to improve health and nutrition status of women and children through schemes like National Health Mission (NHM), Integrated Child Development Schemes (ICDS), etc.

Under the universal coverage of health services, different facilities have been provided in government hospitals to get better health care services. The Schemes under the NHM like the Janani Suraksha Yojana (JSY), Janani Sishu Surakasha Yojana (JSSK), 108 ambulance service, 104 health helpline, weekly iron and folic acid supplementation (WIFS) programme, etc. are really notable initiatives which would improve the health status of the women and children in the State compared to what it was 10 years back. But to attain this and to make a sustainable improvement, a coordinated effort with good convergence with all line departments would be required21.

□ The Ministry of Women and Child Development has also taken several measures to check the declining sex ratio and to enhance the status of girl child as under:
•National Girl Child Day: January 24 has been declared "National Girl Child Day" since 2009. To mark the occasion, the Ministry of Women and Child Development organized a panel discussion and deliberations on the theme 'Declining Child Sex Ratio: Issues and Challenges' on 24th January, 2013. It was observed during the discussions that there were sharp falls in the child sex ratios in many States that reflected a National trend cutting across class and the rural–urban divide. For meeting the challenge, the importance of three 'A's, i.e. Advocacy, Awareness and Affirmative action were underlined by the participants.

Conclusion

Monitorable Targets of the 12th Plan for children is to improve the child sex ration from 914 in 2011 to 950 by 2017. Creating awareness about the illegality of sex election, and urging communities to question outdated rituals and social behaviour are a critical component of this struggle. The issue is being highlighted – through the media, through studies and interventions.

"The government and the civil society must go beyond policy-making and must quickly identify specific behaviours, cultural attributes, practices, media representations, mindsets and notions that propagate discrimination against daughters and consequently help sex determination testing flourish despite its illegality"27.

1.1 Cases Registered under Foeticide during 2001, 2012 and 2013

S. No.	States/UTs	Cases Registered under Foeticide		
		2011	2012	2013
1	ANDHRA PRADESH	7	1	7
2	ARUNACHAL PRADESH	0	0	0
3	ASSAM	0	0	0
4	BIHAR	1	1	1
5	CHHATTISGARH	21	5	15
6	GOA	0	0	0
7	GUJARAT	0	7	2
8	HARYANA	5	28	21
9	HIMACHAL PRADESH	0	0	2
10	JAMMU & KASHMIR	1	0	0
11	JHARKHAND	1	0	4
12	KARNATAKA	1	3	0
13	KERALA	0	1	1
14	MADHYA PRADESH	38	64	79
15	MAHARASHTRA	12	22	17
16	MANIPUR	0	0	0
17	MEGHALAYA	0	0	0
18	MIZORAM	0	0	0
19	NAGALAND	0	0	0
20	ODISHA	0	0	1
21	PUNJAB	15	25	12
22	RAJASTHAN	13	37	34
23	SIKKIM	0	2	0
24	TAMIL NADU	0	0	1

25	TRIPURA	0	0	0
26	UTTAR PRADESH	12	11	17
27	UTTARAKHAND	0	0	0
28	WEST BENGAL	0	0	3
	TOTAL (STATES)	**127**	**207**	**217**
29	A&N ISLANDS	0	1	1
30	CHANDIGARH	0	0	0
31	D&N HAVELI	0	0	0
32	DAMAN & DIU	0	0	0
33	DELHI	5	2	3
34	LAKSHADWEEP	0	0	0
35	PUDUCHERRY	0	0	0
	TOTAL (UTs)	**0**	**3**	**4**
	TOTAL (ALL-INDIA)	**132**	**210**	**221**

References

1) Arnold, Fred Minja Kim Choe and T. K. Roy
Son Preference, the Family-building Process and Child Mortality in India
Population Studies, Vol. 52, (1998), pp 301-315

2)Arokiasamy, Perianayagam

Sex Ratio at Birth and Excess Female Child Mortality in India
Draft Paper (2005), pp 2-24

3)Basu, Alaka Malwade
Is discrimination in food really necessary for explaining sex differentials in childhood mortality?
Population Studies, 43 (1989), 193-210

Foundation

Course – 1

Project

Indian Woman in Sports

by

Janhavi Vinayak Utekar	21314A0002
Nandita Giridhar Maggidi	21314A0003
Vivin Hitesh Seta	21314A0004
Aryan Rakesh Surve	21314A0005
Anto Gladwin	21314A0006

Index

Title	Page No.
Introduction	4-7
Objective	8-11
Procedure and Analysis	12-16
Recommendations	17
Conclusion	18
References	19

Introduction

In a country where sports are often dominated by men, these woman stars chose to challenge the ordinary and pave a path for Indian women in sports. Indian sport has seen a massive rise in the number of its female athletes shining at the world stage since the turn of the millennium. The world of sports is vast enough and for some reasons, it has been fascinated more by men only, but in recent years with the change in era women have come forth and shown the same charisma and stamina as men. It is not regarding women empowerment nor regarding equality, it is only and only about one thing i.e., display of one's ability as a being.

The sports industry is a huge administration ranging from playing infield to journalism etc. This industry does not run-on agendas it runs on capabilities, passion, and dedication. Sport has the power to change lives. The ability to drive gender equality by teaching women and girls' teamwork, self-reliance, resilience and confidence. Women in sport defy gender stereotypes and social norms, make inspiring role models, and show men and women as equals.

Everyone is aware regarding the contributions of men in sports but the achievements of women are not much of a talk. Indian sports industry was very much confined to men only till 1900 but now there are many female figures who helps one to aspire to choose sports as a career and as it is women's day, let's celebrate the female compartment of sports for a change.

Together, this coalition will accelerate efforts to promote women's leadership and equality in governance models, prevent and respond to gender-based violence, close the gap in investment in women's sport and promote equal economic opportunities, promote women's equal participation and bias-free representation in media, and provide equal opportunities for girls in sport, physical activity and physical education. Many of these figures do not need an introduction anymore as they have been so phenomenal in their respective games that people now know the game because of them. Women in sports industry have helped change the mindset of people in many ways.

Karnam Malleswari, Geeta Phogat, P.V.Sindhu, Mary Kom,Sakshi Malik,Saina Nehwal,Sania Mirza, Deepika Pallikal,Mithali Raj,Deepika Kumari,K Kansha Singh,Tanya Sachdeva,Chhanda Gayen,Sharmila Nicollet ,Kunjarani Devi are a few to name amongst many female sportsperson who helps you realize the change in area of sports.

Karnam Malleswari (weightlifter) is the first woman to win a medal at Olympics (2000), also she has been honored with RAJIV GANDHI KHEL RATNA (1995) and PADMA SHRI award (1999).

Geeta Phogat (freestyle wrestler) is the first Indian wrestler to get a gold medal in Commonwealth games (2010), and first female wrestler to qualify for Olympic games. It was her who took Indian wrestling to a different level and made it very clear that this field belongs to her equally as it does to the men.

Mary Kom (boxer) who goes by the nickname of MAGNIFICENT MARY, she is the only female to become World amateur boxing champion (6 times), and the only female to win a medal in each one of the 7 world championships and only women boxer to qualify for 2012 summer Olympics.She with a great display of her skills has been an inspiring figure for many.

PV Sindhu (professional badminton player) She is the first Indian women to win silver in Olympics. She has also been honored with PADMA SHRI (2015) and is among top 5 shuttlers in female singles.

Mithali Raj (cricketer) In India cricket instantly links with MS Dhoni, Virat Kohli J.Bumrah and many more male players but among cricketers also shines a name Mithali Raj. She is the captain of

Indian cricket team in test and odi and is known amongst the best batswomen and is first Indian player to score 2000 in T20I.She is a figure that inspires many young hearts to pursue the game and that the land is not marked for him only.

Saina Nehwal (badminton) She is the world no.1 who has won 24 international titles and this is well known that is one of the reasons for increased popularity of badminton in India.

Deepika Kumari (archery) her confidence and straight-forwardness are reflected in her arrows as well. She has touched world no.5 in archery and has won a gold medal in same CWGs and was honored with FICCI sportsperson of the year 2014.

Bula choudhury (national female swimming champion), best known for her long-distance swimming feats, she became the first woman to swim across the seven seas 2015 and has been honored with Arjuna and Padma Shri award.

These are a few amongst many who took it as a responsibility to represent India, not in order to prove a point or get the glory but to encourage many to be a part of the world of sports.

All these names tell us that she can wrestle, shoot, run, smash and can do anything, as for her not even the sky is a limitation

Before 1900 the Indian sports was not much known for women's sports,and it was only after 1900 that women sports was being included and with more participation of females in this area the world has seen and tried to understand an equal gender approach.

These women have performed and represented India in many games and have won many medals and awards, not in order to prove that they are better than men but to show that they have potential to represent their own country.

And it is the participation of women in sports that has created a spark of curiosity among people to know about many games some eg. being Sania mirza - tennis, Saina nehwal- badminton, Mary kom -boxing etc.

It is because of them that the stereotypical society is forced to think otherwise.The passion , confidence, strength and charm with which they display their skills is hard to be ignored and it is with their contribution that Indian sports is becoming better day by day giving equal and ample opportunity to both men and women.

Mary Kom boxing academy), to provide a platform for more young souls to live their dreams and It is thanks to these female figures that many women sports club has been established in the country (Entail subhash National Institute is because of this only that Olympics, Commonwealth games, Asian cup championships has included both categories for every game (men and women).

As said earlier sports industry is not confined to games only it also includes sports organizing committee etc. and when we talk About it one name that comes to mind is of Nita Ambani.She is the first woman to be a member of International Olympic Committee (IOC)and Olympic Education commission,an association that helps to select athletes for Olympic and Asian games. One other name not to forget is Saina Nehwal who is also a member of IOC and Ms. Sunaina Kumari the vice president of Indian Commonwealth games association.

This is a huge initiative and a step to include female candidates in the organising committees as it helps to create a sense of equality and encourages the participation of other women.

Participation of women in sports is valued as much as their contribution in other fields and India being a sports enthusiast understand more when things are mended in it, women in sports or sports for

women are no different than for men, hence sports has served as a perfect platform for them to show their talent and has also helped to change the thinking and beliefs of the people and have encouraged participation of many talented players. And as the proverb goes educate one girl she will educate 10 others, here it is making a fine female player and she she will encourage the whole arena to achieve the same.

SCOPE OF INDIAN WOMEN IN SPORTS

Women empowerment has taken on India for quite a while now. Women are seen in all the fields. Except in sports. Sports for the women in India has always been a taboo. Even though Indian women are the most resilient, brave and hardworking. These are the right qualities of an athlete.

But only in 2019 the nation is trying to remove the taboo from the field. Women athletes are slowly raising their heads. In the earlier time, women only joined sports for a government job that was later assigned to them. But now people of talent are joining in. And that shows, for Indian female athletes has made history this year. V. Sindhu, she is the first Indian to win a world championship in badminton. Hima Das, she won five successive gold medals for 200m sprint and one 400m sprint in different meets across Poland and Czech Republic.

Shafali Verma, she is the fifteen-year-old cricketer who surpassed the record set by tendulkar. She is the youngest Indian cricketer to score half century in an international match.

Dutee Chand, she is a track and field athlete who won gold in 200 m sprint at Summer University Games, Italy.

Vineesh Pogat, she is the first Indian to win herself a place in Olympics 2020 for wrestling.

These are some of the women who has beaten all the odds and come out as the winner. And there are more coming. The media is also trying to lift the taboo on women's sports by taking many films like Kanaa, Kennedy Kulu, Bigil, Chakde India, etc. And the audience have received them positively too. But that does not mean that it is accepted. Even today women have to fight against all the odds if they want to survive in the sports field. They go through many difficulties like family opposition, abandonment, sexual advance, nepotism, lack of good coaching, etc. But this is not as doomed as it sounds.

India is slowly turning its page. It's trying to correct its mistake. And women are getting stronger and adamant to fight for their passion. Even though there is a long way ahead for women's sports, the scope of Indian women's sports is as high as it has ever been in 2020.

The world of sports is vast enough and for some reasons, it has been fascinated more by men only, but in recent years with the change in era women have come forth and shown the same charisma and stamina as men.

It is not regarding women empowerment nor regarding equality, it is only and only about one thing i.e.display of one's ability as a being.

The sports industry is a huge administration ranging from playing infield to journalism etc. This industry does not run-on agendas it runs on capabilities, passion, and dedication.

Everyone is aware regarding the contributions of men in sports but the achievements of women are not much of a talk. Indian sports industry was very much confined to men only till 1900 but now there are many female figures who helps one to aspire to choose sports as a career and as it is women's day, let's celebrate the female compartment of sports for a change.

Many of these figures do not need an introduction anymore as they have been so phenomenal in their respective games that people now know the game because of them.
Women in sports industry have helped change the mindset of people in many ways.

In recent years there has been an exponential rise in the professionalism and success of female sports. Practitioners (e.g., sport science professionals) aim to apply evidence-informed approaches to optimise athlete performance and well-being. Evidence-informed practices should be derived from research literature. Given the lack of research on elite female athletes, this is challenging at present. This limits the ability to adopt an evidence-informed approach when working in female sports, and as such, we are likely failing to maximize the performance potential of female athletes. This article discusses the challenges of applying evidence base derived from male athletes to female athletes. A conceptual framework is presented, which depicts the need to question the current (male) evidence base due to the differences of the "female athlete" and the "female sporting environment," which pose a number of challenges for practitioners working in the field. Until a comparable applied sport science research evidence base is established in female athletes, evidence-informed approaches will remain a challenge for those working in female sport.

- There is currently a lack of sport science and sport medicine research conducted on elite female athletes, making it challenging to develop an evidence-informed approach to practice.

- Applying evidence developed in male athletes to female athletes may be erroneous.

- This article highlights the challenges of applying evidence derived from male athletes and applying it to female athletes and female sporting contexts. It provides considerations of how to apply research to female sport, considering the female athlete and the female sporting environment.

Objective & Aim

Sports are one of the ubiquitous activities of modern contemporary society. Pervasiveness of sports can be seen by the enormous amount of primary and secondary involvement in the people of all ages, social strata sports penetrate into a play a significant role in all of the social situations. Sports have emerged as a primary area of controversy about men's and women's roles. Traditionally, sex roles expectation clashed. With those traits often associated with sports, such as assertiveness, competitiveness, physical endurance, the sport retained the femininity of the participants. Currently quite rapid changes are occurring. Unquestionably, the greatest change in contemporary sports is the dramatic increase in and general acceptance of sports participation by women. Evidence of the transformation that sport is undergoing in the urban sports in West Bengal observed analyzed and interpreted in the present study.

Sports are ubiquitous in the modern era. As such, it is engaged with by exponents of different academic disciplines and professional groups. The emergence of gender studies has been one of the more contested developments within anthropology and sociology (of sports). One reason for this is the link between empirical subject matter (gender) and theoretical approach (feminism). While feminist theory is not to be is not to be confused with a focus on "women in sport" (Burrell, 2000:61), the central focus of all works informed by famines theories in gender relations.

Sports have emerged as a primary area of controversy about men's and women's role. The researcher of sports studies argue that Women sports have changed a little, synthesizing elements of traditional, men's and women's sports Experience would be socially Beneficial Selective socialization as well as enculturation [4] of males and females via sport was accomplished through the shaping of "Masculine and Feminine" Sports experiences. The effect of the women's movement (and the theoretical issues of the feminism) has been adopted traditional sports as instrumentally, rather than masculinity. Anew conception of sports is presented in which the elements of traditional men's and women's sports are theoretically synthesized. Because of the post emphasis on the masculine instrumental elements of sports, it is hypothesized that a temporal focus on the feminine expressive elements is necessary to the occurrence of an ideational synthesis.

Gender inequality is strongly evident in sports. The problem is more socio-psychological than anything else. Today as we stand in the new millennium it is deplorable that men and women are

treated no differently, especially in sports. As is mentioned above gender inequality is one of the main issues because of which India is not being able to progress at a faster rate. A society which does not allow a girl to do something simple as primary education is unlikely to let her participate in sports without any hurdles. Even before taking part in a kabaddi team competition or 400 meter hurdles the girl has to pass many more social hurdles in her immediate family as well as mainstream society. Some researchers have suggested that participation in sport can be an invigorating and personally empowering experience for women. Being an athlete or player, especially skilled to be a professional one, can change the way a woman sees herself.

It can make her feel physically and socially stronger more competent, and more control her life as an independent individual. Today the completive sports participation also provides girls and women with opportunities to reconnect the power of their own bodies and culture. Therefore, it is important to understand that the synthesis of men & women's role in sports or that the gender equality in sports is a complex but pertinent issue to be encountered

The present research is a preliminary attempt to introduce and analyze the issue that women who want to shape and empower in socio-cultural lives as sports women under the era of modernization as well as globalization in West Bengal. If the mid-1980s saw sociologists of sport produce their first theoretically sophisticated analysis of gender, by the early 1990s there were indicators the area was now firmly established a trans-disciplinary enterprise including anthropology.

First, a number of review articles attempted to map the scope of the 'gender and sports' area and/or examined the application of feminist approaches to sport (e.g., Birrell1988; Hall 1988, 1993; Hargreaves, 1990; Cole 1993). Second, a number of 'gender and 'sports' readers and anthologies were published as teaching aids. Some like G. Cohen's Women in Sports: Issues and Controversies (1993) and M. Costa and S. Guthrie's Women and Sports: Interdisciplinary Perspective (1994), P. Creedon's Women Media And Sports (1994) combined feminist approaches with media studies of sports while Birrell and Cole's Women Sports and Culture (1994) was the most distinctly sociological in focus along with having an anthropological significance, examining ideologies of women and sports, the gendered organization of sports, the media's portrayal of female athletes, women's experiences of challenging the mole preserve of sport and the politics of sexuality in sport. In 1994, J. Hargreaves published Spotting Females, perhaps the comprehensive monograph devoted to the lived experiences of women in sports and structural forces influencing participation (1994:2). Women Issues under the purview of gender now had a significant presence in the sociology and anthropology of Sports [11].

Presently the study of gender is one of the most dynamic areas within anthropology and sociology of sports. However, in contrast to the research of few eminent scholars, which was inspired by personal experience or sports related research by anthropologists of gender has still relatively

limited relevance for the vast majority of women's participants in sports in contemporary Indian context.

Therefore, while contemporary culture; sports remain particularly a powerful medium for illustrating the gendered nature of contemporary society. the present study partly looks at relationship between sports and gender and ask what these relationships finally revile the significance of women's empowerment as coming of an age in West Bengal.

Sport is considered as an area where traditional gender identities are constructed, reinforced, and contested (Humberstone, 2002). The present examines the basic relationship between sport and gender in an urban setting in the district of north 24 Parganas, West Bengal. Its preliminary focuses on the significance of sport in contributing to the gender (women) order that in the local relation between males and females in the area of traditionally male dominated sports. Hare the present researches primarily have concerned with three things- how gender relations are evident within contemporary urban sports, how sports influence contemporary gender relations and also how sports is used as an emerging vehicle to challenge contemporary relation in the unban context that is the sub divisional town Barasat as studied. The ultimate aim of the study is to develop guiding principles for incorporating socio economic and cultural consideration in the domain of women's empowerment in the context of sports. The specific objectives of the present study are to:

- identify the pattern of sports events as available for the women in the area under study.
- Identify the factors which emphasize the difference between boys and girls in the area of sports.
- Point out the negligence of women sports & women players.
- Highlights the socio cultural and economic aspects of women players
- Identify the supportive or non-supportive nature of the society as well as their domestic spheres
- Identify the enhancement of the socio-cultural values and economic independence as development functions within local sports clubs, regional, national and international levels.

Good sport demands skilled and athletic people which imply that men just have an innate benefit. Females never shared equal limelight with the boys and there are various factors ensuring that, one India being a male dominated society. There have been instances where significant efforts were made to lift up the Indian women cricket. However, in a country where cricket (male) is being worshipped and the country is known for its crazy viewership and boundless enthusiasm, it is not an easy task for a single entity to lift women cricket up, which despite of being cricket does not hold viewers captive due to biological reasons. There were times when female cricketers played the game at its best but there was no one to watch them, let alone appreciate. Now in 2017 when they finally are getting media attention, they talked about the times when they were deprived of what they worked for. (i.e., media coverage, attention, familiarity and popularity among masses). Till 2016 stadiums kept on receiving nil spectatorship and media came into action only when women's team conquered Asia cup. Social

media has proved to be a boon for the women cricket in India, it contributed extensively to their success in the recent times. This research explores how journalism flip all the pens and cameras into the direction of public interest in a matter of seconds and how public interest is what's flaming and trending into media. Women cricket had always been worth a watch but media waited for public to display some interest, just enough to accumulate TRP for them and public waited for media to intensify and flood with women cricket to take a notice and a moment to appreciate them.

In summery women players of the context under study who become involved with sports event appear to do as a result of self-interest, parental encouragement in school during physical education classes and performances or requirement by peers. Further they become involved despite any lack of athletics skills, direct experience with the sport of relevant role models. Most of the players have been active in club-based team sports and community athletic programmes are seen by the informants more impotent than school and college programmes. During investigation it has been provided and informed that after relatively brief period during players acquire basic skills and playing experience, through training and achievement competition, the players developed a strong sense of self confidence and faith in their abilities and rewarded locally. Thus, this study has sought to provide an overview of women's changing sport role through their participation in particular professional and for semi-professional team sports. A specific objective has been to consider participant's attitude and self-concepts, while also seeking to determine how women folk in sports become involved with socioeconomic empowerment under the purview of "women's empowerment" movements. It is suggested that the increasing formalizing of women's sports has led to an embracing of the sports in West Bengal and which embodies such values as competition, discipline, teamwork, health aspects and so on. The implication is that women sports may continue to develop along the lines of professionalized male sports world, without the alternative options, women sports are virtually all levels, most frequently lack findings, facilities and equipment's training facilities (through women coaches) medical travel expenses, media coverage and adequate opportunities for participation. Obviously, the lack of frequent women's competition in high school and colleges, results in no available talent pool for professional teams as patronized by regional, national, as well as international levels, such as exists in the male sports will continue to lag as long as talents at the lower levels in afforded no increase opportunity to develop; thus, women's potential for a bright professional sports career appears dim. Therefore, it may be concluded and finally suggested that support and encouragement must be given to women in the early stages of life –particularly in secondary education a preparation for college – in order to achieve entry into such careers as others. Likewise, support and encouragement in sports may be recognized as important to a potential sports career which finally give raise the popularity of the particular sports event and mass participation and awareness for a healthy movement of empowerment through sports.

Analysis

Analysis is done on women in sports. This analysis is done through Google form the Google form was being circulated among 150 to 200 individuals of all age groups that contains questionnaire related to the topic. The questionnaire contains question such as, should women be a part of sport? Does women Sports get enough media coverage last time do you have watched women Sporting event how many e women players do participate in sports currently does women from rural areas still face humiliation from society and family are women athletics taken as seriously as male athletes' reason behind low female participation in sports significant difference between male and female in athletic ability
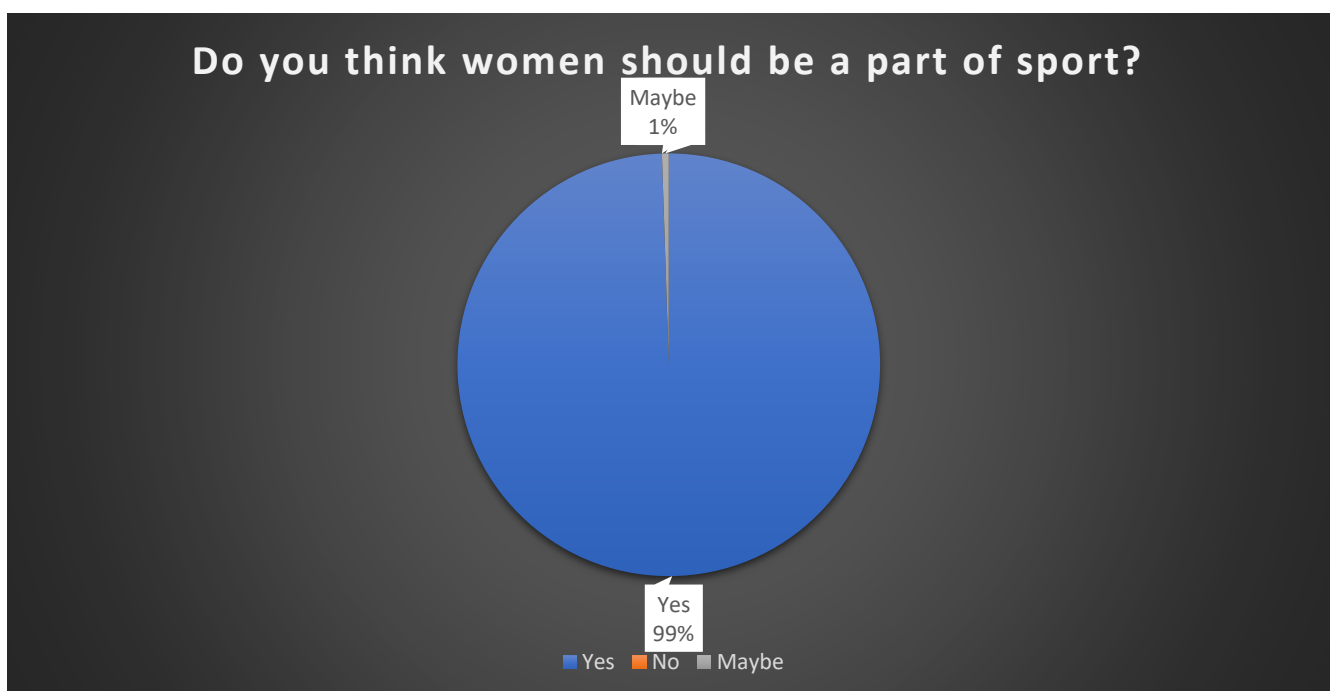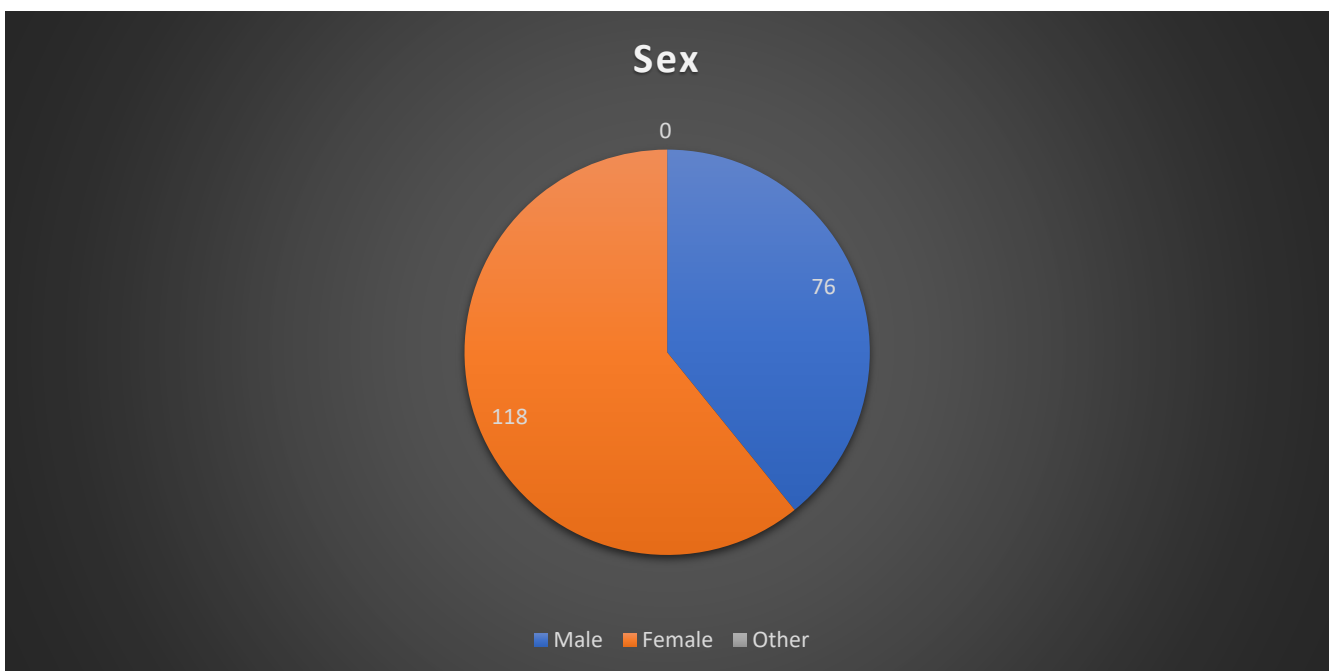
When was the last time you watched a women's sporting event?
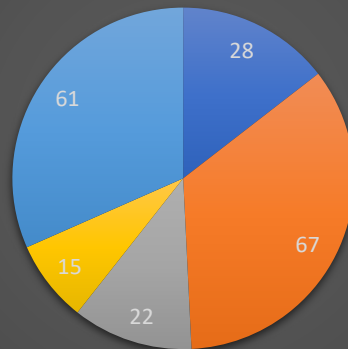
- 28 — A week before
- 67 — Month ago
- 22 — A year ago
- 15 — Never
- 61 — Few days ago.

Do you think women's Sports get enough media coverage?
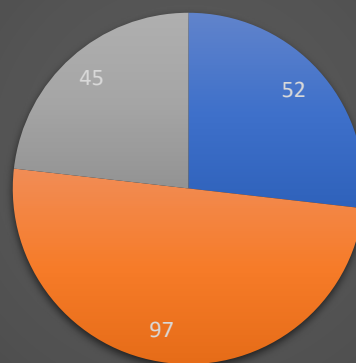
- 52 — Yes
- 97 — No
- 45 — Maybe

Do you think women are less of women if they are skilled and successful athletes in sports?
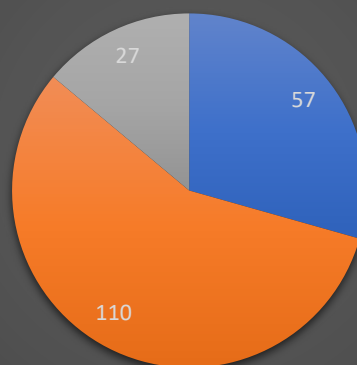
- 57 — Yes
- 110 — No
- 27 — Maybe

According to your knowledge how many women players do participate in sports currently?

75
61
50
42
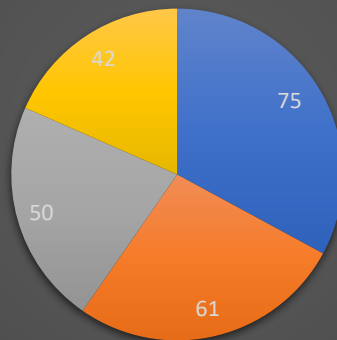
■ 25% ■ 40% ■ 50% ■ 65%

Do you think women from rural areas still face humiliation from family and society for participating in sports?

33
8
153
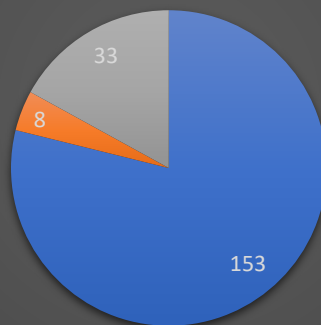
■ Yes ■ No ■ Maybe

Do you think male and female athletes should be put under the same standard and rules in their respective sports?

24
19
151
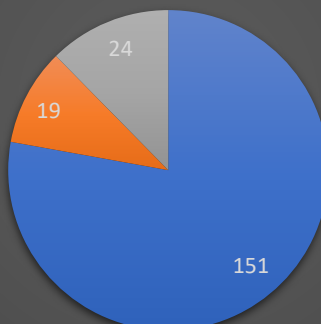
■ Yes ■ No ■ Maybe

Do you think female athletes are not taken as seriously as male athletes?

39
44
111

■ Yes ■ No ■ Maybe
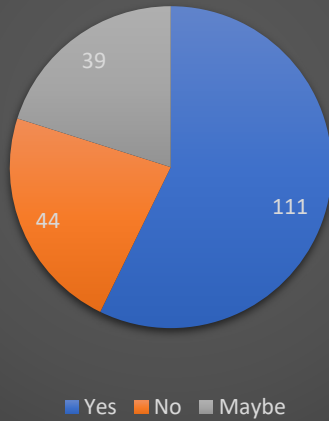
What can be the reason for low female participation in sport than that of the male?

7 15
56
104
12

■ Fear ■ Lack of facilities and guidance ■ Poverty ■ All of the above ■ None of the above
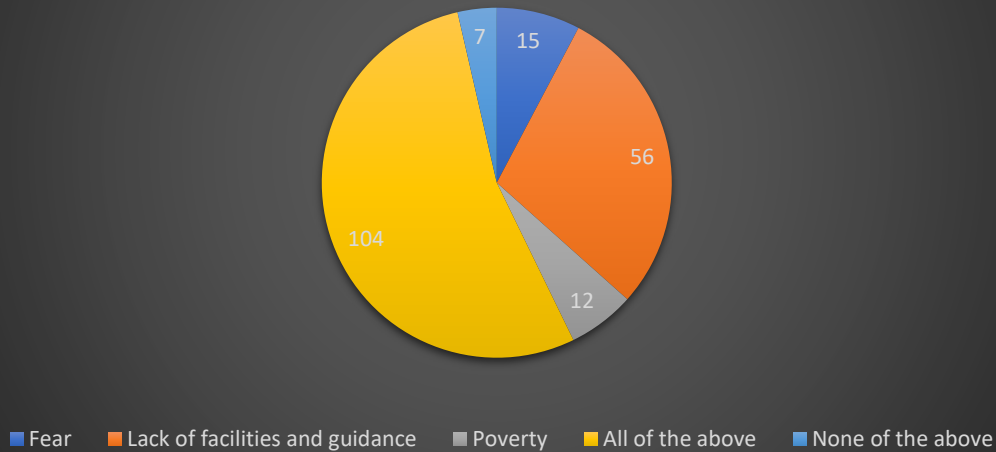
I believe there is a significant difference between male and female athletes in terms of athletic ability?

26
44
15
36
73

■ Agree ■ Disagree ■ Neutral ■ Strongly agree ■ Strongly disagree
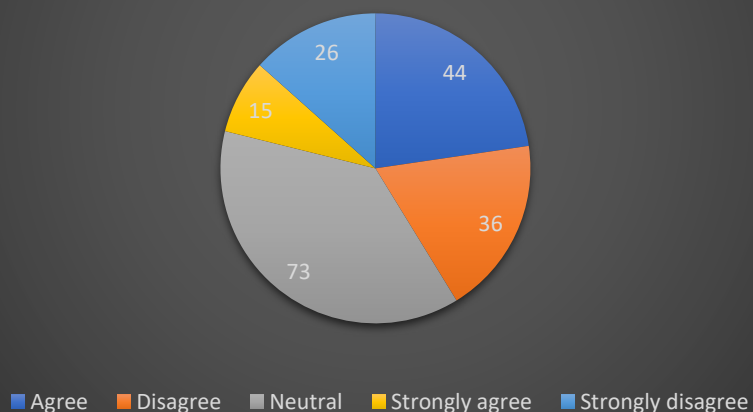
Response

As the form was being circulated among individuals of all age groups their response for opinion also discusses from one age group to other.

1.The age group between 18 to 24 has participated more than all other age groups

2.Looking forward to gender females have responded more than that of male

3.99% people think that women should be a part of sport

4. 50% people think women's Sports don't get enough media coverage as compared to to that of mens.

Being in a rural society is challenging for or women and most of the people do you think that women 2 face humiliation from society and families for participating Sports.

There is equality all fields and so should be in sports between men and women should put under same rules and standard in sports

As we have seen there's a very low wen participation in sports and as we have done the analysis most of them think the reason behind that is fear, lack of facilities and guidance and poverty.

Taking significant difference in athletic ability between male and female in consideration most of them have a neutral opinion towards it and least number of people strongly agree to it.

CONCLUSION

The participation of Indian women in sports is increased or increasing but not to a very extend. The participation is still less as compared to other countries. By considering the population factor of India the participation of Indian women in sports should be more. There are many factors or reasons which affects the participation of Indian women in sports like facilities, support, coverage, cost factor, equipment's, etc. The spectators or the viewers play a major role as they show the attitude of society towards women sports. As the support from the society encourages Indian women participation in sports. The support from the society is good as more female athletes or participation of Indian women in sports has increased. Media has also played a major role in increasing participation of Indian women in sports. The coverage of various female sports events, various advertisements having female sportspersons, etc brought female athletes or sports closer to the society.

Women are not only participating in individual sports but also in team sports. These increasing participation of women in sports is a sign of gender equality in sports. As in the field of sports also women are competing with men. They are not only participating in it but also supporting and influencing women or female athletes to participate in the sports.

The increased participation of Indian women in sports is motivating many Indian females for participating in sports. Nowadays many tournaments are organised specially for female athletes with a purpose of increasing interest and participation of women in sports.

The support to the women in sports is also increased to vast extend in the last few years. As the mindset of people towards women or women in sports is changing the support from them is increased. The support was very low during the initial stage / time. As at that time sports were mostly dominated by men. At that time very a smaller number of female or women were participating.

Due to less participation of women, there was no coverage or very less coverage of female sports events by the media. But in the last few years the coverage of the female sports events is increased to a vast extend. The media is also promoting many female sports events and games with a purpose of increasing female or women participation in the sports.

The government is also taking efforts to increase women participation in sports. They are trying to reduce the factors affecting participation of Indian women in sports. The government is also building sports mansions at different places for practising of sports or games for women. They are also trying to provide best enmities or equipment's to them as per the sport or the game. They are also trying to give financial support and job facilities to them. Many more different facilities are provided by the government to the female athletes for increasing their participation and to support them. Due to these support and initiatives taken by the government towards the female sports the women in sports or female athletes are also getting motivated and the participation is increasing.

All these facilities, measures and support has increased the number of participants of Indian women in sports. As the number is increasing many new and good plyers are getting introduced to the world. All these female athletes are trying and making India proud by their performance

RECOMMENDATIONS

The participation of Indian women in sports is increasing slowly – slowly. There is less participation of Indian women in sports because of some factors and they are as follows:

1. Lack of interest of spectators.
2. No coverage of women sports.
3. Attitude of society towards women sports participation.
4. Cost factor.
5. Proper guidance.

All these factors play a major role in less participation of Indian women in sports.

To improve participation of Indian women in sports certain measures should be taken. These measures will encourage Indian women to participate in sports. There should be more appreciation and support from the audiences or spectators so that their positive behaviour shall encourage the players for the better performance. Transportation issue should be kept in mind when it comes to the female players. The organization committee should make appropriate arrangements regarding pick up and drop facilities of the players. As a result, even the families' members will be satisfied and tension free. Number of women coaches should also be increased in order to coach the women players regarding their game as people feel more comfortable with the person of the same sex. Media plays a great role in communicating or publicizing about the victory and loses of the competitors of various games. Media should also cover the sports involving women so that the other of their lot feel proud and come up for participation in sports too. Appropriate facilities in terms of gears, equipments and medical help should be the priority of the organizing committee and made available to the women players so that they don't hesitate in taking part in various sports.

Following are some of the other steps to improve women participation in sports:

1. Motivation and inspiration to women for participation in sports.
2. Generating support from family and parents.
3. Organising camp, seminar and workshops.
4. Providing knowledge and media coverage.
5. Educating women and promoting sports at grass root level / local level / primary level.
6. Encouragement by senior players.
7. Providing better infrastructures and facilities.
8. Ensuring safety and security to women.
9. Sports school & hostels for women.
10. Providing female manager and coaches.
11. More opportunities for tournaments.
12. Create better and right environment.
13. Support with new techniques & environments.
14. Financial help.
15. Gender equality in sports.

All above are some of the steps to improve women participation in sports.

REFRENCES

- LIBRAIAN VSIT
- Book name - An Evaluation of Anthropometric
  - ❖ Characteristics in Indian Inter-University Female Cricketers
    - Shyamal Koley
    - Kanupriya Kashyap
  - ❖ Women sports and journalism: Case study of Indian women cricket
    - Sandhya Chauhan
    - Aditya Kumar Shukla
  - ❖ Women and sports: Anew area of empowerment – An ethnographic study in an urban spot in West Bengal
    - Dr. Abhijit Das
    - Sudipa Mondal
    - Jaydeep Mondal
- SARTHAKS.COM
  - ❖ Steps should be taken to improve women's participation in sports in India
- ZIGYA, COM
  - ❖ Steps to improve women participation in the field of sports and games

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY.

- ## WOMEN AND GAMING INDUSTRY IN INDIA.

BY...

SHRAVANI RANE — 21314B0001
YAJURVEDANI THAKARE — 21314B0002
HITESH KIRTIKAR — 21314B0003
SUJAL MAYEKAR — 21314B0004
ADITYA SHINDE — 21314B0005

UNDER THE GUIDANCE OF.....

Ms. LAKSHMI PILLAI

ASSISTANT PROFESSOR

DATE OF SUBMISSION :- 9th December 2021

INDEX.

INTRODUCTION.

• The Relationship between women and video games has received extensive academic and media attention. Since the 1990s, Female gamers have commonly been regarded as a minority, but industry surveys have shown that over time, the gender ratio has become closer to equal, and since the 2010s, women have been found to make up around half of all gamers.

The gender ratio differs significantly between game genres, and women are highly underrated and underpresented in genres such as first person shooters and grand strategy games. Sexism in video games, including sexual harrassment, as well as underrepresentation of women as characters in games, is an increasing topic of discussion in video game culture. Advocates for increasing the number of female gamers stress the problems attending disenfranchisement of women from on of the fastest -growing cultural realms as well as the largely untapped nature of the Female gamer market.

Efforts to include greater female participation in the medium have addressed the problems of gendered advertising, social stereotyping and lack of female video game creators (coders, developers, producers, etc.). The term "Girl Gamer" has been used as a reappointed term for female players to describe themselves, but it has also been criticized as counterproductive or offensive.

• Despite the growing female gaming population, almost all research on gaming addiction is focused on male gamers. Currently, there is no aggrement on the prevalence of Gaming addiction due to its conceptualization and methodological problems within the research that has been conducted to date. Female gamers are on the rise, and numerous studies have sought to understand if female gamers have specific motivations and game play behaviours. Some country based studies reveal that gaming motivations do differ cross-culturally across genders. Organizations such as WOMEN IN GAMES, are advocating for a reimagination of the gaming industry, free of gender discrimination, by addressing the culture from workforce, product and the player community perspectives.

* IT'S NO SECRET THAT WOMEN ARE STILL WIDELY UNDERREPRESENTED IN THE GAMING INDUSTRY, PARTICULARLY ~~WE~~ WHEN IT COMES TO VIDEO AND MOBILE GAME DEVELOPMENT.

* THE FUTURE OF WOMEN IN GAMING:

○ India has over 250 million mobile gamers and this number will reach 368 million by the year 2022. The gaming industry is growing, and women form a huge part of this market place.

○ As per InMobi's mobile gaming India report 2021, women make up 43% of the entire mobile gaming audience. Among them, 12% are from the age group of 25-44 and 28% are over 45 years.

○ From this, we can draw the conclusion that women are going to shape the growth of the sector in the coming years.

○ Visibility of women in gaming industry is increasing with time owing to the emerging online gaming culture. Additionally, the popularity of female gamers is also rising, especially on social media platforms.

○ For instance, Sunita Thapa Magar has 3.95 million subscribers on Youtube. Similarly, other popular gamers including Vidushi Suryavanshi (Mogambo), Mudra Roy (thewllflower), Payal Dhare (Payal Gaming) among others. Today, entry in to the world of gaming has become easier.

- Womens are carving a niche for themselves in the online gaming space. Be it gamers, streamers, game developers or entreprenurs. Today, women are a significant part of the industry as they make up for half of the hyper-casual gamers.

- There are a significant numbers of female influencers and companies that have come into light in recent times. Besides this, their contribution in the development of games is remarkable.

- According to 'Think with Google APAC - Play like a Girl Report, 2020', 18% of all gamers in India are women. Moreover, the number of women is increasing at a faster rate than male gamers. Particularly in the current scenario things are changing, fast.

- The Gaming Industry in India started to bloom about a couple of years ago. The online gaming industry too is no exception.

- Within the Asian Gaming population, almost 40 to 45% of the Global gaming population are women. From this, we can draw the conclusion that women are going to shape the growth of the sector in the coming years.

OBJECTIVES

- When we consider the audiences for gaming, we do not exclude women. In fact, they make up for about 50 per cent of the potential gaming audience. Thereby, it is essential to have women in the decision-making, designing and development processes as well. Subi Chaturvedi, Chief Corporate and Public Affairs Officers at Zupee points out, "If we cannot have a womens perspective, how do we expect to attract female users? Gaming is about engaging empowering, and ~~entertaing~~ entertaining and you need as many perspectives and new ideas as possible to make it interesting for everyone. From our experience, women are more inclined towards the users experience and thus design and gameplay become the focus for them, besides the business."

- Playerzpot's Brand Manager Ankita Ashara takes gaming as ~~per~~ a passion-based industry and thinks the future of women in gaming is increasing through the social media influencers and Youtube stars who are creating powerful social spheres where being a women in gaming are not only accepted but celebrated, and even branded as 'cool'. "Since the beginning of the decade, the attitude towards women in gaming in general and across the board has shifted. The rise of women in leadership roles at gaming companies has also led to women gaining high level development roles - not just c-level positions.

- Chaturvedi thinks that it is this user-centric approach that is resulting in more female participation than ever. With games like Candy Crush, Farmvilla and Ludo king, we have seen more female participation than even men, which means that there is demand on the user side as well as the game provider side.

- Female character representation in video games is lacking with only 5% of video games showcasing female protagonists. Various studies reveals that gender stereotypes continue to prevail in video games, with female characters often objectified and hypersexualized. And when not depicted in this manner, female characters are often portrayed as a love interest, innocent or needing to be rescued by a male character. If anything, what these studies highlights is the rich complexity of the female gaming population.

With the gaming industry poised to reach INR 155 billion by 2023, female gamers will be an important catalyst for the growth of the sector.

Naman Jhawar
SVP, Strategy and Operations, MPL

- Speaking on how female gamers are transforming the gaming landscape in India, Naman Jhawar, SVP, Strategy and operations, MPL, elaborated, "The number of female gamers is growing at a faster rate than male gamers, in India as well as Asia. We are also seeing huge participations from women in esports, and this will attract more female viewers and fan following. With the gaming industry poised to reach Rs. 155 billon by 2023, Female gamers will be an important catalyst for the growth of the sector. It is also gratifying to see how the gaming culture in India has evolved over the years. From being an all-boys club, we now have many women gamers and streamers who have taken centre stage".

- He further said, "At MPL, our aim is to make esports more o inclusive and diverse. In furtherance of this, we are looking to develop communities for female gamers, promote female gamers as part of our ecosystem and provide them with opportunities for growth".

- Given Indian gamers' love For experimenting with new games and dowloading different gamers games every week, the gaming industry is gradually evolving, considering the high growth of Female gamers, especially during the lockdown period.

- The engagement of women in online gaming is poised to increase exponentially in the commu coming years with the increase of accessibility and affordability of gaming technology.

- At the same time, the industry is evolving For the better, into a more inclusive and gender-sensitive one and encouraging women gamers and content creator.

- We're dawning upon a new age of Female gamers. It won't be surprising if we start noticing more women themed designs, graphics and lead characters. As women shape the gaming industry, they"ll soon have more influence on the overall ecosystem as well.

PROCEDURE OR METHOD.

PROCEDURE :

- ### WOMEN THE FOCUS FOR GAMING PLATFORM.

Gaming startup Microgravity is looking to raise 10 million dollars in the next six months, even as it partners with hardware manufacturers, software specialists, IT enterprises and fast moving consumer goods firm to promote women gamers. It has launched a women ~~in their~~ - centric esports league to ~~hung~~ hunt for India's "gamer goddesses" and has announced special offers for women in their flagship gaming arena.

Gear makers such as HP, Asus, Lenovo and Logitech are sponsoring women in India to help them become top esports athletes while Red Bull continues to be the largest sponsor and promoter of female esports celebrities across the world.

According to a joint report by Google and games market intelligence firm Niko Partners, India has the lowest overall percentage of female gamers in Asia, at 18%, while in countries such as Taiwan, ~~than~~ China and Indonesia the proportion is 49%.

However, with female constituting 42% of India's overall smartphone base or about 210 million users, there is a huge headroom for broad-basing India's gaming audience.

In fact, hiring in the gaming ~~idus~~ industry has gone up by 25 - 30% in the past six months while 20% of new hires are women taking up entry-level as well as senior leadership roles, according to staffing firm TeamLease.

"Women make up for 50% of the potential audience for all games and if we have to continue to make games that appeal to women, we need to have women in the boardrooms making decisions regarding design, aesthetics and user experience." Said Subi Chaturvedi, chief public affairs officer at gaming startup zupee and the first chair of the Federation of Indian Chambers of commerce and Industry's sub-committee for women in technology, policy and leadership.

Winzo Games said over the past one year, engagement from women on its platform has increased around 30% while the average time spent has increased to 38 minutes from 20 minutes in the past six months.

Besides high involvement of women in soft casual games such as Candy Crush and Snake Rush, a lot of women are now taking up Hot games and esports leagues like Battleground Mobile India and Call of Duty, according to the industry experts.

1)Female gamers are increasing, can the gaming industry catch up with it?

107 responses

- Yes the gaming industry will catch up.
- There will be ignorance of women in gaming industry

27.1%

72.9%
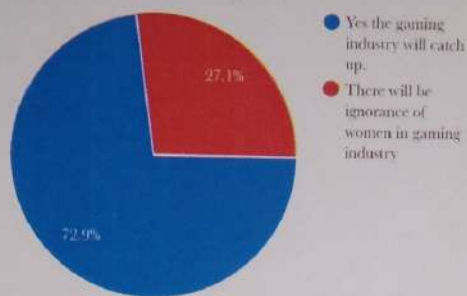
In this question, it is seen that many people says the that Yes, the gaming industry will catch up. At the other side 27.1% people think says there will be ignorance of women in gaming industry.

2)Will the gaming industry perceived toxic for online harrasment of female gamers?

107 responses

- They are often harrased because they are seen as outsiders in this industry.
- The female gamers are welcomed with grace & gender equality.

77.6%

22.4%
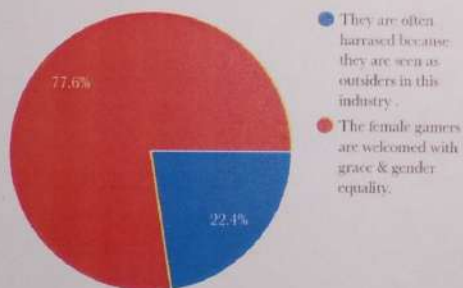
In this question we can see Just 22.4% says They are often harrased because they are seen as outsiders in the industry. and 77.6% says The Female gamers are welcomed with grace and gender equality.

3)Does women comprise of small percentage of gamers?

107 responses

- Yes
- No
- Maybe

34.6%

14%

51.4%
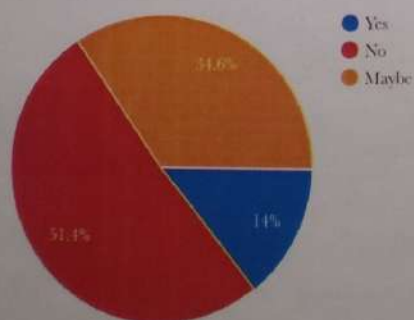
In this survey, 14% says Yes, 51.4% says No and 34.6% says may be women comprise of small percentage of gamers.

(4)

4)Do women hide their gender to avoid harrasment while gaming online?

107 responses

- Yes
- No
- Maybe

41.1%

12.1%

46.7%
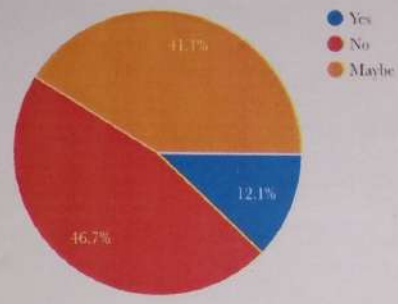
In this Question, 46.7% people says women dosen't hide their gender to avoid harrasment while gaming Online.

(5)

5) What types of games are most popular with females than males ?

107 responses

- Puzzle, Simulation and Arcade
- Action adventure and shooter categories

43%

57%
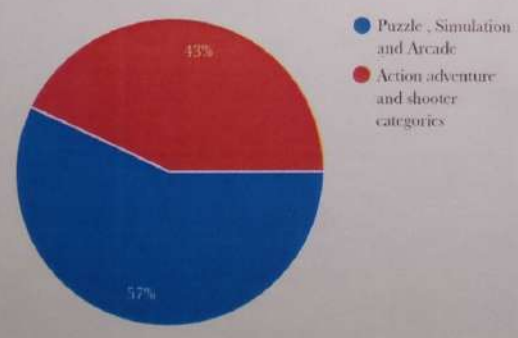
In this survey, 57% says Females loves to play puzzle game or Arcade games. And 43% says Females also play Action games and shooting games.

Attitude

RECOMMENDATIONS.

- With 252 million unique visitors to games-related sites in March 2021, India is one of the largest gaming markets today. Women gamers are increasingly becoming a part of India's Gaming Universe. A study conducted by InMobi, analysing usage patterns between January 2020 and January 2021, revealed that 43% of the mobile gaming audience in India was women and across diverse age groups. From gamers to streamers to game developers and enterpreneurs, women are increasingly straddlings different roles in the gaming industry.

- According to 'Think With Google APAC' — Play like a Girl Report, 2020', nearly 18% of all gamers in India are women. Moreover, the number of women is increasing at a faster rate than male gamers, especially during the pandemic. The report also highlighted about 'PokerDangal', a popular casual poker game in India, which reported that its number of female users surged by 500% in 2019 - and more than 80% of those users were younger than 25 years old. This is in line with the fact that 95% of Indian women who own smartphones use them to play mobile games, compared to just 86% of male users. Moreover, 78% of women played games for up to two hours on their Smartphones. Its clear that more and more India women, especially the younger generation, are poised to become avoid avid gamers in the near future.

CONCLUSION.

In conclusion, women are about to shape the growth of the online gaming sector in the coming years. But to fully utilize this, in our point of view, India can take inspiration from Southeast Asia, where female game developers not just inhance the game available today but are also involved in creating new formats and styles that will give female gamers exclusive experiences.

" The engagement of women in online gaming is poised to increase of accessibility and affordability of gaming technology. At the same time, the industry is evolving for the better, into a more inclusive and gender-sensitive one and encouraging women gamers, content creators and hosts. This is an ideal time for women gamers and developers to excel in mould this ever-emerging industry".

Five years ago, it was unimaginable for anyone to look at online gaming as a career option. But today the space offers a bright future for women from all walks of life.

More women in the industry are being appreciated for their professionalism, experience, and love for gaming. However, there is a higher need of a policy framework to ~~carter~~ cater to their needs.

REFERENCES.

- DATAQUEST INDIA.

- THE HINDU - NEWSPAPER.
  (We Need more female leaders in gaming)

- www.financial express.com.

- India Gaming SUMMIT 2020 : How female gamers are slowly storming the male.

- https://www.statista.com - Frequency of online gaming India 2021 by Gender.

- www.nagalandpost.com.
  Women advance through the ranks in India's gaming arena.

- https://www.firstpost.com
  INDIA ON ESPORTS : Why more women are getting attracted towards Mobile Gaming.

APPENDIX .

Problems of Dowry system in India

Foundation Course Assignment

Fy-BMS

Group project by:-

Reena Chettipelli- 21301B0012
Epika Pandey- 21301A0047
Jui Raote- 21301A0021
Jenifer Sriram- 21301A0033
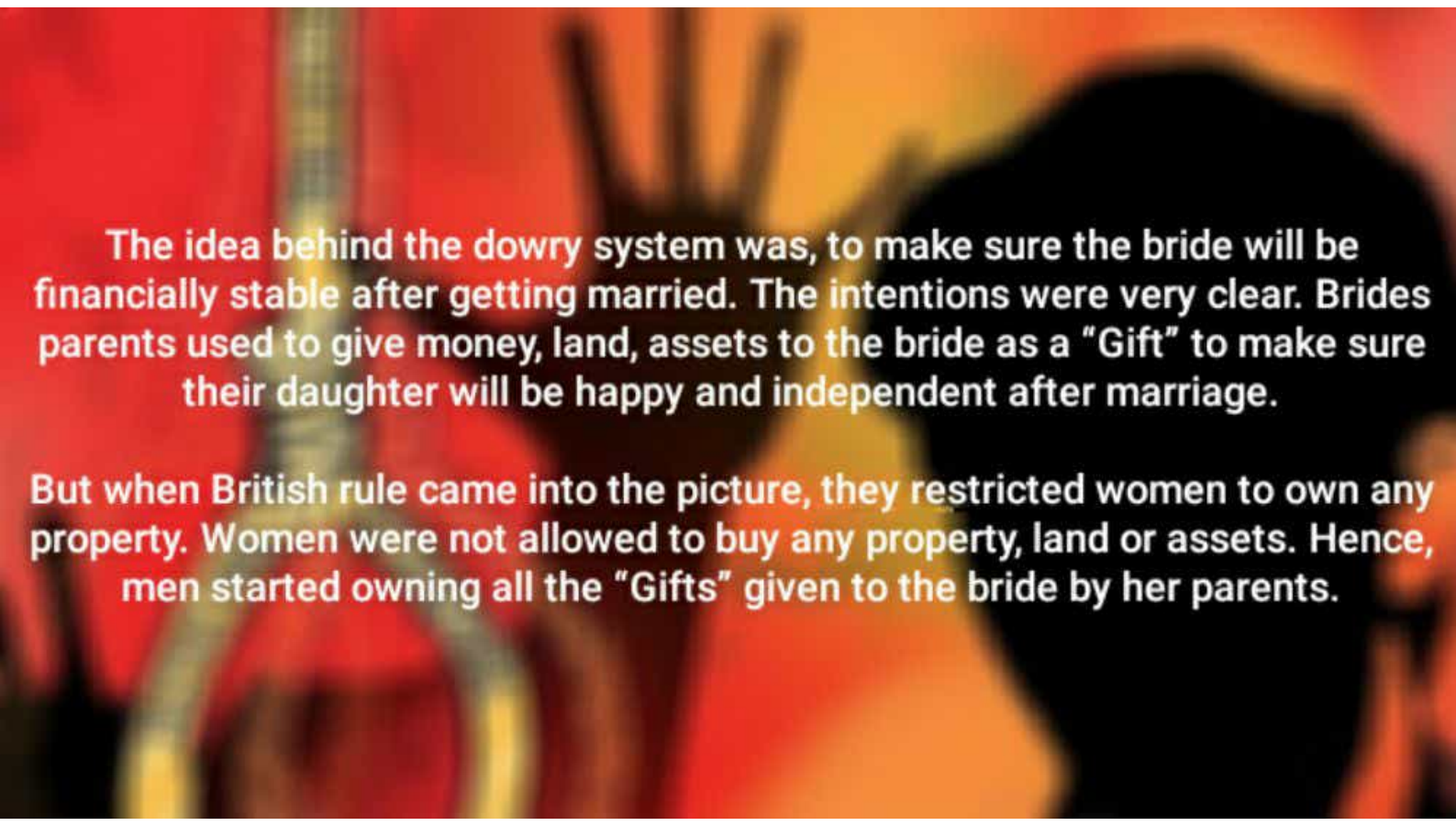
Under guidance of Ms. Reshma Suryavanshi mam
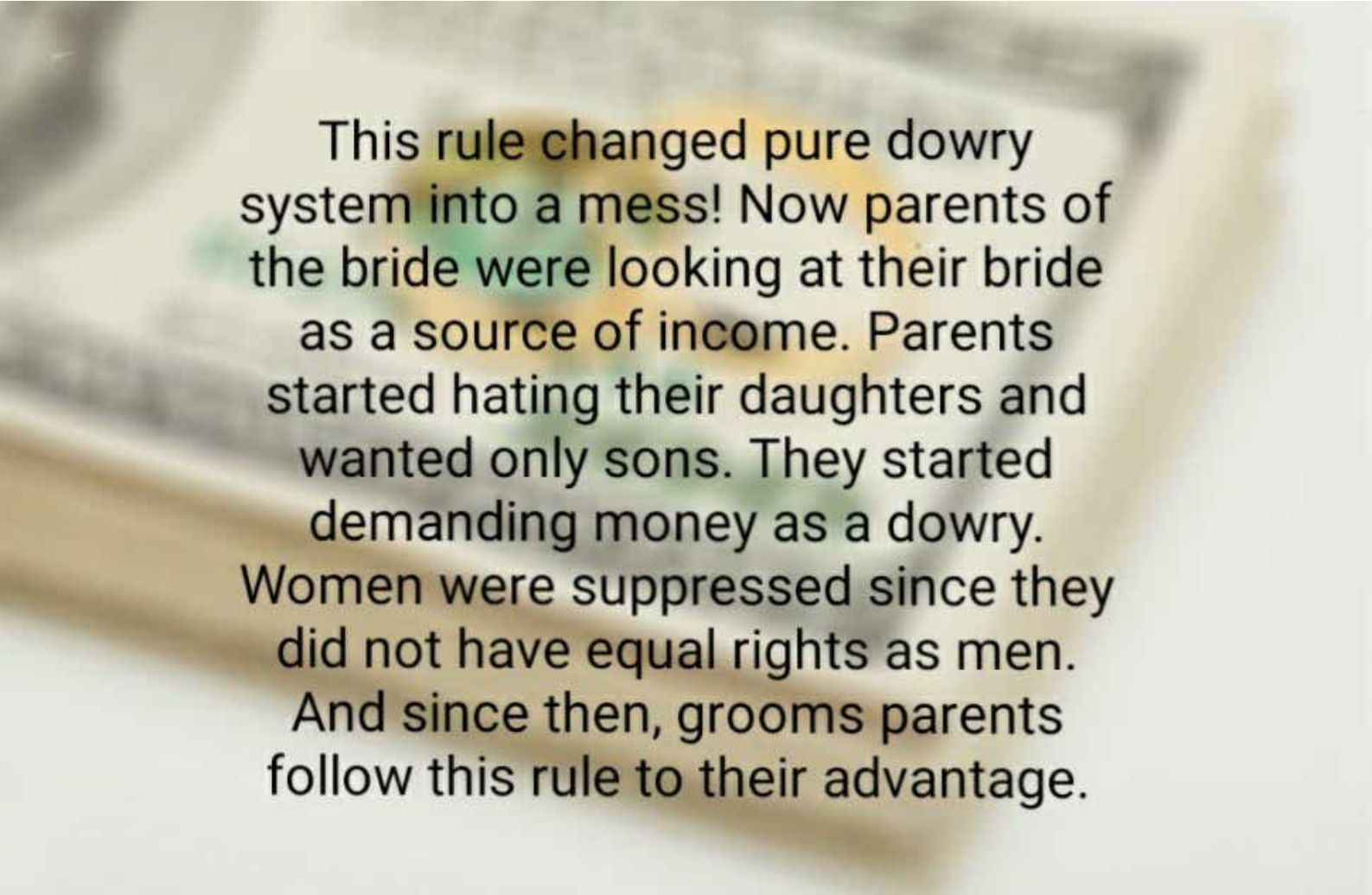
INTRODUCTION

Dowry is derived from the ancient hindu customs of "kanyadan", and "stridhan", the bride herself gets jewellery and clothes at the time of her marriage , usually from her relatives or friends. Dowry system started even before the British period. In those days, society does not use to consider dowry as a "Money" or "Fee" you have to pay to be brides parents.

The idea behind the dowry system was, to make sure the bride will be financially stable after getting married. The intentions were very clear. Brides parents used to give money, land, assets to the bride as a "Gift" to make sure their daughter will be happy and independent after marriage.

But when British rule came into the picture, they restricted women to own any property. Women were not allowed to buy any property, land or assets. Hence, men started owning all the "Gifts" given to the bride by her parents.

This rule changed pure dowry system into a mess! Now parents of the bride were looking at their bride as a source of income. Parents started hating their daughters and wanted only sons. They started demanding money as a dowry. Women were suppressed since they did not have equal rights as men. And since then, grooms parents follow this rule to their advantage.

The new dowry system is creating problems in society. Poor parents do not get any groom who will marry their daughter without taking dowry. They have to take "Marriage Loans" to get their daughter married.

Dowry is becoming a nightmare for Women. The cases of infanticide are increasing. Poor parents do not have any other option. They cannot afford to have a girl child, and hence they are intentionally killing infant girl. More than 8000 women are killed because of Dowry!

OBJECTIVES

To promote marital and family harmony.
To actively work for creating a dowry free society without adversely effecting the institution of marriage, family structure and implication of innocents.
To provide a platform for fighting against misuse of dowry laws.
. To create awareness about current dowry/ cruelty/harassment related laws and their detrimental effects on family members including husband, wife, their children and relatives.
• To provide legal, psychosocial and emotional support to the innocent persons who are affected by malicious implication through dowry laws. To provide legal aid to families from. weaker and needy section of society.

. To demote cultural changes like single parenting and live-in relationships, to safe guard child welfare and integrity of Indian family.
• To safe guard interests of Elder's and their respect in society and discourage elder abusel through dowry related laws.

- To promote deterrents against false complaints and arrests without investigation. To .
discourage malicious prosecutions in matrimonial cases.
. Pursue amendments/reform in existing laws and legal procedures, so that all sections of society enjoy equal rights for justice, irespective of their race, age, religion and gender. To .
promote gender equality and reduce gender discrimination.
To work to ensure speedy trial and justice to all.
To take up issues related to Human Rights Violations and violation of Fundamental Rights as :
per Indian constitution and raise these issues at appropriate platforms.

- To collaborate with different sections of society, other organizations working towards similar goals. women organizations, Government bodies, legal authorities etc for the betterment of Indian society.
- To perform all such acts as may be necessary for the achievements and accomplishment of the above mentioned aims and objectives.

1. Domestic violence against women

Dowry is not a one time process. It keeps continuing after marriage as well. A. few greedy families harass married women to bring more dowry or in case of failure to meet dowry demands. As a result, the in-laws family does fight with her,
beat her hard, or even they kill her. Every day many women harassment cases arel
registered due to dowry. In some cases, married women commit to suicide duel to continuous harassment, some are burned or injured badly by in-laws family. Dowry deaths are found predominantly in Pakistan, India, Iran, Bangladesh, and a few more countries in the world.

2. Financial burden

It is a big financial burden on our society. The bride's family starts collecting. goods and saving money for dowry on her marriage from the day she takes birth.
In many cases, her parents have to take borrow money frorn relatives and friends,
a loan from the bank, and even sell their property for doing just her marriage.

3. Waste of money
Yes, it is totally a waste of money. People don't spend money as much money on their child's education and career as they spend on dowry and marriage expenses. An average gathering of 300 to 1000 guests in normal Indian marriage and bride family take care of all these meals, sitting and comforts. It is also another type of dowry. We can save this money to the bank or use it for their education.

4. Encourage to gender discrimination and female society gives more preference to the boy child. Dowry culture also encourages female foeticide due to gender inequality and most families can't afford wedding expenses.

PROCEDURE or METHODS

Educate your daughters
Encourage them to have their own career
Teach them to be independent and responsible
Treat them (your daughter) equally without any discrimination
Do not encourage the practice of giving or taking dowry

It is important that we take some steps to eradicate the practices of dowry. It is important that we educate our daughters and make them independent enough,we should say no to dowry and stop everyone who is doing it in today's world and if anyone is forcing someone for the dowry ,there are various laws and make them understand about

Here are some tips on how can we prevent dowry deaths-
Neither accept nor give dowry under any circumstance. Under Indian law, those who give and those who receive dowries are equally liable to fines and imprisonment. Stop teaching your daughters that remaining silent will make her marriage successful.
Be alert of any unexplained or suspicious injury, bruises, or illness of a girl after her marriage. Don't ignore any signs of physical or emotional abuse. Look out for possible red flags, especially if your daughter repeatedly asks for a large amount of money after marriage. Never force your daughter to go back to her husband if she shows resistance. Pay attention to the depressive mood or behaviour of your daughter after her marriage.

1. Awareness program campaign
2. Punishable law
3. Equity Behavior
4. Spreading education
5. Reduction of poverty
6. Employment opportunity
7. Motivation to student
8. Social torture
9. Making women self independent
10. Gender equity

11. Changing conception
12. Stoppage of early marriage
13. Respecting them as a goddess in behaviour
14. Equal rights
15. Employment and creating training provinces
16. Reduction of mental torture
17. Intercaste marriage
18. Stopping girls trafficking
19. A society free of discrimination

RECOMMENDATIONS

Educate your daughters.
Encourage them to have their own career.
Teach them to be independent and
responsible.
Treat them (your daughter) equally without
any discrimination.
Do not encourage the practice of giving or
taking dowry.

CONCLUSION

Dowry system is good unless and until it is considered as a gift given to the bride by her parents. If the groom's parents are demanding money to get married as a "Dowry" then that is completely wrong and illegal.

The greed for dowry and undeniably the dowry system as a tradition calls for the severest criticism. It is apparent that legislative measures such as the Dowry Prohibition Act have not met with the targets for which they were intended. Possibly legislation in itself cannot succeed in removing such an evil, and the solution must eventually be found in the principles and willpower of the society and its active expression through legal and constitutional methods.

BIBLIOGRAPHY

Help from Internet
www.google.com
www.wikipidea.com
www.vikaspidea.com
Following books are used to have an idea about Problems of dowry system in India Statement

• Dowry Laws And its Misuse in India -by Dr. Soumi Chatterjee

• The Dowry Bride -by Shobhan Bantwal

• Dowry Murder -by Veena Talwar Oldenburg

Total number of reported dowry death cases in India from 2005 to 2020-
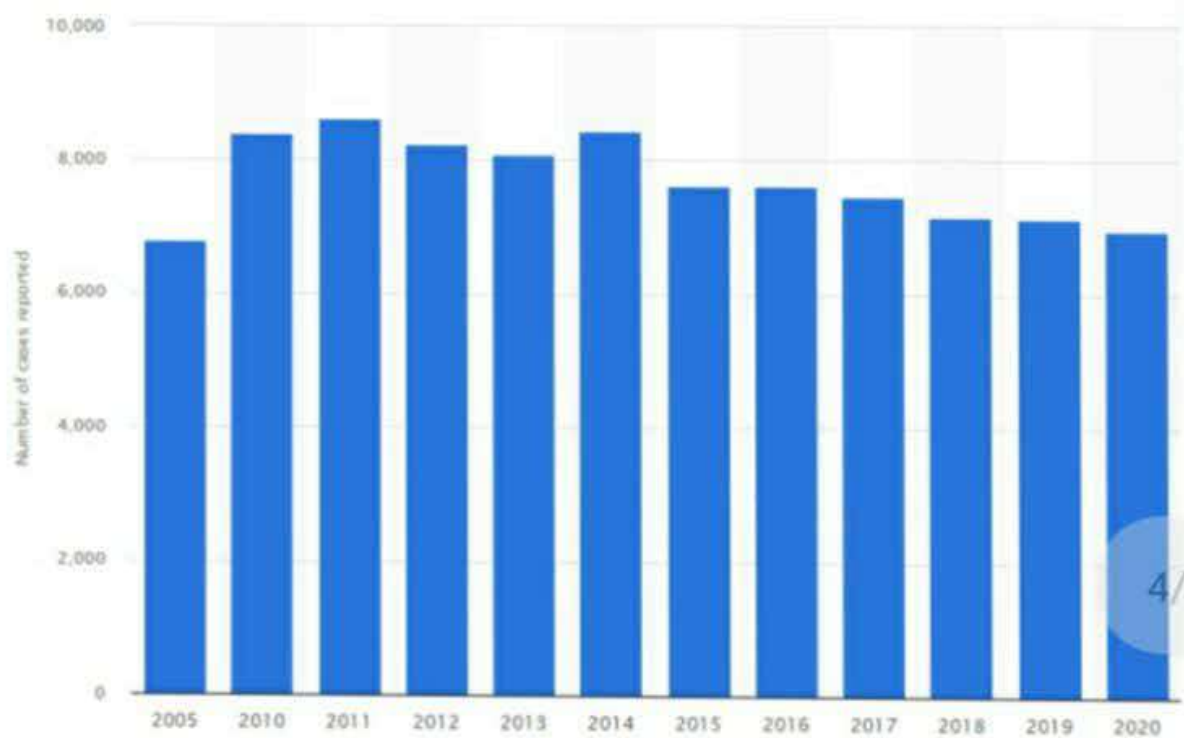
Are you aware about dowry system?

63 responses

Legend:
- Yes
- No
- Maybe

96.8%
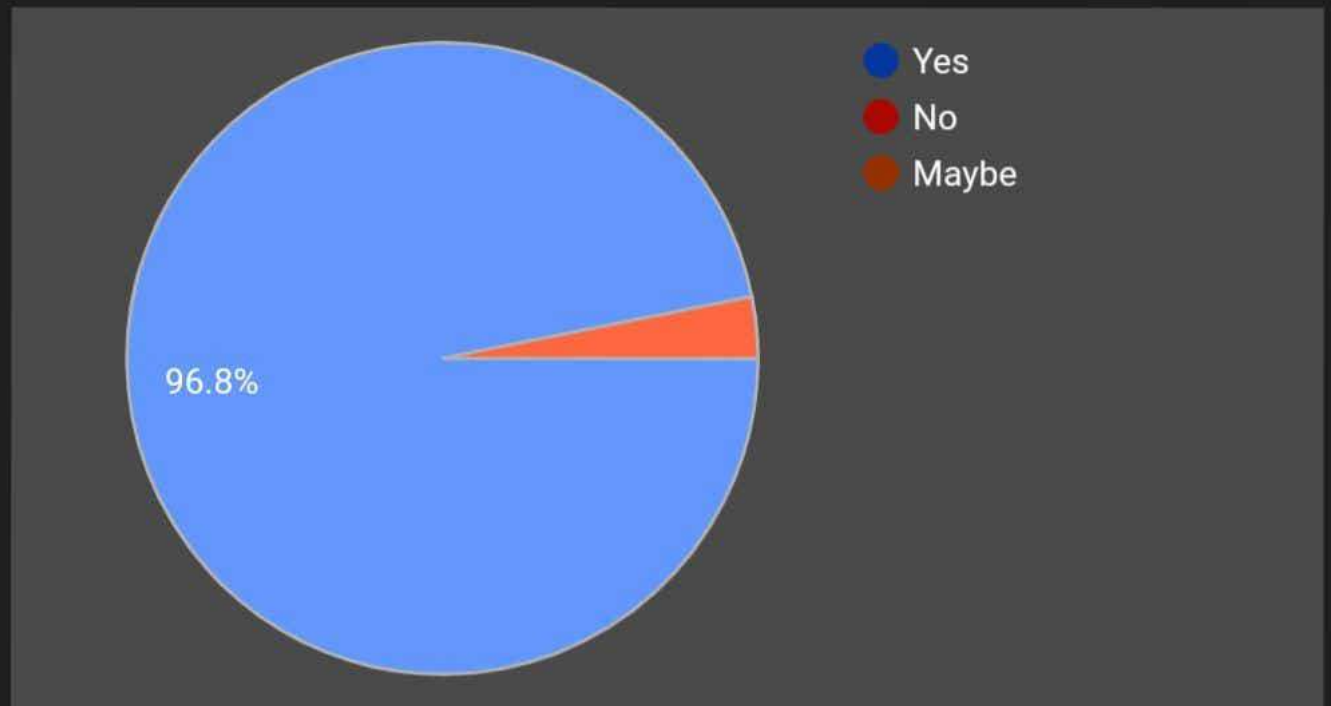
Is dowry system good for our society?

63 responses

Legend:
- Yes
- No
- Maybe

92.1%
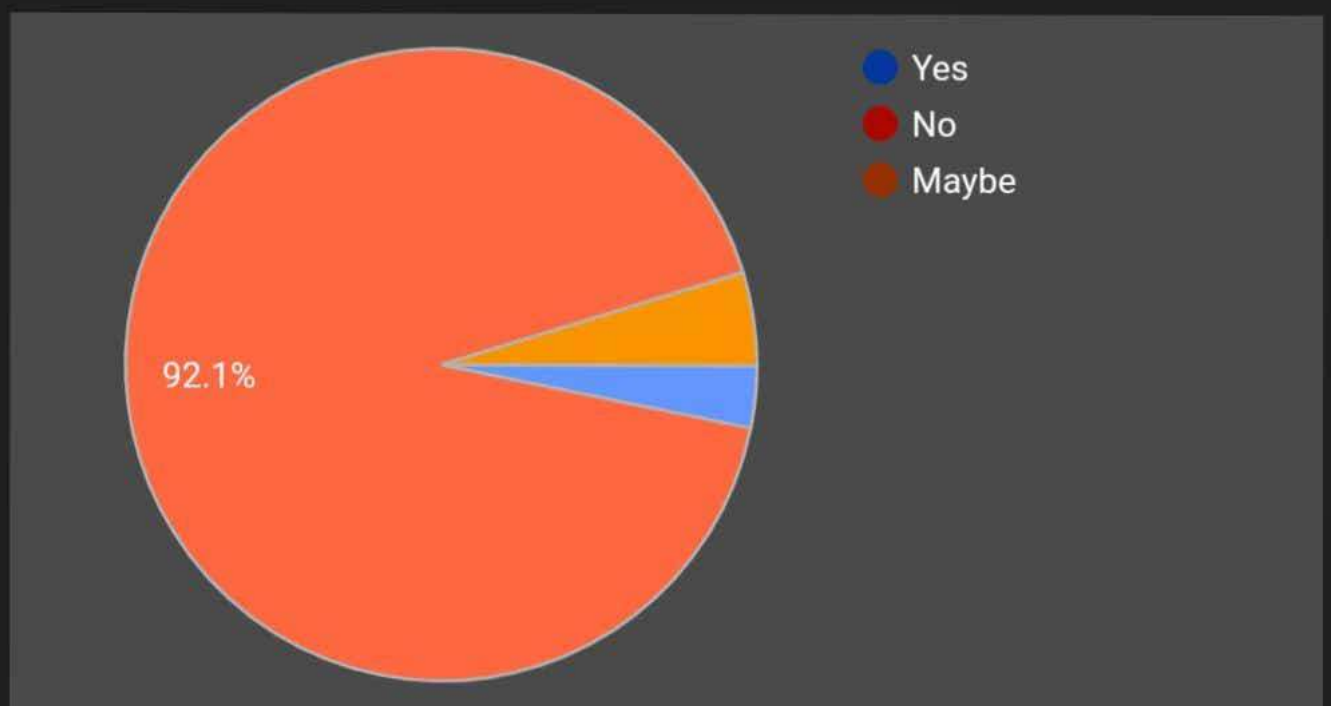
Is it compulsory for you to follow the dowry system if you or any of your family member is getting married?

63 responses

- Yes
- No
- Maybe

93.7%
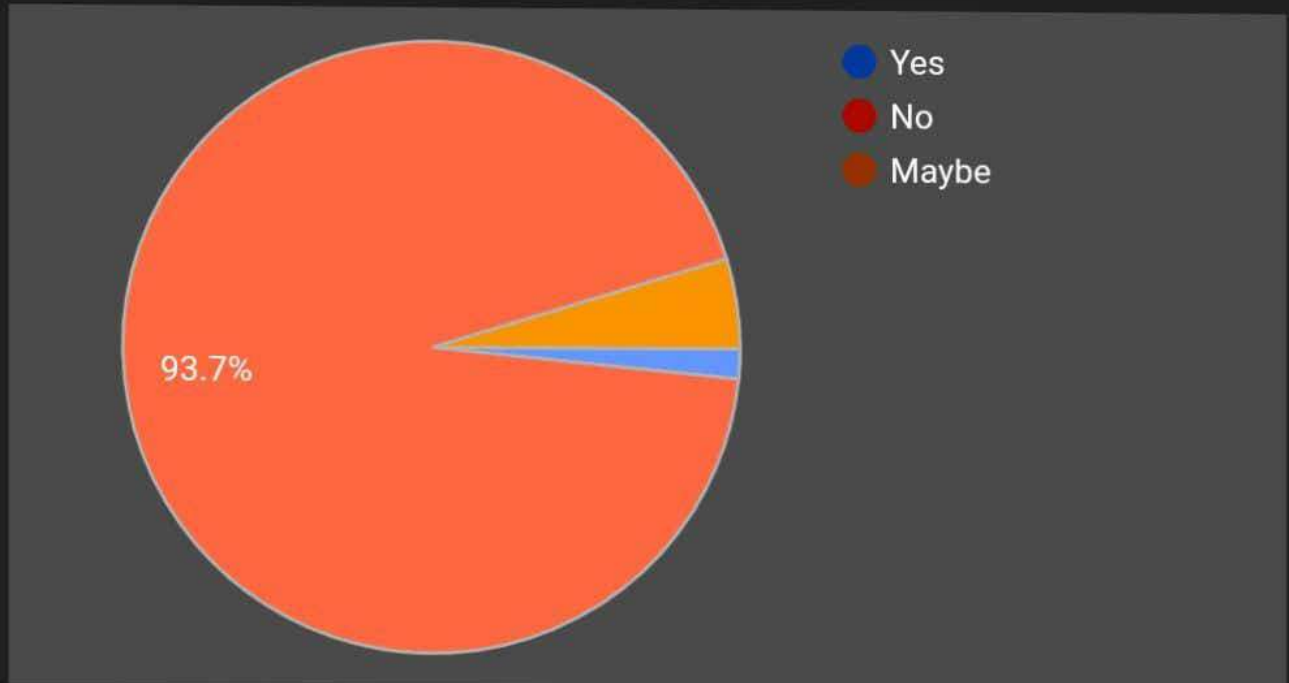
If you are against the dowry but your family insists to take dowry then what would you do in that situation?

63 responses

- Accept my families decision
- Would fight against my family
- Try to first convince my parents
- Ill stick toy opinion a...
- Explain them and qui...
- Would explain them...
- Try to make them aw...
- I would explain them

82.5%   6.3%
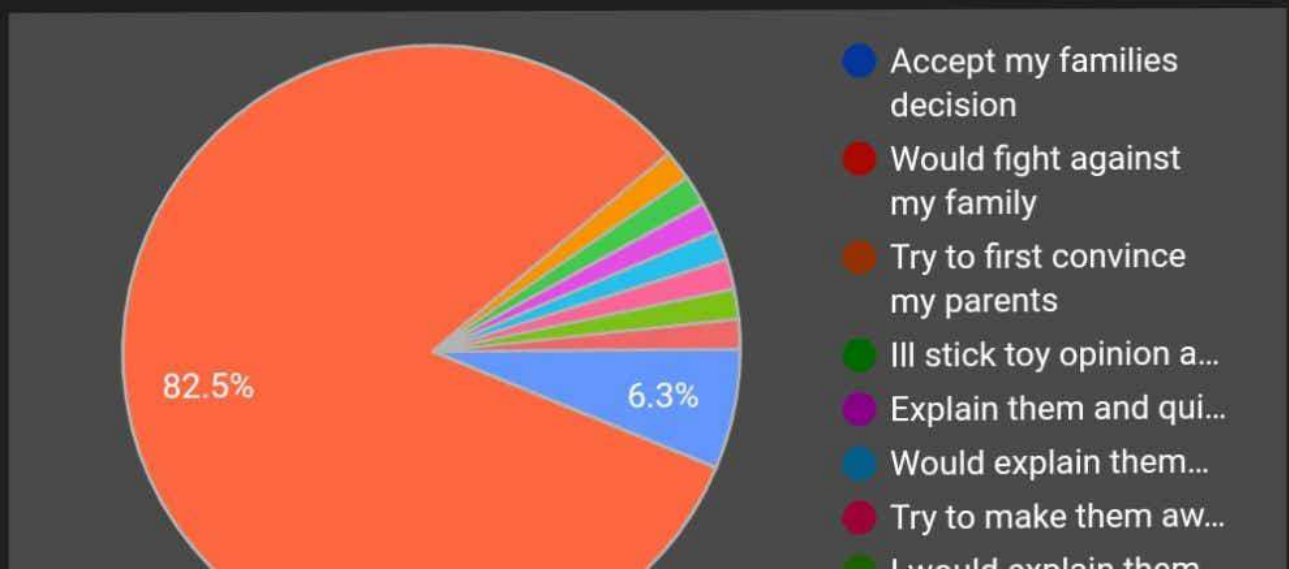
Have you ever experienced the problems due to dowry ?

63 responses

- Yes
- No
- Maybe

95.2%
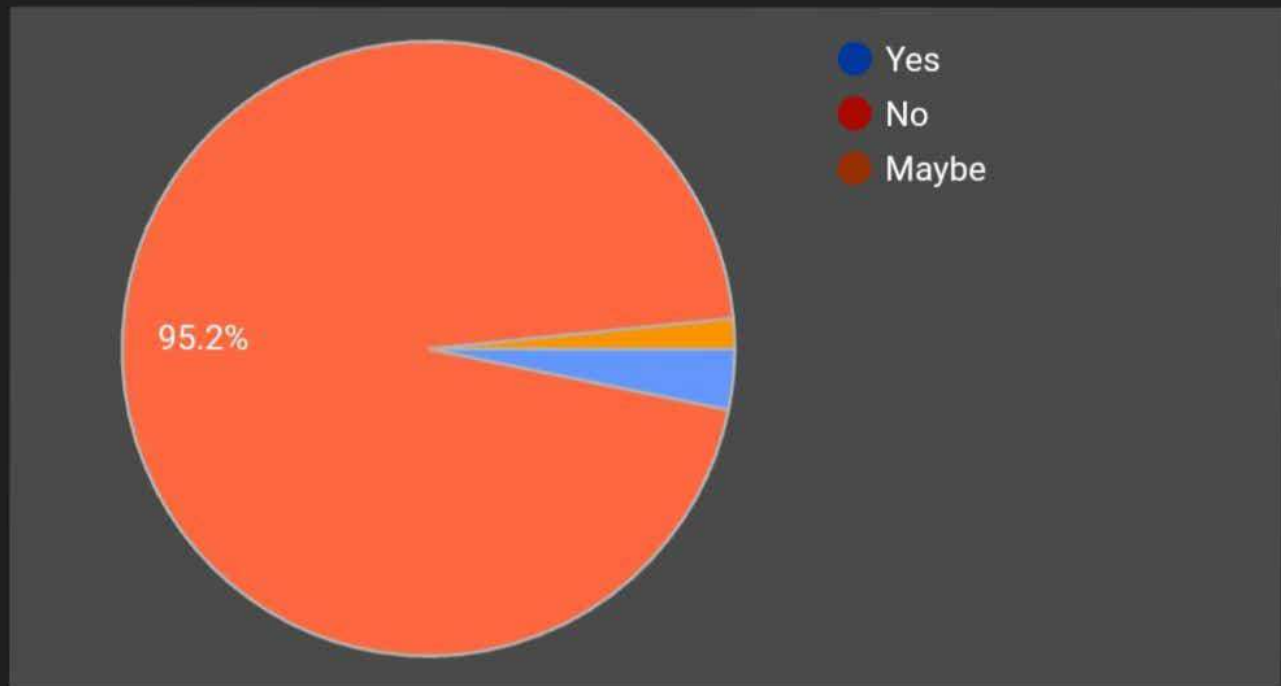
Even in this generation do you think people are still following the dowry system ?

63 responses

- Yes
- No
- Maybe

30.2%

65.1%
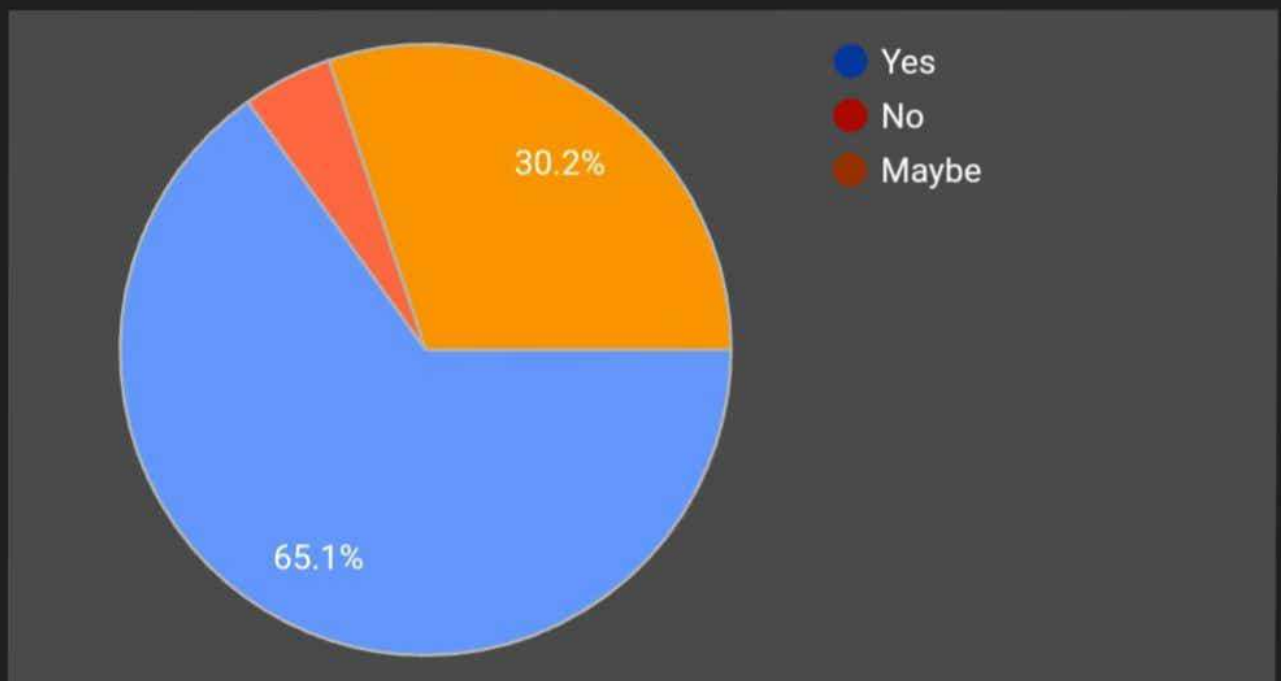
Do you think dowry is also a reason for gender discrimination?

63 responses

- Yes
- No
- Maybe

9.5%

22.2%

68.3%
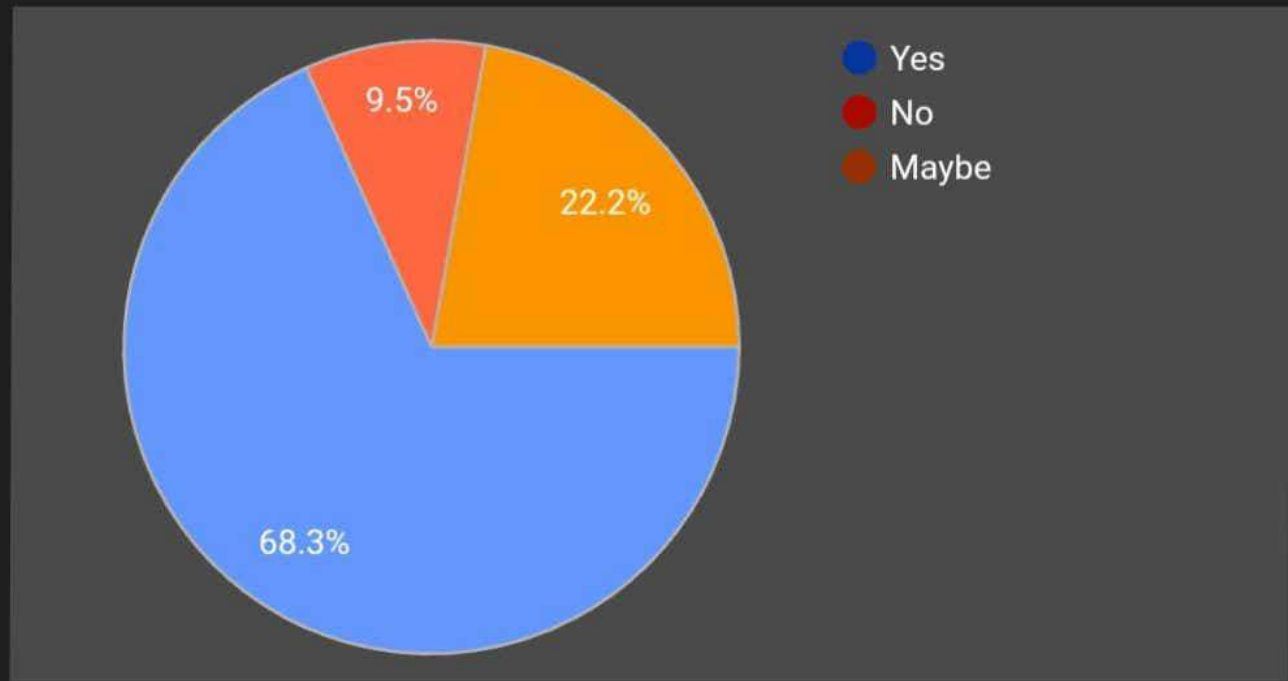
In what way the dowry system is affecting people?

63 responses

- Increase in suicide cases
- Increase in financial problems
- Increase in number of child marriages
- All of the above

46%

15.9%

34.9%
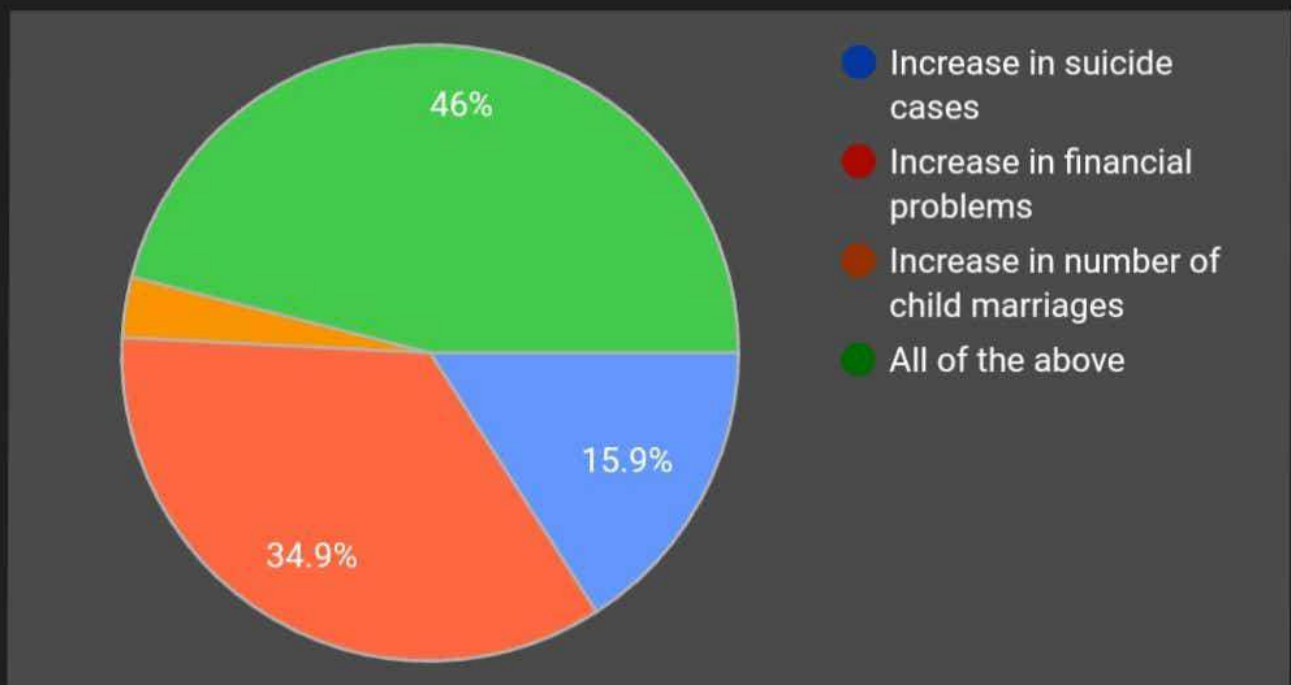
What are the solutions to stop the dowry system?

63 responses

- 🔵 Spreading awareness
- 🔴 Government should pass more strict rules
- 🟠 All of the above

68.3%

7.9%

23.8%
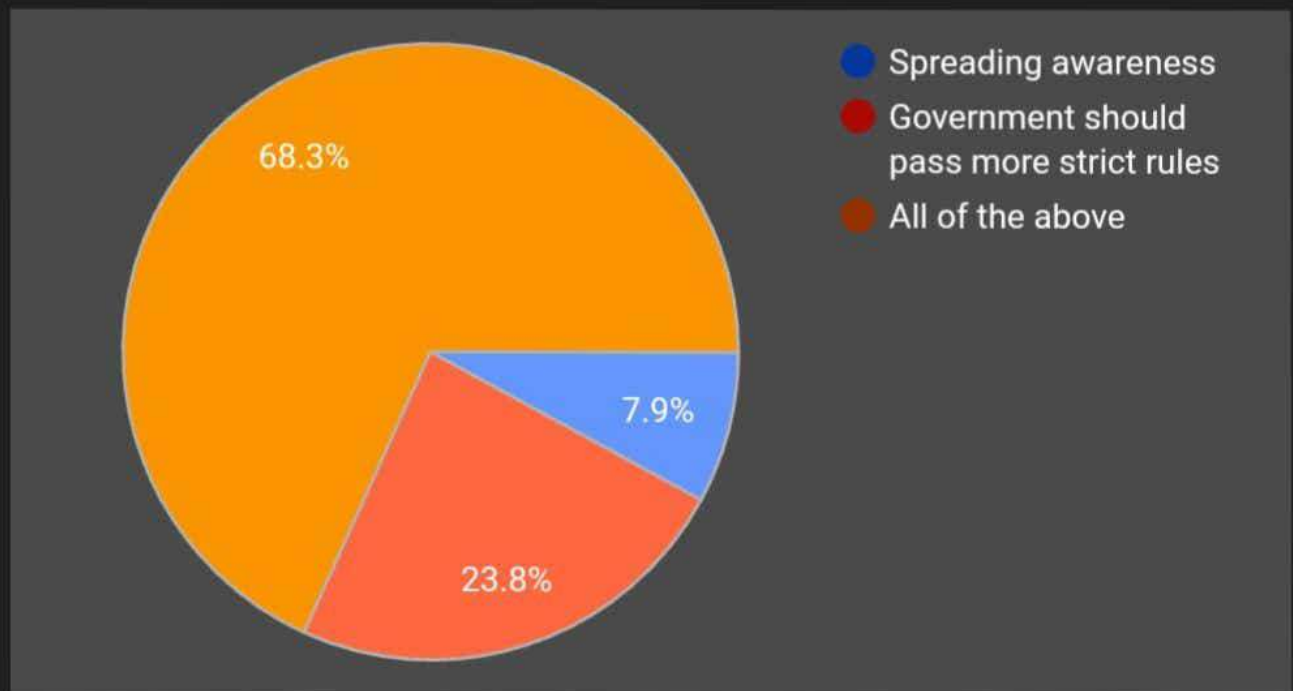
Are you against the dowry system?

63 responses

- 🔵 Yes
- 🔴 No
- 🟠 Maybe

95.2%
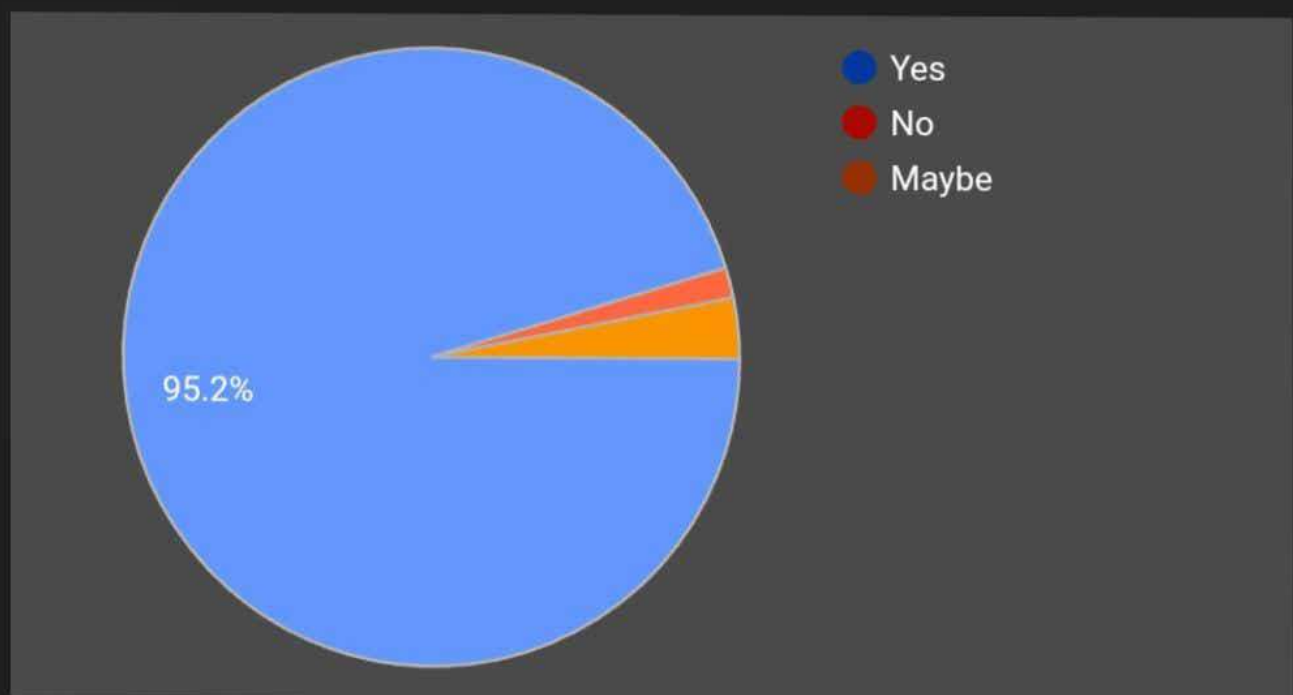
VOILENCE AGAINST WOMEN INDIAN SOCIETY

FOUNDATION COURSE – REESHMA SURYAVANSHI

PRESENTED BY FYBMS BATCH 1 :-

➢ 21301A0029 - SANIYA SATARKAR

➢ 21301B0011 - ONKAR KADWADKAR

➢ 21301B0038 - PARTH GURAV

➢ 21301B0044 - KHUSHI VENGURLEKAR

CONTENTS

- **INTRODUCTION**

- **OBJECTIVES AND AIMS**

- **PROCEDURE OR METHOD**

- **RECOMMENDATONS**

- **CONCLUSION**

- **APPENDIX**

INTRODUCTION

Violence against women in India refers to physical or sexual violence committed against a woman, by a man. Common forms of violence against women in India include acts such as domestic abuse, sexual assault and murder. In order to be considered violence against women, the act must be committed solely because the victim is female. Mostly these acts are committed by men as a result of the long-standing gender inequalities present in the country.

Violence against women has a very long history, though the incidents and intensity of such violence have varied over time and even today vary between societies. Such violence is often seen as a mechanism for the subjugation of women, whether in society in general or in an interpersonal relationship. Such violence may arise from a sense of entitlement, superiority, misogyny or similar attitudes in the perpetrator or his violent nature, especially against women.

A number of international instruments that aim to eliminate violence against women and domestic violence have been enacted by various international bodies. These generally start with a definition of what such violence is, with a view to combating such practices. The Istanbul Convention (Council of Europe Convention on preventing and combating violence against women and domestic violence) of the Council of Europe describes Violence against women "as a violation of human rights and a form of discrimination against women" and defines Violence against women as "all acts of gender-based violence that result in, or are likely to result in, physical, sexual, psychological or economic harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life.

Select this paragraph to edit

In addition, the term gender-based violence refers to "any acts or threats of acts intended to hurt or make women suffer physically, sexually or psychologically, and which affect women because they are women or affect women disproportionately. The definition of gender-based violence is most often "used interchangeably with violence against women", and some articles on Violence against women reiterate these conceptions by stating that men are the main perpetrators of this violence. Moreover, the definition stated by the 1993 Declaration on the Elimination of Violence Against Women also supported the notion that violence is rooted in the inequality between men and women when the term violence is used together with the term 'gender-based.

Violence occurring within the general community, including, inter alia, rape, sexual abuse, sexual harassment and intimidation at work, in institutions or elsewhere trafficking in women for the purposes of sexual exploitation and economic exploitation and sex tourism;c. violence perpetrated or condoned by the state or its officials;d. violation of the human rights of women in situations of armed conflict, in particular the taking of hostages, forced displacement, systematic rape, sexual slavery, forced pregnancy, and trafficking for the purposes of sexual exploitation and economic exploitation.

These definitions of Violence against women as being gender-based are seen by some to be unsatisfactory and problematic. These definitions are conceptualized in an understanding of society as patriarchal, signifying unequal relations between men and women. Opponents of such definitions argue that the definitions disregard violence against men and that the term gender, as used in gender based violence, only refers to women. Other critics argue that employing the term gender in this particular way may introduce notions of inferiority and subordination for femininity and superiority for masculinity. There is no widely accepted current definition that covers all the dimensions of gender-based violence rather than the one for women that tends to reproduce the concept of binary oppositions masculinity versus femininity.

OBJECTIVES AND AIMS

To access the degree of implementation of the guidelines laid down in vishakha's judgment. To evaluate the efficacy as well as the limitations of 'The protection of women against sexual harassment at work place bill, 2020' as passed by Rajya Sabha on 26th feb 2013. To understand the obstacles in the implementation of laws to prevent sexual harassment of women at workplace as well as attempt to discuss solution to remove these hurdles.

ENDING VIOLENCE AGAINST WOMEN IS A
HUMAN RIGHTS IMPERATIVE!

Identifying and delivering campaigns to end violence against women and girls in all forms in Lewisham.

Working in collaboration with others to tackle violence against women and girls in Lewisham.

Holding decision makers to account to ensure that they are using public resources effectively.

To ensure that girls and women are safe from gender-based violence in all settings and are enabled to reach their full potential.

Reaching out to local, regional, national and international partners whose objectives reflect our own to achieve common aims.

To move beyoternd 'traditional' analyses by incorporating workplace characteristic in the wage outcomes of men and women

household data = focus on worker

To determine the contribution of the workplace in 'explaning' the gender wage gap

linked employee-employer data = focus on gender segregation

Objectives is to develop targeted information & implement practical empowerment actions, education activities and awarenessraisingto increase understanding of different forms of violence againnst women & stop blaming violence againnst women victims & ultimately contribute to promoting zero tolerance to violence againnst women & strengthening gender equality.

METHODS TO STOP VIOLENCE AGAINST WOMEN

- ## LISTEN TO AND BELIEVE SURVIVORS

When a woman shares her story of violence, she takes the first step to breaking the cycle of abuse.

It's on all of us to give her the safe space she needs to speak up and be heard.

It's important to remember that when discussing cases of sexual violence, a victim's sobriety, clothes, and sexuality are irrelevant

.

The perpetrator is the sole reason for assault and must bear the responsibility alone. Call out victim-blaming and counter the idea that it's on women to avoid situations that might be seen as "dangerous" by traditional standards.

Survivors of violence are speaking out more than ever before, and everyone has a role to play to ensure they can have justice.

Don't say, "Why didn't she leave?"

Do say: "We hear you. We believe you. We stand with you."

- CALL FOR RESPONSES AND SERVICES FIT FOR PURPOSE

Services for survivors are essential services.

This means that shelters, hotlines, counseling and all support for survivors of gender-based violence need to be available for those in need, even during the coronavirus pandemic.

Every year, the 16 Days of Activism campaign calls for united, global action to end all forms of violence against women and girls.

This year the United Nations, together with our partners, are demanding four critical actions, summarized by our 2020 campaign theme: FUND, RESPOND, PREVENT, COLLECT.

Join us in calling on governments to bridge funding gaps to address violence against women and girls, ensure essential services for survivors of violence are maintained during this crisis, implement prevention measures, and invest in collecting the data necessary to adapt and improve life-saving services for women and girls.

SERVICES FOR SURVIVORS OF VIOLENCE

▶ START A CONVERSATION

One in three women will be a victim of domestic or sexual violence at some point in her lifetime, and each day an average of three women die at the hands of someone who claimed to love them. Domestic violence affects us all; victims are our family members, neighbors, coworkers and friends. All of us—women, children and men—must be part of the solution.

ASK: Do you know anyone who has been affected by domestic violence? How did you support them?

RESPOND: Domestic violence affects each and every one of us. Violence is not the answer, and it's on us to take a stand against domestic violence.

Select this paragraph to edit

▶ HOLD EACH OTHER ACCOUNTABLE

Violence can take many forms, including sexual harassment in the workplace and in public spaces.

Take a stand by calling it out when you see it: catcalling, inappropriate sexual comments and sexist jokes are never okay.

Create a safer environment for everyone by challenging your peers to reflect on their own behaviour and speaking up when someone crosses the line, or by enlisting the help of others if you don't feel safe.

As always, listen to survivors and make sure they have the support they need.

YOU ARE NOT ALONE

Select this

RECOMMEDATIONS

- Recommendations include States parties should ensure that employment,occupational health and safety, anti-discrimination laws give adequate protection to workingwomen affected by domestic violence, and provide the resources to guarantee training,information, and monitoring of these laws.

- Under Specific Recommendations include the impacts of domestic violence at work whenStates parties report on sexual harassment, and on measures to protect women from sexualharassment and other forms of violence of coercion in the workplace.

CONCLUSION

▶ We would like to emphasize that sexual violence poses an obstacle to peace and security. It impedes women from participating in peace and democratic processes and in post-conflict reconstruction and reconciliation.

▶ As a tool of war it can become a way of life: once entrenched in the fabric of society, it lingers long after the guns have fallen silent.

▶ Many women lose their health, livelihoods, husbands, families and support networks as a result of rape. This, in turn, can shatter the structures that anchor community values, and with that disrupt their transmission to future generations.

▶ Children accustomed to acts of rape can grow into adults who accept such acts as the norm. This vicious cycle must stop, as we cannot accept a selective zero-tolerance policy.

▶ Today's adoption of resolution 1960 (2010), on sexual violence, is an important step in that direction. It is for that reason that Slovenia joined in co-sponsoring it.

Hey mate, we can put a stop to violence against women.

Swear an oath this White Ribbon Day. And remember, don't be afraid to stand up, because thousands of good men have got your back.

Take a stand online with: #whiteribbonday www.whiteribbon.org.au

THANK YOU!

Vidyalankar School of Information Technology

GENDER INEQUALITIES IN INDIA

BACHELOR OF/IN MANAGEMENT STUDIES (BMS)

By

SHRUTI GANJI, AQUIB KHAN, SHOAIB MANSURI, FARAZ FODKAR

Roll No : 21301A0045, 21301A0050, 21301A0023, 21301A0038

Under the guidance of

MRS.RESHMA SURYAVANSHI

Date of Submission : 11th December 2021

2. INDEX PAGE
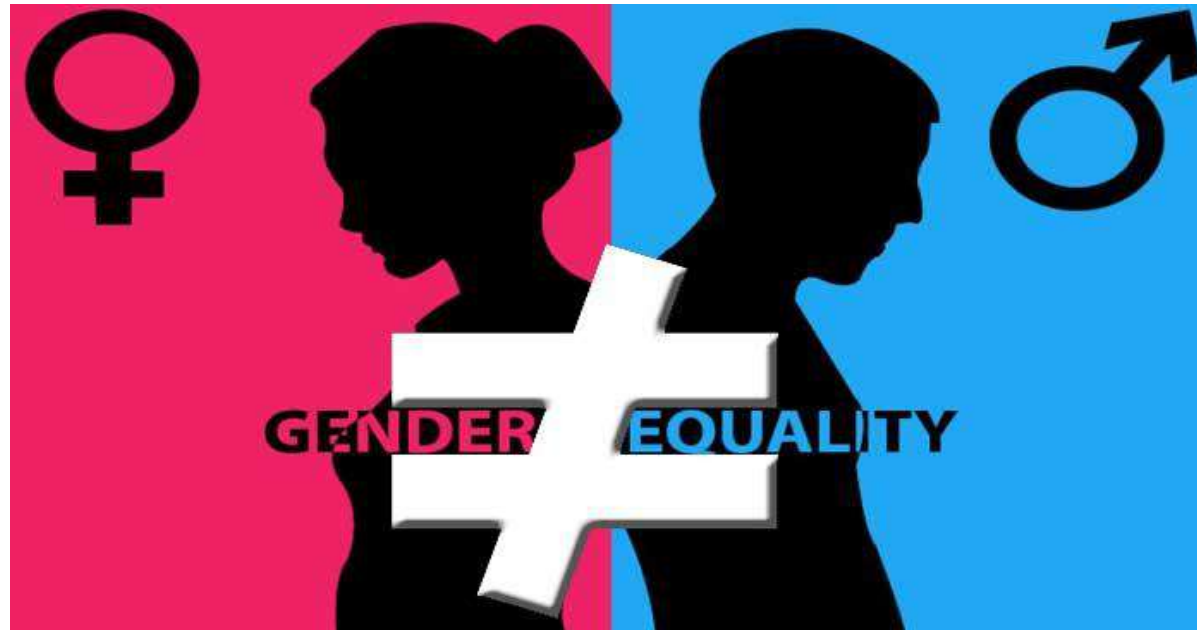
a. INTRODUCTION

Men and women each are equal and play a paramount position in the introduction and development in their households in a specific and the society in trendy. Indeed, the warfare for equality has been one of the essential concerns of the ladies's motion everywhere in the international level. The difference in sex and bodily form denotes no distinction in popularity.

In India, since lengthy lower back, ladies had been considered as an oppressed section of the society and that they were ignored for hundreds of years. Gender inequality in India is a vital truth. In current instances, ladies are acting highly well in exceptional spheres of activities. Still majority of Indian ladies are going through the trouble of gender disparity and discrimination. The Gender difference in India is more in contrast to other countries.

India ranks **140 out of 156 countries** in the Global Gender Gap Index (GGI) 2021; it was ranked 98th in GGI 2006. Despite rapid economic growth in the last two decades, India continues to fare miserably in GGI rankings, marred with ranking inconsistencies across the index sub-components.

According to the report, India has closed 62.5 per cent of its gender gap till date. The country had ranked **112th** among 153 countries in the Global Gender Gap Index 2020.

India has slipped 28 places to rank 140 among 156 countries in the Global Gender Gap Report 2021, by World Economic Forum. In 2020, India ranked 112th among 153 countries.

Gender inequality has been a crucial social issue in India for centuries. Census 2011 shows the child sex ratio among children of 0-6 years to be 918 girls for every 1000 boys in India. This statistic speaks for itself and demands urgent and efficient solutions to address the cause of gender inequality.

The discrimination starts from even before the girl child is born. In many instances, she is prevented from being born. The girl child is considered a burden. She is often deprived of the basic rights and equal opportunities to lead a wholesome childhood and adult life. According to the Census 2011, from the total child population in India, girls account for 48%, many of whom are engaged in child labour, child trafficking and child marriage.

page-4
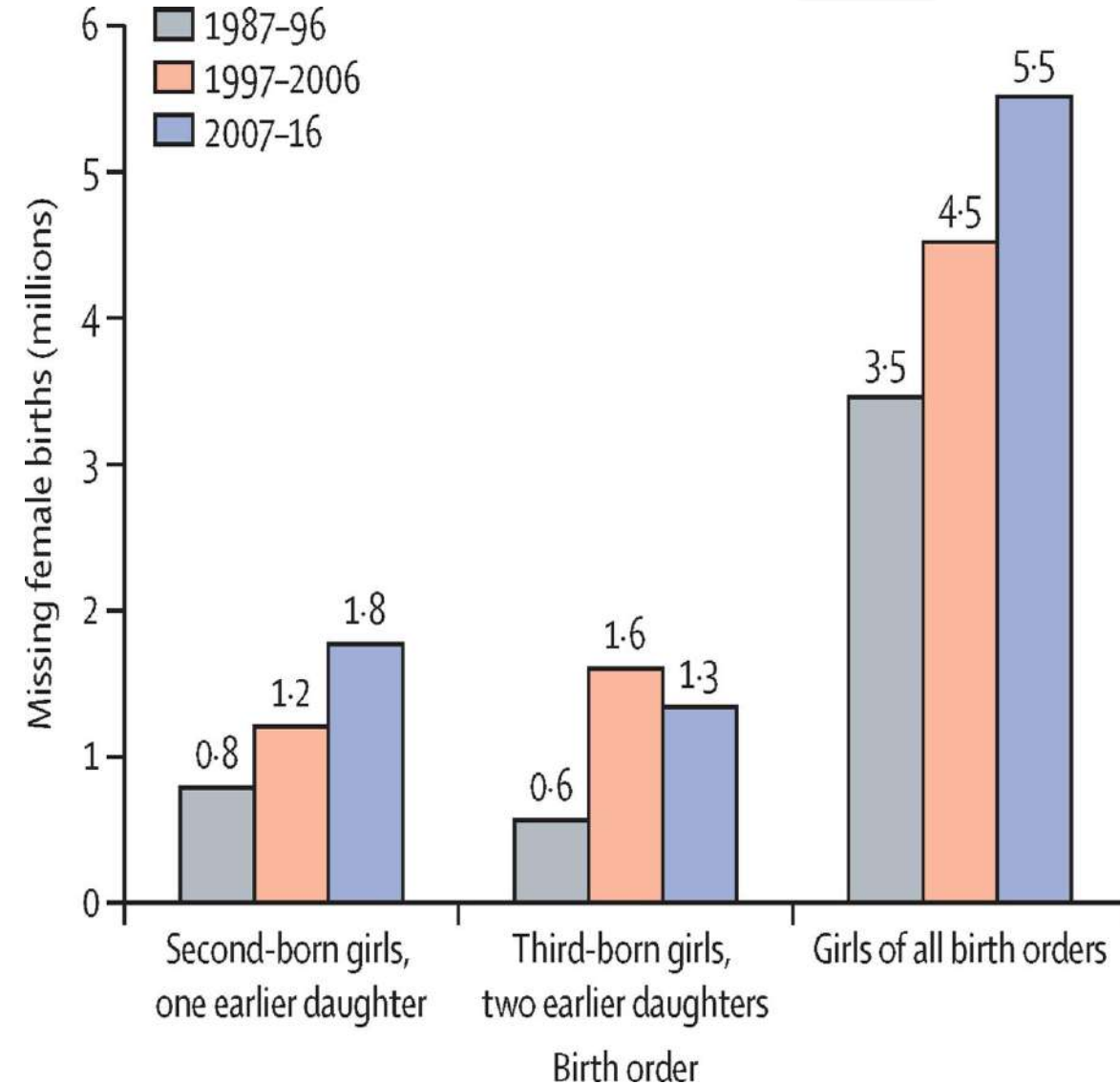
The gender gap in India has widened to 62.5%, largely due to women's inadequate representation in politics, technical and leadership roles, decrease in women's labour force participation rate, poor healthcare, lagging female to male literacy ratio, income inequality. Mint explores

The report is a measure of gender gap on four parameters: economic participation and opportunity, educational attainment, health and survival, and political empowerment. The index has benchmarked 156 nations across the globe in 2021. The data show that it will take 135.6 years to bridge the gender gap worldwide and the pandemic has impacted women more severely than men. The gap is the widest on the political empowerment dimension with economic participation and opportunity being next in line. However, the gap on educational attainment and health and survival has been practically bridged.

India in 2021 has slipped 28 places and has been ranked 140th among 156 nations participating in the rankings. It is the third-worst performer among South Asian countries, with Pakistan and Afghanistan trailing and Bangladesh being at the top. The report states that the country fared the worst in political empowerment, regressing from 23.9% to 9.1%. Its ranking on the health and survival dimension is among the five worst performers. The economic participation and opportunity gap saw a decline of 3% compared to 2020, while on the educational attainment front India is in the 114th position.

The country urgently needs to focus on "health and survival" which points towards a skewed sex ratio because of high incidence of gender-based sex selective practices and economic participation of women. Women's labour force particip-ation rate and the share of women in technical roles has declined in 2020, reducing the estimated earned income of women, which is one-fifth that of men.

- Every child deserves to reach her or his full potential, but gender inequalities in their lives and in the lives of those who care for them hinder this reality.

- Wherever they live in India girls and boys see gender inequality in their homes and communities every day – in textbooks, in movies, in the media and among the men and women who provide their care and support.

- Across India gender inequality results in unequal opportunities, and while it impacts on the lives of both genders, statistically it is girls that are the most disadvantaged.

- Globally girls have higher survival rates at birth, are more likely to be developmentally on track, and just as likely to participate in preschool, but **India is the only large country where more girls die than boys**. Girls are also more likely to drop out of school.

- In India girls and boys experience adolescence differently. While boys tend to experience greater freedom, girls tend to face extensive limitations on their ability to move freely and to make decisions affecting their work, education, marriage and social relationships.

- As girls and boys age the gender barriers continue to expand and continue into adulthood where we see only a quarter of women in the formal workplace.

- Some Indian women are global leaders and powerful voices in diverse fields but most women and girls in India do not fully enjoy many of their rights due to deeply entrenched patriarchal views, norms, traditions and structures.

- There are risks, violations and vulnerabilities girls face just because they are girls. Most of these risks are directly linked to the economic, political, social and cultural disadvantages girls deal with in their daily lives. This becomes acute during crisis and disasters.

- With the prevalence of gender discrimination, and social norms and practices, girls become exposed to the possibility of child marriage, teenage pregnancy, child domestic work, poor education and health, sexual abuse, exploitation and violence. Many of these manifestations will not change unless girls are valued more.

b. OBJECTIVES OR AIM

▶ Gender mainstreaming wants to contribute towards a gender-sensitive society where solidarity, opportunities and responsibilities are shared by women and men in equal measure. Everyone is to enjoy the life they determine in accordance with their individual skills, their needs and their desires.

▶ Once this is achieved equality, instead of being treated as an aside, will be a natural element of all processes and measures. Women and men will no longer be seen as a uniform group of human beings, but will have their social, ethnic and age differences taken into account.

General equality objectives include:

•Equal career opportunities for women and men

•Fair distribution of unpaid and paid work among women and men, wages and salaries that women and men can live on independently

•Equality of women and men with regard to political representation and participation.

•Enhancement of gender roles and standards for women and men, elimination of restricting standards.

•Same personal freedoms for women and men, protection against all forms of aggression
Identifying users of public services and their different expectations increases the chances for politicians and administration staff to really address people's concerns. It allows them to reconcile public services and projects with citizens' needs, while raising planning accuracy, quality and success of services

Goal 5 aims to **eliminate all forms of discrimination and violence against women** in the public and private spheres and to undertake reforms to give women equal rights to economic resources and access to ownership of property.

AIMS & OBJECTIVES

It is essential to build a movement of people, from all traditions of faith, that helps establish the social conditions in which women and girls can thrive alongside men and boys. Our aims are:

•To shift values, beliefs, attitudes, behaviour and practices (among individuals, and within communities and institutions) to recognise gender inequality as unacceptable and contrary to religious teaching and practice.

•To help ensure that community level faith responses to gender injustice are more effective and sustainable.

•To help ensure that legal systems (including religious and customary laws) recognise, prevent and adequately respond to gender injustice.

•To help ensure that gender justice is an explicit aim both of religious institutions and governments – with effective policies, programme and resources in place to achieve it.

•To work to ensure that faith actors are no longer seen as a barrier to gender justice, but are recognised and supported to play a distinctive role in securing gender justice and the rights of both women and men, boys and girls.

•

▶ In support of these objectives we work globally, implementing a structured series of interventions including:

▶ 1. **developing a more focussed and coordinated multi-faith response** across and within sectors, faiths and geographically, for example, through helping to establish national and regional faith coalitions for gender justice, establishing safe spaces for inter-faith dialogue and promoting a global faith response to the SDG gender targets

▶ 2. **building among faith actors greater awareness, commitment and capacity** to challenge and change damaging social norms, for example, through incorporating gender transformative theologies into the curricula of theological colleges, disseminating faith-based methodologies for advancing gender justice in communities and faith-run schools such as 'SASA! Faith', 'Gender Model Families', and 'Channels of Hope for Gender'.

▶ 3. **assisting faith leaders to systematically implement adequate and practical community-based response mechanisms** to address social, political and economic gender inequality issues in their communities for example through helping national coalitions for gender justice to develop and implement action plans for advancing gender justice and promoting the use of faith-based methodologies within gender projects

▶ 4. **supporting female faith leaders** and women of faith to become champions for gender justice through establishing safe spaces for women of faith to come together and plan joint action on gender justice

▶ 5. **supporting faith leaders and FBOs to engage collectively with** government, regional and international policy fora and the media to seek laws, policies and services that recognise, prevent and respond to gender inequality, for example, through assisting the development of national advocacy agendas and campaigns in support of the SDGs

▶ 6. **building an evidence base** for the efficacy of faith institutions in addressing gender social, political and economic gender justice issues and convene joint faith-secular spaces to advance gender justice.

Although India has achieved gender parity at the primary education level and is on track to achieve parity at all education levels, as of June 2019, the proportion of seats in the Lok Sabha held by women had only reached 11% but 46% in the Panchayati Raj Institutions. India is also confronting the challenge of violence against women. As an example, a baseline study revealed that in New Delhi, 92% of women had experienced some form of sexual violence in public spaces during their lifetime. In 2016, close to a third of total crimes reported against women in India was cruelty or physical violence by her husband or his relative. The Government of India has identified ending violence against women as a key national priority, which resonates with the Sustainable Development targets of the United Nations on gender equality. The prime minister's Beti Bachao Beti Padhao initiative aims at equal opportunity and education for girls in India. In addition, specific interventions on female employment, programmes on the empowerment of adolescent girls, the Sukanya Samridhi Yojana on girl child prosperity and the Janani Suraksha Yojana for mothers advance India's commitment to gender equality, and the targets of Goal 4

- End all forms of discrimination against all women and girls everywhere.

- Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation.

- Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.

- Recognise and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies and the promotion of shared responsibility within the household and the family as nationally appropriate.

- Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life.

- Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences.

- Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws.

- Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women.

- Adopt and strengthen sound policies and enforceable legislation for the promotion of gender equality and the empowerment of all women and girls at all levels

c. PROCEDURE OR METHOD

"In the nineteenth century, the central moral challenge was slavery. In the twentieth century, it was the battle against totalitarianism. We believe that in this century the paramount moral challenge will be the struggle for gender equality around the world." - Nicholas D. Kristof

•Gender inequality still exists in India within the households, workplaces and in larger society. As per 2011 data, effective literacy rates (age 7 and above) were 82.14% for men and 65.46% for women.

•Educating a boy is seen as an investment as they are expected to earn and provide for their ageing parents. Whereas, an educated girl will have a higher dowry expense because they need an educated partner. It is also believed to be a waste of resources to educate a girl child as she will eventually get married and be a homemaker. If a family cannot afford to educate all their children, the male child will get preference.
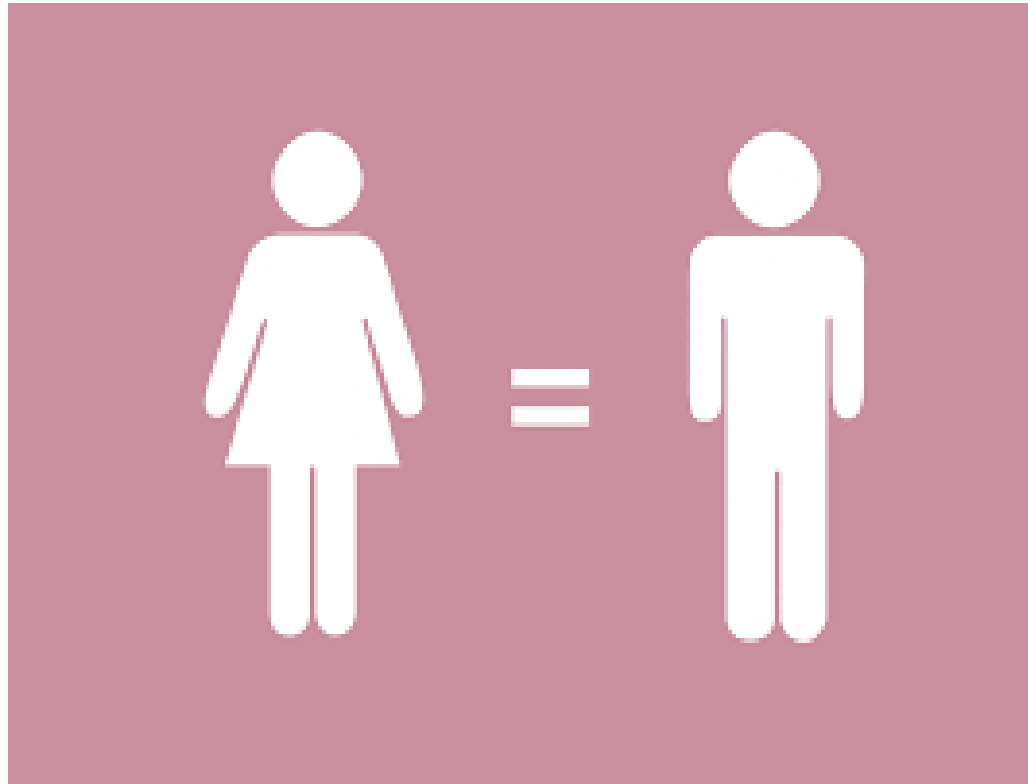
•In certain developing nations like India, gender inequality starts manifesting itself very early, a girl child starts facing discrimination right from the womb and it ends. Female child is treated inferior to male child and this is deeply engraved in the mind of the female child. This is more predominant in India as well as other lesser developed countries. A male child is considered a blessing and his birth is celebrated as opposed to a female child where her birth is not celebrated and is considered more of a burden. The 2011 Indian census shows that there are 940 females per 1000 boys.

SEATTLE, Washington — Gender Equality is the <u>fifth goal</u> of Sustainable Development Goals laid out by the United Nations. However, according to the World Economic Forum's Global Gender Gap Report 2020, India ranks <u>112 out of 153</u> countries in the Global Gender Gap index. Thus, it is imperative to address the issue of gender inequality in India through affirmative policies aimed at empowering women

Missing Women

Amartya Sen wrote an article on the issue of gender inequality in the New York Review of Books. In his article, he talked about "more than 100 million missing women" in the world. He coined the term <u>"missing women"</u> to highlight women who died due to a lack of medical care and social services. He estimates the "missing women" by calculating the proportions of extra women who would have survived based on the ratio of women to men in other regions of the world where they receive similar care.

The <u>United Nations Population Fund</u> found that out of 142 million missing women in the world, <u>46 million come from India</u>. Hence, there is an immediate need to bridge the gap of gender inequality in India. Here are three women welfare schemes hoping to eradicate gender inequality in India.

Beti Bachao Beti Padhao can be translated to save the daughter, educate the daughter. This initiative primarily spreads awareness about the current situation of girls in India. It emphasizes the need to educate young girls. Furthermore, the mass communication campaign highlighted education as a tool for women's empowerment. India's child sex ratio (CSR), the number of females per 1,000 males from 0-6 years of age, is abysmally low. India's 2011 Census reported the CSR was <u>918 girls per 1,000 boys</u>.

- **One Stop Centre (OSC) Scheme**

- Ministry of Women and Child Development launched the One Stop Centre (OSC) Scheme in 2015 to improve the predicament of gender-based violence (GBV) prevalent in India. The objective of the scheme is "to support women affected by violence in private and public spaces."

- Under this scheme, women who have endured any kind of gender-based violence such as "attempted sexual harassment, sexual assault, domestic violence, trafficking, honor-related crimes, acid attacks or witch-hunting" would be provided with specialized services.

- Women belonging to any "age, class, caste, education or marital status, race and culture" can seek redressal. Additionally, they integrated this with access to women's helpline and the ability to seek important services. Those services include emergency response and rescue, medical assistance, psychological and emotional support and shelter.

- **Ujjawala Scheme**

- The Ujjawala Scheme is a "comprehensive scheme for prevention of trafficking and rescue, rehabilitation and reintegration of victims of trafficking for commercial sexual exploitation." The National Crime Records Bureau found that Mumbai and Kolkata had the highest number of women and children trafficked in India in 2020.

- Trafficking violates the human rights of women and children for commercial sexual exploitation. The most vulnerable to exploitation are women who are poverty-stricken and do not have access to a protective environment. Therefore, this scheme aims to prevent trafficking through "social mobilization," getting women to safety and ensuring rehabilitation. It provides them necessities such as "shelter, food, clothing, medical treatment, including counseling, legal aid and guidance and vocational training." The scheme also ensures that victims are reintegrated into society.

- The persistence of gender inequality in India demands the country implement these schemes properly. Therefore, to ensure the upliftment of women in society, these affirmative policies favoring women is a way forward to achieve the fifth Sustainable Development Goal of Gender Equality

1. Talk to women and girls

A fundamental reason we have not yet achieved gender equality in every realm is that women and girls' voices are too often excluded from global and
national decision-making.

2. Let girls use mobile phones

The majority of girls in India don't have access to using basic technology such as phones and computers because of infrastructure related challenges and economic reasons.

3. Stop child marriage and sexual harassment

If we want girls to be able to complete education we have to end child marriage. We also have to seriously address sexual harassment of girls.

4. Make education gender sensitive

There has been much progress in increasing access to education, but progress has been slow in improving the gender sensitivity of the education system, including ensuring textbooks promote positive stereotypes.

5. Raise aspirations of girls and their parents

We need to give girls images and role models that expand their dreams.

6. Empower mothers

When mothers are educated and empowered to make choices in their lives, they enable their daughters to go to school.

7. Give proper value to 'women's work'

The unpaid work women and girls do provide the foundation for the global economy. This fact needs to be highlighted more in the media, with the private sector, and in communities.

agents**8. Get women into power**

A proven way to overcome many systemic barriers to a woman's success has been increased participation by women in local, regional and national legislation as empowered change .

9. Encourage women into non-traditional vocations

Supporting women in non-traditional jobs is crucial in not only making long-lasting change in their lives but also help break social taboos.

d. RECOMMENDATIONS

▶ Gender inequality remains a pressing moral, economic and social issue. Despite strong international normative frameworks and decades of significant achievements, the economic and societal gaps between women and men remain vast and our progress remains vulnerable to regression. These inequalities vary by group. LGBTQI2 and Indigenous women are particularly vulnerable. For example, Indigenous women are more likely to live in poverty because of colonization, devaluing of Indigenous peoples, and the continuation of societal discrimination based not only on race and gender, but also on class and culture. In the same vein, girls and women living in rural areas often lack access to basic social services and infrastructure with complex structural barriers that perpetuate their exacerbates gender inequalities.

▶ Achieving sustainable progress in advancing gender equality and the empowerment of girls and women requires efforts that ensure that girls and women are safe, supported and visible.

- Safe: Girls and women are safe when they are free from sexual and gender-based violence.

- Healthy: Gender-responsive health systems that uphold girls' and women's essential rights to health throughout their lives, and promote safe, healthy, and functioning societies and strong economic growth and development.

- Educated: Sustained gender equality also requires that girls and women are supported in receiving a minimum of 12 years of free, safe, quality and gender-responsive education.

- Heard: Girls and women must be heard, involved and lead on an equal footing with men in all sectors. This requires dismantling barriers including implicit or unconscious bias, and listening to women's advocacy to change laws, attitudes, behaviors, norms, and practices.

- Visible: Gender data holds power to make the invisible, visible. Gender data sheds light on the disadvantages experienced by girls and women, helps identify the underlying causes of inequality, and measures outcomes and impacts.

▶ Achieving gender equality also requires the active involvement of men and boys because men still disproportionately control our political, economic, social and cultural institutions. Historically, this has been a barrier to women's rights. Conversely, men supporting women's empowerment will mobilize vast resources and institutional and cultural clout. Men's action is also critical because boys look to men to define the values they associate with manhood.

5.0 RECOMMENDATION

For effective mainstreaming of Gender in development policies, the following are recommended:

- Capacity building/ strengthening of various actors involved in development policies/ programmes and strategies on gender issues, monitoring and evaluation.

e. CONCLUSION

- India is still a very sexist and male-dominated country, even with all of the new developments. There may be laws and rights given to Indian women, but they are not strongly enforced. Over time, there have been many women who have surpassed the standards that are expected from women. A primary example is Pratibha Devi singh Patil, the 12th President of India. To begin a new era of equality in the world, everyone must aid in promoting the cause of women, irrespective of sex, age, or ethnicity. \

- This set of Conclusions builds on previous work and political commitments voiced by the European Parliament, the Council, the Commission and other relevant stakeholders, including the documents listed in Annex I

- Equality between women and men is a fundamental principle of the European Union enshrined in the Treaties and is one of the objectives and tasks of the Union, and mainstreaming the principle of equality between women and men in all its activities represents a specific mission for the Union

- The European Parliament and the Council have both invited the Commission to adopt a Strategy, with the same formal status as previous Strategies, for gender equality for the period after 2015.

- In its Work Programme for 2016, the Commission has reaffirmed its commitment to continue its work to promote equality between men and women.

- Respect both for human rights and respect for equality between women and men are founding values for the Union, as stated in the Treaty on European Union and in the Charter of Fundamental Rights of the European Union.

- It is important to promote common values such as respect for human rights and equality between women and men as well as a common understanding that human rights are universal and apply to all, irrespective of, *inter alia*, sex.

- The Treaty on the Functioning of the European Union (TFEU) provides that the Union shall aim in all its activities to eliminate inequalities and to promote equality between women and men, and to combat discrimination on various grounds, including sex, when defining and implementing its policies and activities and empowers the Council to take action to combat discrimination on those grounds.

- Although gender gaps have narrowed in recent decades, inequalities persist and challenges remain in several critical areas. There are still significant gender gaps in employment, self-employment, part-time work, entrepreneurship and decision-making, as well as in pay and pensions, and thus women also face a higher risk of poverty compared with men. Women are more likely to have completed higher education but are significantly under-represented, for example, in STEM studies and careers, in research and in senior posts at all levels of education. Moreover, men remain under-represented in fields such as child and elder care, early education, the health sector and unpaid work. Meanwhile gender-based violence and gender stereotypes remain widespread

f. REFERENCES

- Asiedu, E., Branstette, C., Gaekwad-Babulal, N. and Malokele, N. (2018). *The Effect of Women's Representation in Parliament and the Passing of Gender Sensitive Policies*.

- Barnes A. and Munn-Rivard L. (2012). *Gender-sensitive Parliaments*. 1. Advancement in the workplace. Library of Parliament Background Papers, Ottawa, Canada.

- Campbell, R. and Childs, S. (2015). Parents in Parliament: 'Where's Mum?' *The Political Quarterly,* Volume 85, Issue 4, October–December 2014, pp. 487-492.

- Celis, K., Childs, S., Kantola , J. and Krook , M. L. (2014). Constituting Women's Interests through Representative Claims. *Gender & Politics,* 10 (2014), pp. 149 –174.

- Childs, S. and Krook, M.L. (2008). Critical Mass Theory and Women's Representation. *Political Studies*, 56, pp. 725-736.

- Childs, S. and Lovenduski, J. (2013). *Political Representation*. The Oxford Handbook of Gender and Politics. Edited by G. Waylen, K. Celis, J. Kantola, and S. Laurel Weldon.

- Connolly, E. (2013). Parliaments as gendered institutions: the Irish Oireachtas. *Irish Political Studies*, 28(3), pp. 360-379.

- Childs, S. and Krook, M.L. (2009). Analysing Women's Substantive Representation: From Critical Mass to Critical Actors. *Government and Opposition,* 44(2), pp. 125–145

- UN WOMEN and UNDP (2015). *Inclusive Electoral Processes*. A Guide for Electoral Management Bodies on Promoting Gender Equality and Women's Participation

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

TOPIC :- CHILD ABUSE IN INDIA

PRESENTED BY :-
. AAYUSHI PARMAR 21301B0022
.RIYA PATEL 21301B0036
. DEVANSHU MAKWANA 2131B0037

BACHELOR OF MANAGEMENT STUDIES

UNDER THE GUIDANCE OF MISS RESHMA SURYAVANSHI

WHAT IS CHILD ABUSE ???

Child abuse or child maltreatment is physical, sexual and/or psychological maltreatment or neglect of a child or children, especially by a parent or a caregiver. Child abuse may include any act or failure to act by a parent or a caregiver that results in actual or potential harm to a child and can occur in a child's home, or in the organizations, schools, or communities the child interacts with.

The terms *child abuse* and *child maltreatment* are often used interchangeably, although some researchers make a distinction between them, treating *child maltreatment* as an umbrella term to cover neglect, exploitation, and trafficking. Different jurisdictions have developed their own stance towards mandatory reporting different definitions of what constitutes child abuse to remove children from their families or for prosecuting a criminal charge .

DEFINITION OF CHILD ABUSE

Child abuse vary among professionals, between social and cultural groups, and across time.The terms abuse and maltreatment are often used interchangeably in the literature.Child maltreatment can also be an umbrella term covering all forms of child abuse and child neglect . Defining child maltreatment depends on prevailing cultural values as they relate to children, child development and parenting . Definitions of child maltreatment can vary across the sectors of society which deal with the issue, such as child protection agencies, legal and medical communities, public health officials, researchers, practitioners, and child advocates. Since members of these various fields tend to use their own definitions, communication across disciplines can be limited, hampering efforts to identify, assess, track, treat, and prevent child maltreatment

SCOPE OF CHILD ABUSE

Most of our present knowledge about the epidemiology of CSA has been garnered from a collection of studies conducted for many different purposes (Finkelhor & Wells, 2003; Saunders & Adams, 2014). These studies use data coming from two broadly defined sources: agency tabulations and self-report surveys (Finkelhor, 2011). Table 1 shows a "snapshot" of recent US-based data on CSA,* illustrating both the magnitude of CSA victimization and the range of estimates obtained from various agency tabulations and large-scale self-report surveys over the last two decades. For example, 2015 data from the National Child Abuse and Neglect Data System (NCANDS) indicates that US state and local Child Protective Services (CPS) agencies investigated 57,286 children for CSA (US Department of Health and Human Services, Administration on Children, Youth and Families, Children's Bureau, 2017). Findings from the Fourth National Incidence Study of Child Abuse and Neglect (NIS-4), however, indicate that CPS may investigate approximately one-third of the actual number of CSA cases (Sedlak et al., 2010). Findings from the second National Survey of Children's Exposure to Violence (NatSCEV II) indicate that approximately 28 percent of 14- to 17-year-olds report lifetime sexual violence victimization (Finkelhor, Turner, Shattuck, & Hamby, 2013), with meta-analyses of US-based studies yielding lifetime CSA prevalence rates of 8 to 40 percent (Bolen & Scannapieco, 1999; Gorey & Leslie, 1997)

SCOPE

Perhaps the most evident challenge is that "child sexual abuse" is complex, and operational definitions of each word in the term have varied across various clinical, legal, and research contexts. Definitions of CSA vary in terms of the acts (e.g., contact, noncontact), ages (e.g., upper limit of childhood, required age difference between the perpetrator and victim), and types of relationships (e.g., adult caregiver, any adult, adolescent, or peer) specified. These differences in coverage and terminology influence surveillance and reporting efforts (Prevoo Stoltenborgh, Alink, Bakermans-Kranenburg, & Van Ijzendoorn, 2017). Historically, there has been some disagreement as to whether noncontact abuse (e.g., exhibitionism, voyeurism) is abusive (Finkelhor, 1994). However, over the last decades, the child protection and public health fields have evolved toward a more comprehensive understanding of CSA.

For example, the US Centers for Disease Control and Prevention (CDC) defines CSA as any completed or attempted sexual act (e.g., penetration), sexual contact with (e.g., fondling), or exploitation (i.e., noncontact sexual interaction such as exhibitionism, voyeurism, exposure to pornography, child prostitution) of a child by a parent, caregiver, or other in a custodial role (e.g., clergy, coach or teacher; Leeb, Paulozzi, Melanson, Simon, & Arias, 2008).

•AIMS

•*To provide the scientific, academic and advocacy systems perspective that creates a child abuse pediatrician who can practice effectively anywhere they choose, in settings compatible with their interests*

•*To enable the acquisition and maturation of skills needed to establish effective and sustainable community partnerships that create a healthy community response to child maltreatment*

•*To strive to provide an environment that promotes learning and academic growth through evidence-based teaching, the 360 evaluation and feedback process and ongoing physician and fellow wellness*

➢ GOALS

The purpose of the pediatric child abuse fellowship is to prepare qualified physicians for a career in pediatric child abuse. At the completion of the program, successful trainees will have the knowledge and skills to:

➢Diagnose children who are victims of physical abuse, sexual abuse, neglect and/or psychological maltreatment

➢Work with others in the community to advocate for children

➢Teach others about aspects of child abuse

➢Demonstrate research capability in the field

➢Maintain a commitment to life-long learning

❖OBJECTIVES

❖Providing care for patients who exhibit a broad range of manifestations associated with each type of child abuse

❖The use of appropriate techniques for examining, evaluating and managing anogenital trauma, acute and chronic sexual abuse, sexually transmitted infections

❖Prepubertal and pubertal pelvic exams and sexual abuse/rape protocols

❖Diagnosing and managing child neglect, including medical, supervisory and physical neglect

❖Managing prenatal and perinatal child abuse and Munchausen Syndrome by Proxy

❖Interpreting and using results from child abuse-related laboratory studies, diagnostic tests, imaging modalities (including x-rays, CT scans and MRIs) and subspecialty examinations (including ophthalmologic examinations)

❖Using the results of sudden unexpected deaths in children using autopsy, death scene investigation, medical history review and interagency case reviews

❖Applying treatment approaches that incorporate both medical and mental health therapies in the context of the family

❖Epidemiology of childhood injuries, including risk factors for child abuse/neglect, family violence and the biomechanics of injury

❖Principles of child abuse, partner abuse, psychological abuse, injury prevention and factors leading to domestic and interpersonal violence

❖Typical and atypical child behavior and development as it pertains to child abuse

❖Behavioral and developmental anatomy and pathophysiology of organ systems as they relate to child abuse, including sexual development and anogenital anatomy

❖Forensic pathology related to child abuse

❖Principles of toxicology related to child abuse

❖The elements and functions of community and social services, standards and procedures of child protective services, cultural aspects of child abuse, child welfare services, foster care, home visitation, reunification, mental health services and child death review teams

· PROCEDURE

People who work with children and young people should pay attention to:

I. Physical signs of abuse or neglect – these could include bruises, burns, fractures (broken bones), frequent hunger, sexually transmitted infections (STIs) or poor hygiene.

II. Behavioural signs of abuse or neglect – these could include showing little or no emotion when hurt, wariness of their parents, alcohol or drug misuse, age-inappropriate sexual behaviour, stealing food, excessive friendliness to strangers or wearing long sleeves and trousers in hot weather (to hide bruises).

III. Disclosure – if the child tells you they have been abused.

• METHODS

- Make notes – record what you observe. Date and sign the entry.
- Continue to observe – record what you observe, and date and sign each entry.
- Consult colleagues – get support and advice from your colleagues and supervisors. Compare notes and brainstorm possible strategies.
- Develop action plans based on procedures – familiarise yourself with your employer's procedures and processes about what to do.
- Talk to other agencies about helping the family – collaborate with or engage family support services, community health services, local government services, Department of Health and Human Services and Child Protection contacts, and disability services. You may want to call a case conference for professionals to discuss their concerns.

• **OTHER METHODS**

•Talk to the child – do this with respect for the child's or young person's need for privacy and confidentiality.

•Talk to the parent or parents – only if you believe it will not jeopardise the safety of the child or young person, or compromise a child protection or police investigation should this be required

LET US NOW SEE WHAT THE SURVEY HAS TO SAY ABOUT CHILD ABUSE

The largest major survey of people who watch online child sexual abuse has found that one-third of respondents attempted to directly contact a child as a result of the illegal images they watched online.

The survey, by Protect Children, a Finnish human rights group, was posted on the "dark web" so users would find it while actively searching for illegal content of children. The analysis was based on more than 5,000 people who responded initially to the survey about why and how they watched children being abused online, although 10,000 responses have been received so far.

Another key finding was that 70% of those who answered said they first saw child sexual abuse material when they were under 18. Of those, 40% said they were under 13 when first exposed to illegal images of children.

"People think watching these videos is a victimless crime. But those are real children and they are having real and cruel sexual abuse inflicted upon them. On top of that, the victims have to live with the knowledge that images of them suffering are being shared again and again by predators."

More than 50% of those who admitted to watching online child abuse said they were not seeking these images out when they were first exposed to illegal material.
When asked what sort of material they looked for, 45% said it was girls between the ages of four and 13, while only 18% said they looked at boys. The others said they watched "sadistic and violent" material or images of toddlers.
Susie Hargreaves, chief executive of the Internet Watch Foundation, which works to remove illegal images from the web, said: "That a significant number of people say they first viewed harmful material when they were less than 13 years old is truly staggering.

CHILD ABUSE AS A CHILD, HAS ANYONE EVER...	NEVER	LESS THAN 5 TIMES	5 TIMES OR MORE
Physical Abuse (94%)			
Pushed/shoved you	17.9%	25%	57.1%
Thrown something at you	21.4%	35.7%	42.9%
Kicked/hit you	17.9%	21.4%	60.7%
Beat you	46.4%	3.6%	50%
Dragged you	64.3%	17.9%	17.9%
Scratched you	50%	25%	25%
Bent your fingers/twisted your arm	46.4%	17.9%	35.7%
Held you against a wall	28.6%	32.1%	39.3%
Choked you	60.7%	14.3%	25%
Burned/scalded you	89.3%	3.6%	7.1%
Actually used a weapon against you[a]	59.3%	22.2%	18.5%
Psychological Abuse (90%)			
Insulted, ridiculed, or humiliated you	17.9%	10.7%	71.4%
Called you a loser, failure, stupid, etc.	21.4%	10.7%	67.9%
Said you were ugly or unattractive	35.7%	3.6%	60.7%
Forced you to do something embarrassing	42.9%	25%	32.1%
Locked you in some location	64.3%	21.4%	14.3%
Threatened Abuse (86%)			
Threatened to harm you	17.9%	28.6%	53.6%
Threatened to use weapons against you	50%	17.9%	32.1%
Threatened to kill you	57.1%	17.9%	25%

RECOMMENDATION

Health science college students were more life satisfied and felt more loved. Only 28.91% of the included students were not exposed to child abuse, while 12.59% of them suffered from wounds or fractures as a result of the abuse they were exposed to. About one third of the students thought that the commonest form of child abuse is verbal punishment such as threatening or humiliation and that the age at the greatest risk for abuse was the primary school age. About 68.36% of students thought that sexual abuse is a huge problem in our society. Only 21.56% of students disapproved child corporal punishment. More than half of the students stated that the most dangerous complication of child abuse is psychological problems such as depression. Most of the included students would talk to the child's parents and advise them if they saw a case of abuse, while the least would call the police. Only half of the students disapproved female genital mutilation (FGM). The strongest predictive factors for FGM approval were rural residence and male sex. Students mainly thought that FGM is a social habit that is carried out for ethical causes. About half of the students approved legal punishment by the court for FGM performers.

CONCLUSION

A significant proportion of the students experienced physical child abuse which left no injuries in most cases; males and first academic year students show more exposure to abuse. Moreover, most of the students think that child corporal punishment can be allowed although about half of them think that the most dangerous aftereffect of child abuse is psychological problems. Lack of reporting the exposure to child abuse is explained by the largest percentage of students to be due to lack of awareness. Rural resident males show more approval of female genital mutilation. A significant lack of awareness about FGM complications is observed in both groups (the health science and non-health science college groups) and the opinions of both groups are

BIBLOGRAPHY

TITLE : - CHILD ABUSE IN INDIA

INFORMATION HELP : -
- *WIKIPEDIA*
- *BOOKS*
- *NEWSPAPER*
- *SURVEY*

PICTURES HELP : -
- *CHROME*

VIDEO HELP : -
- YOUTUBE
- CHROME

APPENDIX

CHILD ABUSE CAN HURT THE CHILD PHYSICALLY .
THUS CHILD ABUSE SHOULD BE AVOIDED .
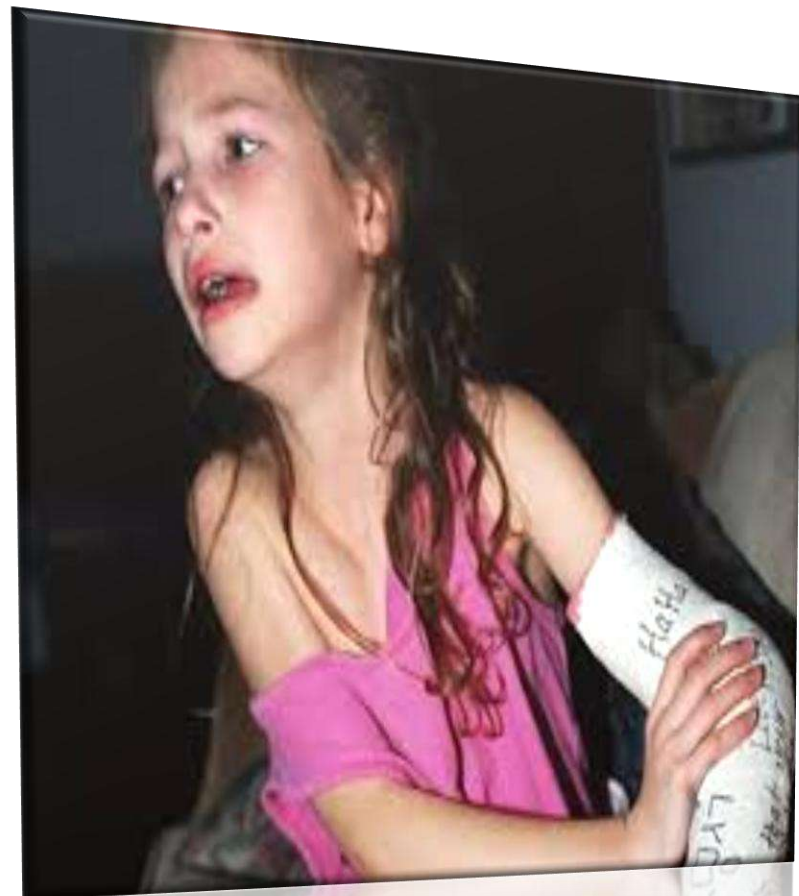
"CHILD ABUSE CAN AFFECT THE MENTAL PEACE OF THE CHILD . THE CHILD DOES NOT FEEL HAPPY AGAIN AND FACES MANY PROBLEMS . "

IF YOU TELL ANYONE
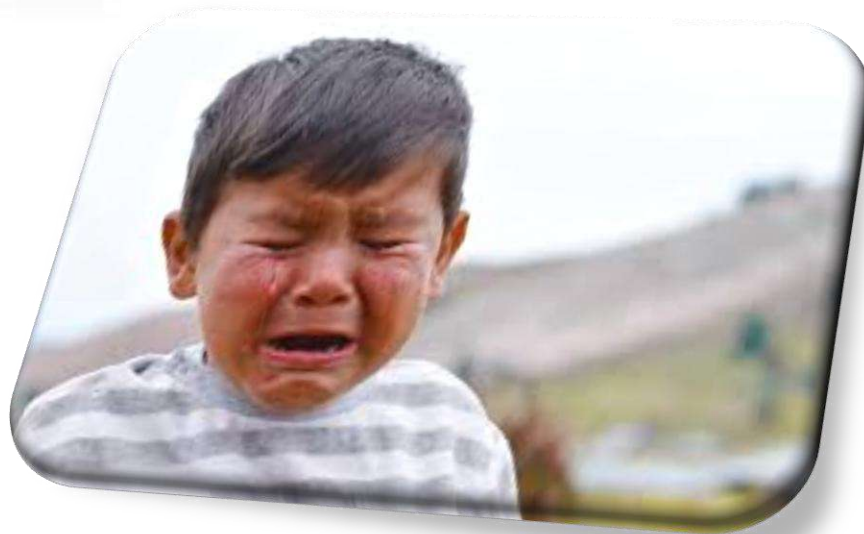
EVERYTHING TO KNOW ABOUT CHILD ABUSE

https://www.youtube.com/watch?v=W6wXRgd0bIk

A SMALL VIDEO TO REPRESENT WHAT IS CHILD ABUSE AND ITS CAUSES

https://www.youtube.com/watch?v=XKp7LIG-_qM

Vidyalankar School of Information Technology

IMPORTANCE OF EDUCATION IN DEVELOPING VALUES

BACHELOR IN MANAGEMENT STUDIES

BY

Khushi Singh, Sayali Chavan, Sana Sayed, Sayan Patra

Roll number: 21301B0007, 21301A0001, 21301A0028, 21301B0029

Under the guidence of

Ms. Reshma Suryavanshi

Assistant Professor

Date of submission: 11/12/2021

Index Page

<u>Introduction</u>

- Today, every parent wants to give the best education to children, which is not just confined to the books but it goes much beyond that. The parents look at the holistic development of their children as that is essential to edge in the global scenario.

- In today's time, when there is a huge crisis of moral values in society, value-based education proves out to be the solution. Through value-based education, we can develop the children into people with strong character and values who know how to utilize their knowledge for the advantage of mankind.

- Nelson Mandela rightly said: "Education is the most powerful weapon through which you can change the world". Here, he talked about both academic education as well as moral value education. And, value education has the power to change the world.

- Education is a lifelong process of development of one's personality which starts from the school. It is a school that builds the base for everything. That is why school plays a significant role in providing value-based education or moral education.

- Value-based education aims at training the student to face the outer world with the right attitude and values. It is a process of overall personality development of a student. It includes character development, personality development, citizenship development, and spiritual development.
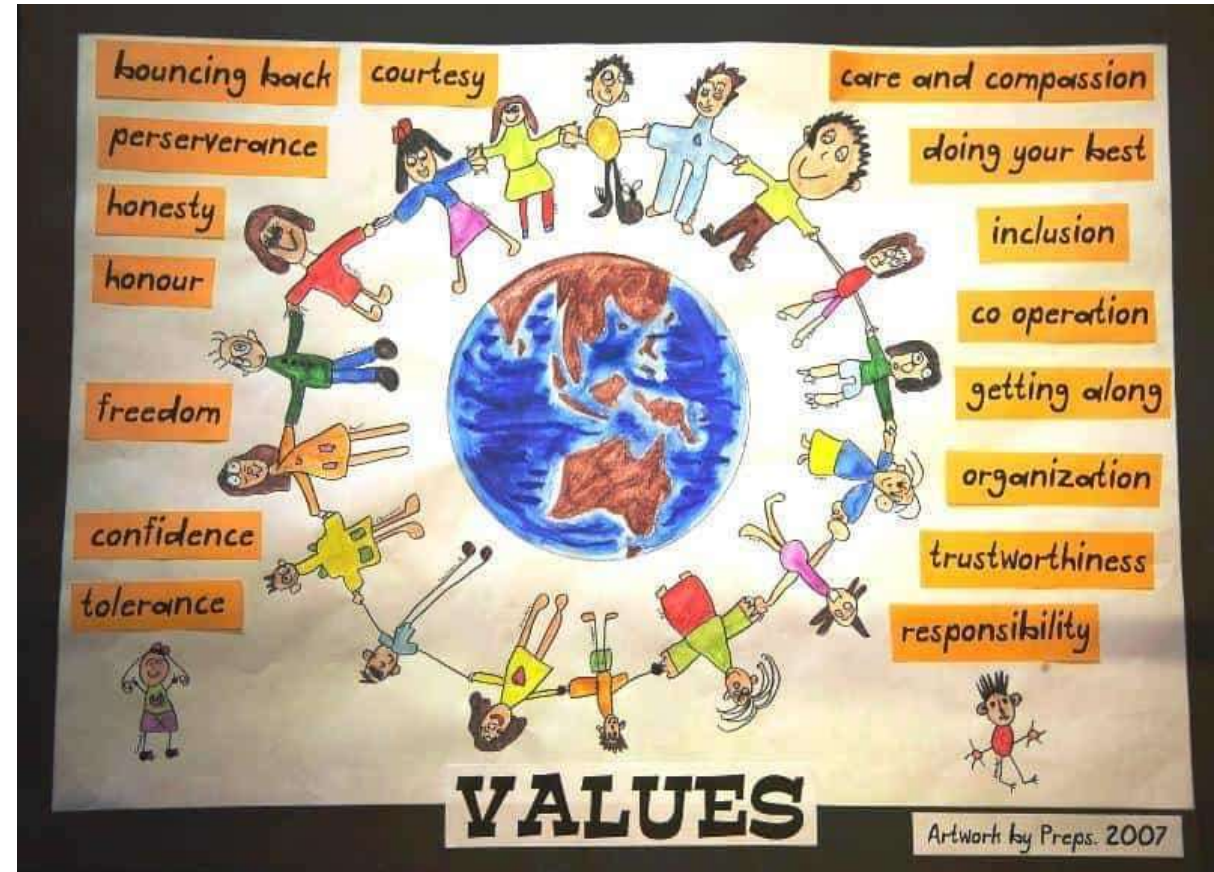
Objective

- Educative ego and growth towards a sustainable life style.
- Our cultural heritage, constitutional rights, national integration, public development and increasing accountability to the environment about our national history.
- creating and improving awareness of values and their importance and role.

- To understand the relatinship between and values.
- To appericiate the need for value education.
- To understand the objectives of value education in school.
- To identify the different sources of value education.
- To understand the different approaches to value education.
- To plan different learning experiences for children to develop values among themselves.

- To develop the child's personality in all possible aspects.
- To develop good moral values in the children.
- To develop thinking in a better aspect and a democratic way of living.
- To develop good citizenship and standard of living and behavior of children.
- To develop tolerance and make a kind person to the children.

VALUE EDUCATION

Morality · Truth · Love · Peace · CORE HUMAN VALUES · Right Conduct · Non-Violence · Tolerance
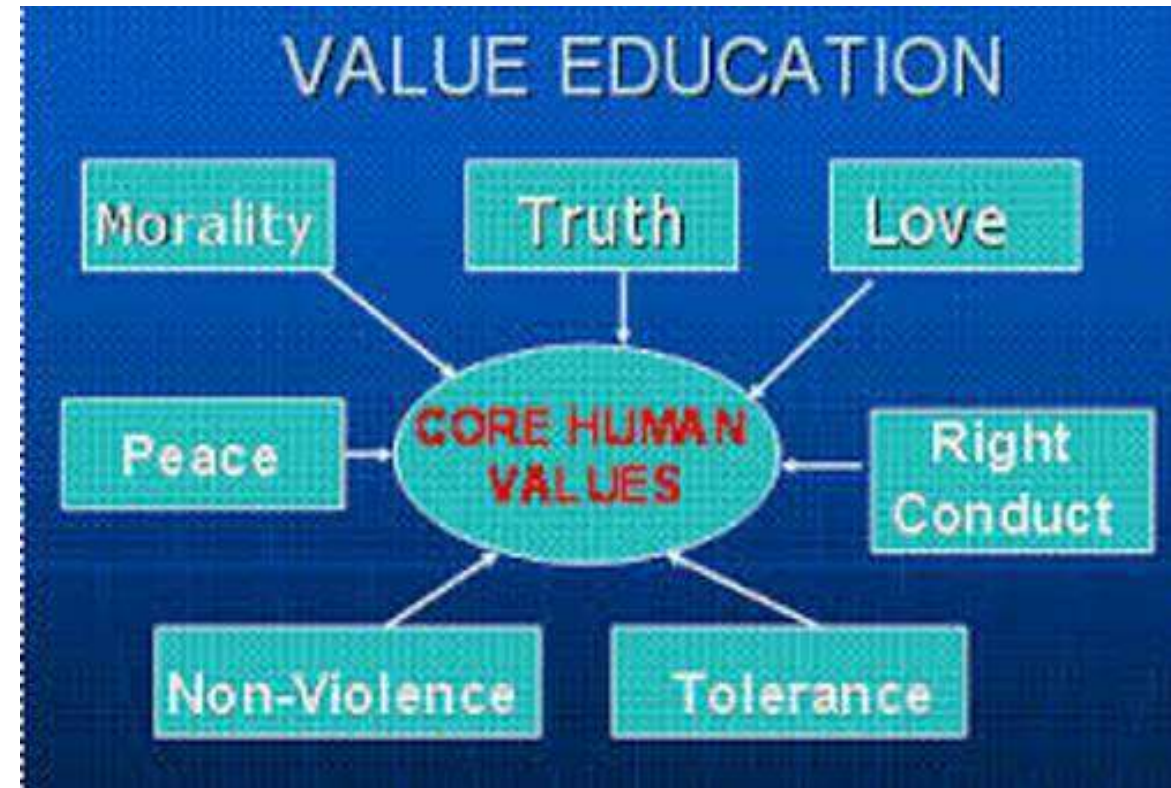
Procedure

- Due to the ongoing corona virues (covid-19) which is recently declared as a pandemic.
- So we couldn't go out of our houses to collect the data.
- But we took help of th internet to collect the data.
- The data is collected through different websites an E-books.
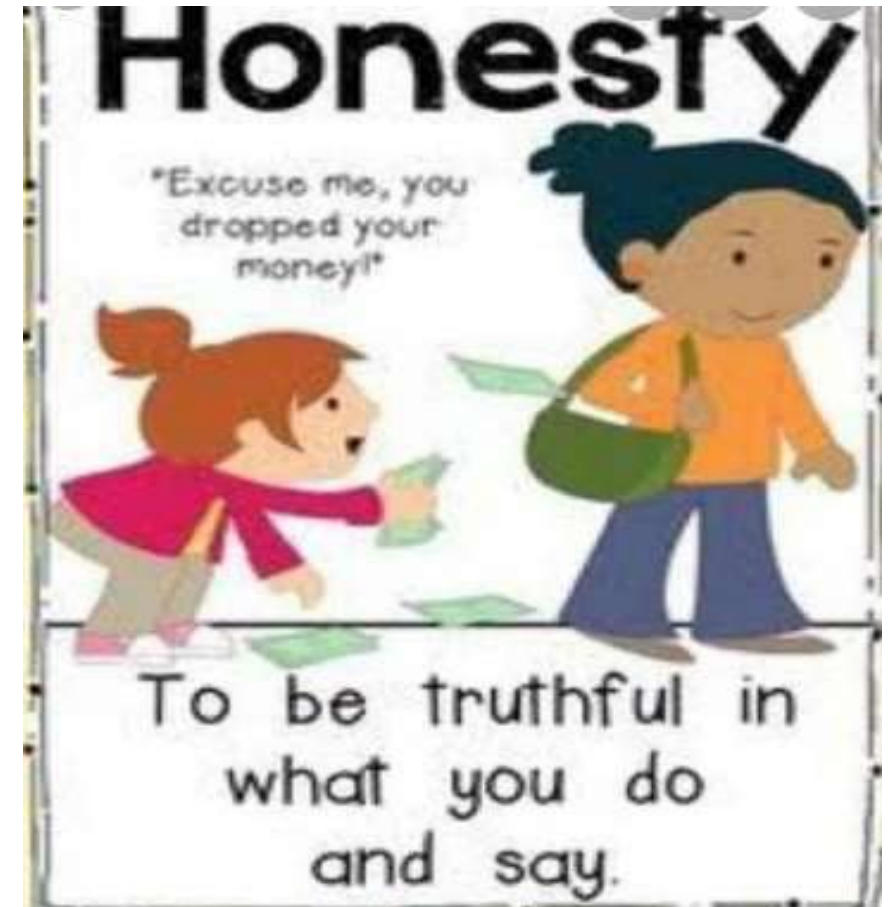
Value education can be imparted to the students directly in the class room. In this method the teacher can explain discuss and illustrate values through stories, biographies of great men, morals and real life situations. Direct interaction of teacher and students is possible in this method.
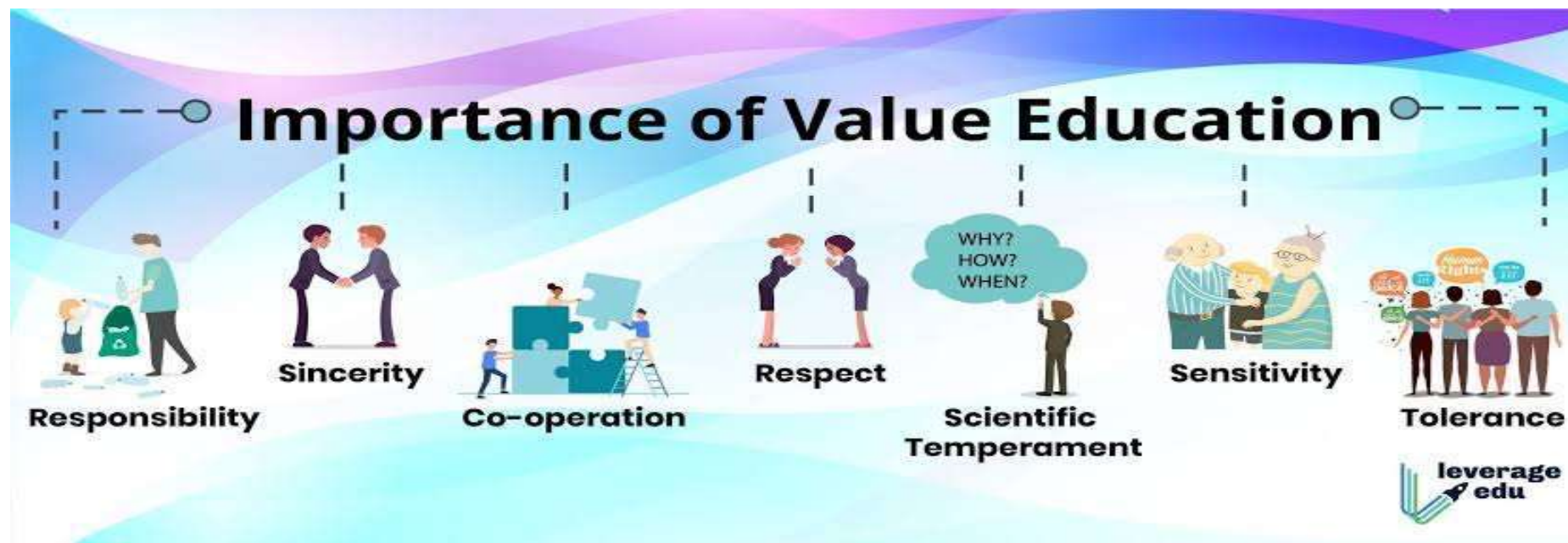
Value education can be imparted indirectly through existing curricular and co-curricular activities without separating the period in the time table. Different teaching subjects will develop the values like free enquiry, scientific temper, appreciation of diversities, interdependence of people, logical thinking etc.

Different co-curricular activities will develop certain values like co-operation, team-spirit, fellow-feeling, tolerance, democratic living etc. among the students.

Recommendations

- Due to on ongoing corona virues (covid-19) which is declared as pandemic we couldn't go out of our houses to collect the data. But we took the help of internet to collect the data.

- We found the samples from internet through different websites and E-books.

- All members of the group took the initiative to collect the data.

- The study is related to "Importance of Euducation in Developing Values" according to the study schools and educational institutes play a major role in dveloping values in children because children spend their most of the time in schools and educational institutes.

- The data collecting activities took place at our houses.

Conclusion

- Value system play an important role in any decision making process. In fact, every human action is the reflection of personal and social values.

- Value Education awakens curiosity, development of proper interests, attitudes, values and capacity to think and judge about oneself. It helps in Promoting Social and Natural Integration.

- The teachers are the first role model to the children outside their family. When the children sees the model showing concern for others, motivating them for their good deeds and cooperating and helpful with their academic issues, the children learn them by observing and imitate it with fellow peers.

- The children are taught basic morals and values in school. They should be taught by emphasizing the idea through many activities, stories and tales, which will encourage them to engage in more helping behaviours.

References

- The data is been collected through online mode by surffing through various websites and E-books.

- The references for the above mentioned data are:-

https://www.iberdrola.com/talent/value-education

https://www.mitgurukul.com/Importance-of-Value-Based-Education.php

https://www.admitkard.com/blog/2019/12/17/importance-of-value-of-   education/amp/

https://www.gktoday.in/topic/role-of-educational-institutions-in-inculcating-values/

E-books:- Teaching Values of Being Human

                 Values Education in Early Childhood Settings

Appendix

PORTRAYAL OF DISABLE PERSON IN INDIAN MEDIA 👨‍🦽 📹

FYBAMMC/A

Vaishnavi Mahamuni/21314A0050

Sakshi Ponkshe/21314A0051

Kasturi Chalke/21314A0052

Ziyaan Keshwani/21314A0053

Ajay Kumar Gupta/21314A5   **UNDER THE SUPERVISION OF MS.LAXHIMI PILLAI**

1

INTRODUCTION

BACKGROUND

1.India, the largest democracy in the world, who has the largest population of disabled people in the world. Despite their increasing numbers, they have remained mis-represented and under-represented in the country. A World Bank report says that several people with disabilities do not have equal access to healthcare, education, and employment opportunities; do not receive the disability-related services that they require, and experience exclusion from everyday life activities.

Disability has been widely misunderstood by Indian society due to constant social marginalization and a lack of sensitization and awareness amongst the general public. While several entities have tried to bring about this awareness, their reach has been rather limited.

2.The earlier portrayal of disability in Indian cinema followed a heteronormative path toward "fixing" disability, i.e., a disabled person meets an able-bodied person who helps them look past their disability to live a happy life.

For example ,Taare Zameen Paris a critically acclaimed movie that dealt with the issue of a child with dyslexia. It was such a huge success that, a few days after the release of the movie, the Central Board of Secondary Education issued a circular allowing students with disabilities extra compensatory time to complete their exams.[29] After the release of this movie, a lot of fashion shows started raising funds for disability organizations due to popular demand from customers.

Taare Zameen Paris a critically acclaimed movie that dealt with the issue of a child with dyslexia. It was such a huge success that, a few days after the release of the movie, the Central Board of Secondary Education issued a circular allowing students with disabilities extra compensatory time to complete their exams.[29] After the release of this movie, a lot of fashion shows started raising funds for disability organizations due to popular demand from customers.[30]

The media can be a vital instrument in raising awareness, countering stigma and misinformation. It can be a powerful force to change societal misconceptions and present persons with disabilities as individuals that are a part of human diversity. By increasing the awareness and understanding of disability issues and the diversity of persons with disabilities and their situations, the media can actively contribute to an effective and successful integration of persons with disabilities in all aspects of societal life. Indeed, the Convention on the Rights of Persons with Disabilities requires States to raise awareness and combat stereotypes related to persons with disabilities, including by encouraging all media to portray persons with disabilities in a manner consistent with a respect for human rights.

SCOPE   Pg:-4

The change in understanding of disability from an individual pathology to a social construct is best reflected in the way UN Standard Rules on the Equalization of opportunities for person with disabilities,1993 define disability. According to these rules "people may be disabled by physical, intellectual or sensory impairment, medical conditions or mental illness".Such impairments condition or illnesses may be permanent or transitory in nature.A distinction has been made between disability and handicap. A handicap is considered a loss or limitation of opportunities to take part in community life on an equal level with others.The purpose of this distinction is to emphasise the focus on the shortcomings in the environment and in many organised activities in society that handicap a disabled person.

The media portrayal of disability is inadequate and misleading, resulting in socio-economic and political discrimination and deprivations.

Ammu Joseph (2005) claims that media coverage of disability is more noticeable on days like the International Day of Disabled Persons. For the rest of the year it gets less media attention. Again, the coverage is skewed in nature. Media focuses on individuals who are physically or mentally challenged and portrays some of them as either heroes or victims. Joseph also says that the presentation of disability in the print media is derogatory in tone.

Objectives and Aims

Often we hear journalists raise a question on behalf of persons with disabilities, "Is the government doing enough for the country's disabled population?" Reporters and anchors accuse the government representatives for not doing enough to make the environment 'inclusive,' but what if we were to turn this question around and ask our friends in the media, "What role does the media play towards inclusion of persons with disabilities? Does the media practice what it preaches?"

In today's day and age, media is a powerful medium which can be used to bring about transformation of any kind. If media became more sensitive towards the needs of the disabled, it will automatically get reflected in the society at large, because of the impact media has on a large section of the population.

Stop viewing the disabled population as objects of pity

- Media needs to view them as equal citizens of the country and potential resources for the country's development. By portraying them as objects of pity, the media excludes them out of the mainstream and makes them topics of discussion as a separate section of society.

- The media needs to be aware of the correct terms to be used for people with disabilities. For instance, terms like crippled and handicap are unacceptable and politically incorrect. However, terms like disabled, visually impaired or people with low vision are correct usage.

- The media also needs to stop portraying persons with disabilities as victims, at all times. Some networks, like the Australian Broadcasting Corporation have strict guidelines in place for their producers when it comes to dealing with disability; producers are instructed to ask themselves if the programme is coming across as patronizing, victimizing, demonizing or normalizing.

Include persons with disabilities in mainstream media discussion

- Often, disabled people are invited to discussions or debates on TV and radio only around topics of disability. When was the last time we heard a disabled person speak from a media platform on common topics of interest, like, sports, politics, cinema or climate change?

- This again is an exercise of exclusion. The disabled person is as much a part of the country as any able bodied person. They have a right to express their opinion on matters of national interest and importance. Anchors and reporters should engage with persons with disabilities on a wide array of topics rather than limiting it to their respective disability.

- Inviting them on discussions on day to day political developments, or on performances in the Olympics, or even a discussion on the latest tax reforms, will encourage inclusion of persons with disabilities into the mainstream. This will then get reflected in the society at large, where too we will see discussion forums open up to persons with disability.

Make programming accessible to people with blindness and visual impairment

- There is a lot of programming on national television channels that is inaccessible to the blind and visually impaired people. For instance, some programming consists of graphic elements that are not translated into audio or voice narrations. This hampers the TV watching experience of a person with blindness or any other visual impairment. Content producers need to be aware of this need when they put together a programme.

- A lot of programmes have a 'VOTE' or a 'QUIZ' question in the end. The anchor normally announces that a question is coming up on the screen but the question is not read out loud. As a result, a disabled person cannot participate in that activity. If the media is conscious of the needs of people with visual disability, their content would become inclusive and accessible to a larger section of the population.

Procedure and Analysis

1.Do you think disabled people are being represented in a better way in recent years compared *
to the past in the media?

◯ Yes

◯ No

◯ Maybe

2.Your views on how a disable person should be treated in the media?

◯ Should be treated normally

◯ Should be given special treatment

3.Do you know there are several disable person in the Indian media ? *

◯ Yes

◯ No

2/3

4.Characters in movies you have seen the most portraying as a disable person? *

◯ The villan

◯ The victim

5.Do you agree that Indian movies have been portraying disable characters with a tone of pity, * sarcasm, dependency?

○ True

○ False

6.Inviting people with disabilities only to talk over disability and not over other topics does not * give them space to express their knowledge.

○ True

○ False

7.What problem do you think a disable *
person faces in the media.

○ Self doubt

○ Negative attitudes

○ Non supportive people

○ People not trusting their work

8.Drop down a Indian movie you know with a disable character in it . *

Short-answer text

We got our information through google forms

Count of Age?

"Below 18 years" has the lowest value for "Age?" (7).

Count of 1.Do you think disabled people are being represented in a better way in recent years compared to the past in the media?

Maybe   Yes   No

Count of 7.What problem do you think a disable person faces in the media.

"People not trusting their work" has the highest value for "7.What problem do you think a disable person faces in the media." (16).

Analysis

Count of 3.Do you know there are several disable person in the Indian media ?

● Yes   ● No

4/8

Count of 4.Characters in movies you have seen the most portraying as a disable person?

The victim   The villan

Count of 5.Do you agree that Indian movies have been portraying disable characters with a tone of pity, sarcasm, dependency?

"FALSE" has the lowest value for "5.Do you agree that Indian movies have been portraying disable characters with a tone of pity, sarcasm, dependency?" (10).

According to the polls

There are quite a few people that have seen disabled people in Indian media which shows that they are being well represented.

Many people do think the disabled people are being better represented in recent times and should be treated normally although most people have seen the disabled being portrayed as victims and shown pity in Indian media.

The voters think the most common problem for the disabled in media is people not trusting their work which could cause self doubt.

After going through all the votes of the questions we asked we get to know that there are people who think about people with disabilities in the media and in general people want them to be treated normal and should not be judged on there disability

Recommendation

- After Digital India, Clean India, and Skill India, the government is all set to launch the Accessible India Campaign which will focus on making India a disabled-friendly country.

- Public events and other international commemorations can provide excellent opportunities to raise-awareness and conduct outreach to promote the disability perspective and highlight the concerns of persons with disabilities. Disability-awareness and related sensitivity trainings can also be conducted in organizations in conjunction with such events or be mainstreamed in standard operating procedures. Some UN-sponsored opportunities and campaigns include:

- The government is all set to launch the Accessible India Campaign which will focus on making India a more disabled-friendly nation. From more accessible public places, to disable-friendly television programs, here are seven amazing initiatives which will be a part of the campaign

Conclusion

Pg:-15

- Attention should be drawn to the image of disability in the media with a view to an accurate and balanced portrayal of disability as a part of everyday life. The media can play an important role in presenting disability issues in a way that could dispel negative stereotypes and promote the rights and dignity of persons with disabilities. Furthermore, options should be developed on how to present persons with disabilities in various media and the importance of supporting the work of the United Nations to build a peaceful and inclusive society for all.

- The Convention on the Rights of Persons with Disabilities can work as a tool to enhance the work of the media in promoting the rights of persons with disabilities, as well as to promoting their access to education, employment, health and other areas of development on an equal basis with others.

References

1.Communicationtoday.net   2. thebetterindia.com

Published 0n 30 September 2014   published on September 6,2016

By DR.Atanu Mohapatara

3.Flimmattersmagazine.com

Published in 2018

By Harsh Mahaseth

https://www.thebetterindia.com/66699/inclusive-media-disabled-friendly-media-in-india/https://communicationtoday.net/2014/09/30/disability-and-media-in-india/

PORTRAYAL OF INDIAN FAMILIES IN INDIAN CINEMA
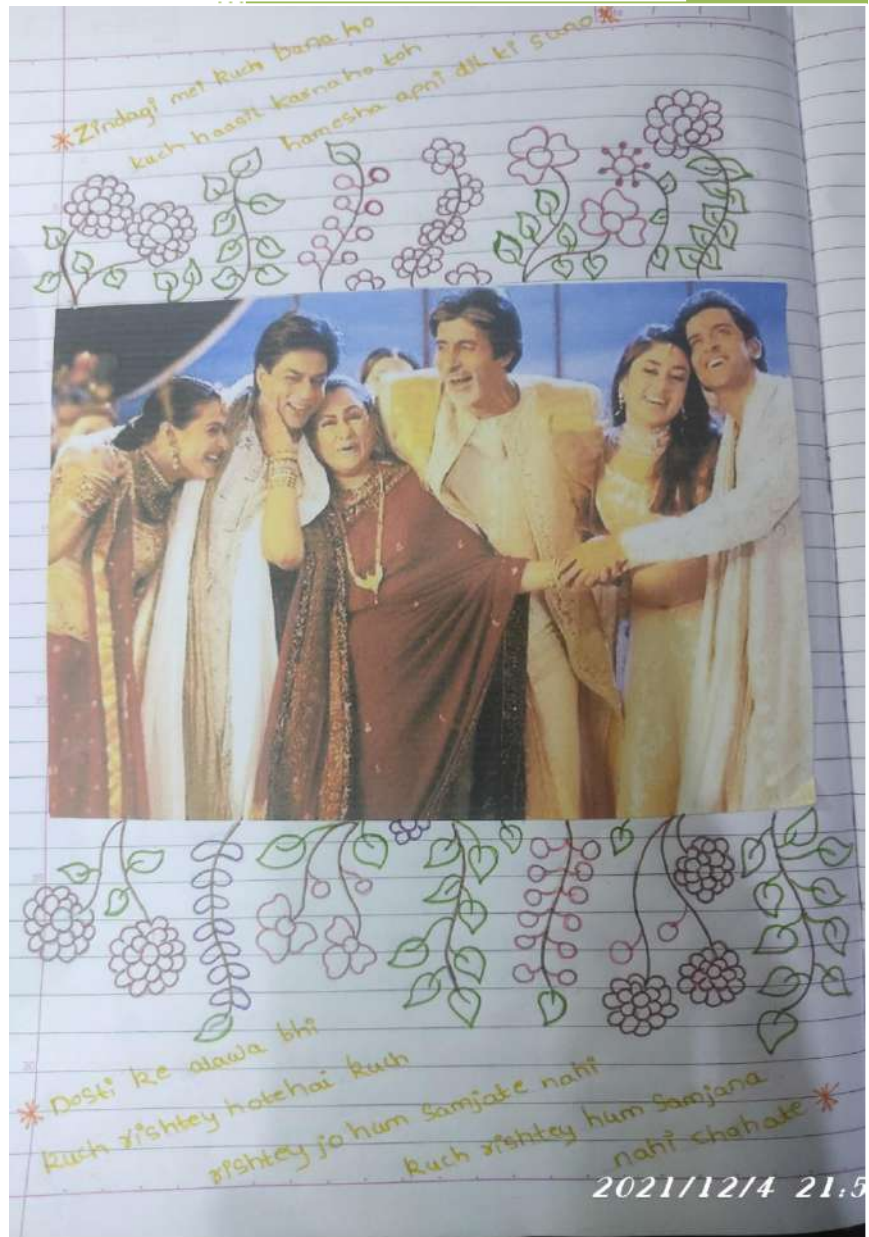
Vidyalankar School of Information and Technology

PORTRAYAL OF INDIAN FAMILY IN INDIAN CINEMA

BACHELOR OF/IN- FYBAMMC

by

Name of the students- 1.Vishwa Saha

2. Prabhat Waghambare

3. Unnati parmar

4.Snehal Hambire

5.Moksh Mota

Roll numbers- 1. 21314A0055

2. 21314A0056

3. 21314A0057

4. 21314A0058

5. 21314A0059

Under the guidance of

Mr./Ms. Lakshmi pillai

Assistant professor

<u>Index Page</u>

<u>Introduction</u>

Film is one of the most potent media in understanding how a culture responds to various issues, from mental illness to social attitudes and behaviour. Films reflect the society within which they are made but also influence society as a result. The relationship between film and society is incredibly complex. Films are made to entertain but they contain coded messages which can be deciphered and these may well appeal to audiences generally or only to sectors of society. The entertainment meted out in films is aimed to appeal to the common denominator or the target audience in order for the film to succeed at the box office.

Mental illness and the creation of the despised, feared or alienated 'other' (mentally ill) are often used in films to portray villainy, comedy, epistemological considerations, and also as a turning point in the story. Films dealing with mental illness in any culture are often made for entertainment and not necessarily for education, even though they may be used for this purpose. Mental illness and its impact on the family may form a small part of the story, or the whole film may focus on mental illness. In this paper we do not focus on mental illness but on simple concepts of families and changes brought about by social and economic factors

There is little doubt that the Hindi films engage large audiences in India but are also extremely popular among the Indian diaspora worldwide, bringing with them an idealized image for migrants as well. The portrayals of characters and families in that context are heavily embedded in the social, cultural, political and economic contexts of the cultures.

-Moksh Mota

Film is one of the most potent media in understanding how a culture responds to various issues, from mental illness to social attitudes and behaviour. Films reflect the society within which they are made but also influence society as a result. The relationship between film and society is incredibly complex. Films are made to entertain but they contain coded messages which can be deciphered and these may well appeal to audiences generally or only to sectors of society. The entertainment meted out in films is aimed to appeal to the common denominator or the target audience in order for the film to succeed at the box office.

Mental illness and the creation of the despised, feared or alienated 'other' (mentally ill) are often used in films to portray villainy, comedy, epistemological considerations, and also as a turning point in the story. Films dealing with mental illness in any culture are often made for entertainment and not necessarily for education, even though they may be used for this purpose. Mental illness and its impact on the family may form a small part of the story, or the whole film may focus on mental illness. In this paper we do not focus on mental illness but on simple concepts of families and changes brought about by social and economic factors.

There is little doubt that the Hindi films engage large audiences in India but are also extremely popular among the Indian diaspora worldwide, bringing with them an idealized image for migrants as well. The portrayals of characters and families in that context are heavily embedded in the social, cultural, political and economic contexts of the cultures.

-Moksh Mota

A big hit in 1969 was *Do Raaste* [Two Paths] (Directed by Raj Khosla, India) where again a foreign-returned daughter-in-law creates chaos in the family with in-laws being forced to move out of their house. The relationship between tradition and modernism following similar story lines was also seen in other films such as *Upkaar* [Good Deed] (Directed by Manoj Kumar, India, 1967) in the late 1960s.

Sholay [The Embers] was a big hit in 1974–1975 and based on the relationship between a police officer whose entire family (except daughter-in-law who was out of the house) had been killed by a dacoit, for whose arrest the officer was responsible, and two minor crooks. Here the two crooks are almost surrogate sons to the extent that there is a strong indication that the police officer would like her widowed daughter-in-law to marry one of them. The film reflected the zeitgeist where the population had lost faith in their leaders and individuals had to take on the role of defending themselves and their values.

The role of the mother and her relationship with her son, the role of the dutiful obedient wife and that of the helpless sister have all changed over the decades, as have family expectations. In a few films, illegitimate children have been brought back into the family from *Masoom* [Innocent] (Directed by Shekhar Kapur, India, 1983) to *Kabhi-Kabhie* [Occasionally] (Directed by Yash Chopra, India, 1976) and more recently *Kal Ho Na*

Ho [There May Not Be a Tomorrow] (Directed by Nikhil Advani, India, 2003). In some films it is the married woman who had a child out of wedlock, but in *Kal Ho Na Ho*, the mother of the husband discovers that her daughter-in-law has been bringing up her son's illegitimate child as her own. Singh (2002) argues that the old orthodox way of looking at illegitimacy underwent strong changes after the rise of feminism in the 1970s. These films question and deal with the issue in alternate ways.

-Moksh Mota

Sexual behaviour, whether heterosexual or homosexual on screen, had generally been covert, but this too has changed in the last 10 years and recently there have been a few films where same-sex relationships have been shown to be more open. Until a decade or so ago, the portrayal of sexual behaviours was very subtle and often symbolic. In more recent films the portrayal has become much more blatant. In the 1950s and 1960s songs were used to portray and declare love, but recent films have contained less concealed, perhaps obscene songs. The changes in the role and portrayal of heroines has shifted from showing them as pure demure symbols of Indian womanhood to much more westernized and outgoing with pre-marital sex and coupling becoming more common. Portrayals of homosexuality and 'third sex' are also becoming more sympathetic even though until 2010 homosexual acts remained illegal. Portrayal both of male and female homosexuality has changed and even the songs depict these in a more open manner. In earlier films pre-marital sex was often actively criticized and the heroine was supposed to be virginal and demure. However, vamps could traditionally be identified by their 'loose character', and westernized clothes and values; they could indulge in drinking and roles linked with sexual favours.

Using courtesans as models, several films portrayed the role of such individuals as teachers and poets but also as potential threats to families and their well-being. Female sexuality was frowned upon but recently this too has changed dramatically. Several recent films have shown young men and women living together and with clear pre-marital sex without any guilt or consequences, showing that urban India has changed. Films such as *Fire* (Directed by Deepa Mehta, Canada/India, 1996) and *Girlfriend* (Directed by Karan Razdan, India, 2004) have openly shown lesbian scenes, in the former within the context of the family where two sisters-in-law have sex with each other as the husband of one of them is aggressive and the other one has taken sanyas with thus withdrawn from the material world.
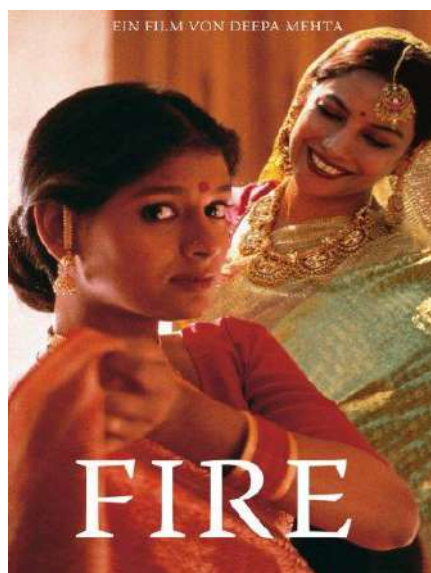
-Moksh Mota

Families are the building blocks of society, and social, political and economic changes influence their structure and functioning. It is inevitable that these will in turn influence how they are portrayed in the arts including films. Psychiatry as a medical specialism more than any other has the ability to use films and arts, including poetry, literature, folk tales and painting to learn about and understand strengths of other cultures. Any paper dealing with films will rely on a personal choice and a very specific way of interpreting films and portrayal of subjects and its contexts. Families bring up children and thus influence their cognition and cognitive schema. It is therefore helpful in clinical settings to understand the role and the importance of family in understanding the patient. Films do not by themselves offer all the knowledge and the information but most certainly can provide pointers which can then be utilized for detailed understanding of these building blocks. Hindi cinema offers a mirror to our understanding of changing social mores and personal values and we must find ways of using it more. Various psychiatric conditions have co-morbidities associated with them and their impact on families and the family's understanding of the illness can form an important part in developing interventional strategies.

- Moksh Mota

<u>Objectives and Aims</u>

I would like to start stating the objectives which have been taken by the directors and film makers of the movies mentioned in the introduction. Films like '2 states and Do Raaste' have similar objectives i.e. trying to eradicate the difference between cultures. Culture should be something which should help connect people and not create boundaries between them. However, it inevitably creates boundaries at the initial stages of the movie and every time in the real life. The first objective is to erase this unnecessary cultural boundary. How should we erase this boundary? By making your family aware of the changing times and ideologies and if that doesn't work then don't do it, you don't need to make them aware about anything. All you need to do is to wait for the right time. When do you want do that, solely depends on you. I would like to give some more examples regarding this issue.

Virdi (2003) goes on to note that within the family, narratives privilege women in wife-lover and mother-figure roles, paying special attention to mother–son dyads and relationships. The oedipal complex in the Indian context has been alluded to elsewhere (Bhugra & Gupta, 2009). Mothers-in-law pitting against daughters-in-law, especially if the latter were westernized and independent thinking, leading to conflict of values, and often the sons and fathers-in-law got caught in the middle. The roles of mother-in-law and sometimes sister-in-law led to conflict and destruction of the ideal family, and occasionally the conflict reflected the 'partition' of the country as well. Similar context has been repeated widely in Hindi movies, especially in what was often used as social film. For a period, films produced in Chennai were described as social, as these largely focused on family melodrama generally caused by one or more naughty individuals and/or by natural causes.

- Unnati Parmar

Another issue that the films are taking initiative to solve is different sexual preferences. Films like 'Subh Mangal Zyada Saavdhan' and 'Fire' have taken the initiative.
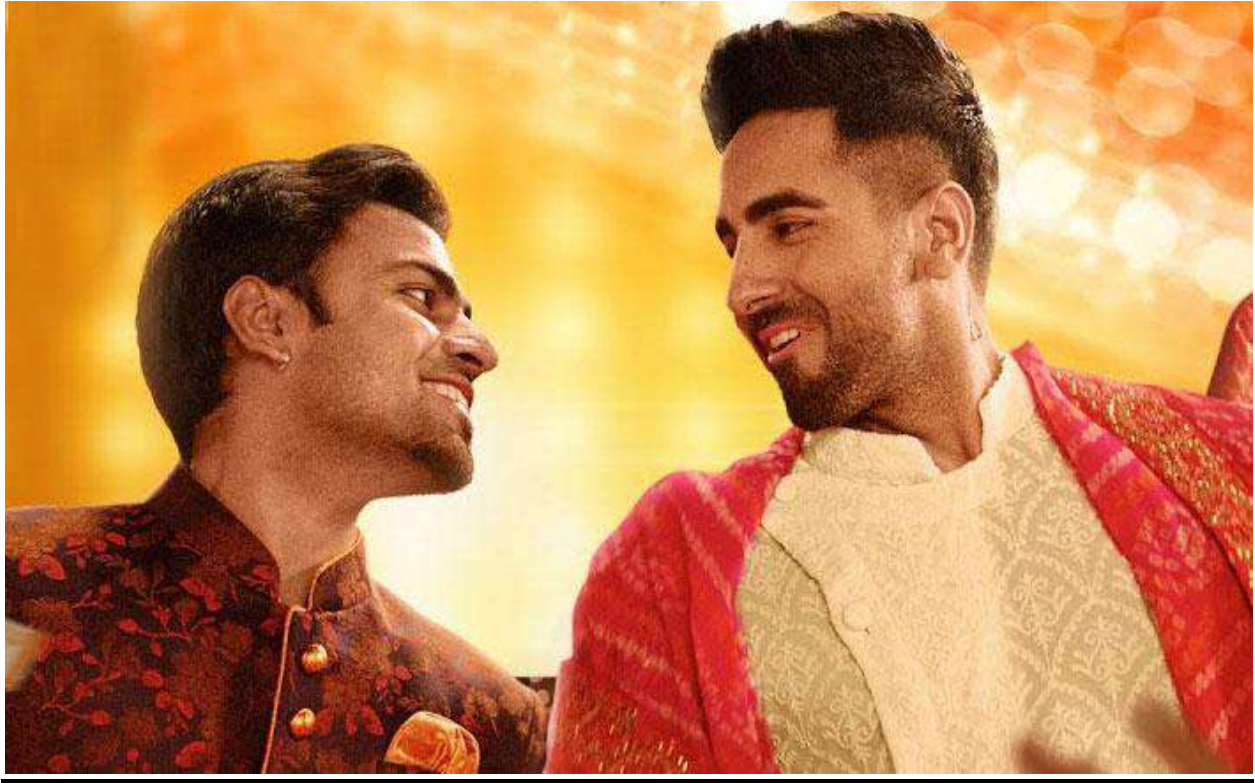
Issues relating LGBTQ rights are not only amongst families but also spread across the entire country. This issue is closely related to the cultural issue mentioned before. What's the solution to this? Again! It's awareness. We have to spread awareness about the rights in the same way it was done in the movies. 'Gradually' family members are becoming quite liberal about the concept of LGBTQ and its rights. But, old ideologies among few families lead to a lot of problems. Sometimes, these problems take an ugly shape. Most of the times, families from remote villages might resort to criminal activities.

In such cases, where people resort to extreme violence, we should avoid any interaction with them let alone spreading awareness and focus on creating awareness among people who wouldn't resort to any kind of violence.

- Unnati Parmar

Depression is likely to become the second most serious burden on healthcare by 2020, according to the World Bank. Depression is both a symptom and a psychiatric diagnosis. Across cultures it presents in different ways although similar diagnostic patterns emerge. In cultures which are socio-centric and kinship based, the notions of depression deal with shame rather than the Judeo-Christian concept of guilt. This presentation of clinical depression in healthcare settings is already beginning to change in India as well as among migrants (Bhugra, 2002; Bhugra et al., 1997). It is therefore likely that the symptoms and their portrayal in Hindi films will also change. Social causation of depression will also reflect changing social and economic factors. As depression is one of the common mental disorders, it is inevitable that its portrayal and its impact on the family will be of major interest to the viewer. Depression can be caused by one or more family members. Therapy can be the closest solution I can think of right now. It can be friendly conversation, self therapy or fixing an appointment with a professional therapist.

Mental illness in Black and Asian ethnic minorities: pathways to care and outcomes

Kamaldeep Bhui & Dinesh Bhugra

A substantial body of research indicates that, for people from Black and Asian¹ ethnic minorities, access to, utilisation of and treatments prescribed by mental health services differ from those for White people (Lloyd & Moodley, 1992; for a review see Bhui, 1997). Pathways to mental health care are important, and the widely varying pathways taken in various societies may reflect many factors: the attractiveness and cultural appropriateness of services; attitudes towards services; previous experiences; and culturally defined lay referral systems (Goldberg, 1999). Contact with mental health care services may be imposed on the individual, but people who choose to engage with services usually do so only if they think that their changed state of functioning is health-related and potentially remediable through these services. In such cases, they will contact whoever they perceive to be the most appropriate carer, and these carers are often not part of a national health care network.

The pathway to care approach focuses on the point of access to care and the integration of care by culturally diverse carers. For example, if for African–Caribbean men in crisis the most common point of access to mental health services is through the police and the criminal justice systems rather than through their general practitioner (GP), then the challenge is to explore the reasons for this at the interface of these agencies. Carers include the popular and folk sectors of health care provision as well as standard primary and secondary care services and the voluntary sector. Once the range of perceived carers for a cultural group is known, these can be considered as potential sites of case identification and intervention.

The development of a model for Black and Asian ethnic minorities requires that these other access points be taken into consideration.

Goldberg & Huxley's model

Goldberg & Huxley (1980) described different levels of engagement with health care within community, primary and in-patient services. To reach specialist care a patient needs to pass through a series of referral filters. This model has been extremely useful, not only in understanding epidemiological findings and pathways into psychiatric care, but also as the starting point for evaluating the needs of patients with mental illness.

Although services have continued to evolve, the model has only recently been modified. Commander *et al* (1997) added a Mental Health Act level. Moodley & Perkins (1991) explored routes to care, trying to conceptualise the pathways taken by African–Caribbean people admitted to in-patient care and finding that the police and accident and emergency departments are important. The model shown in Fig. 1 is based on Goldberg & Huxley's original, but

1. In this paper, the term 'Asian' refers to people originating from the Indian subcontinent. The term 'Black' is used to include both African–Caribbeans and Africans. The difficulties in defining and using these terms have been discussed elsewhere (Bhui, 2001).

Kamaldeep Bhui is a senior lecturer in social and epidemiological psychiatry at St Bartholomew's and The Royal London School of Medicine and Dentistry (Queen Mary and Westfield College, Mile End Road, London E1 4NS, UK; k.s.bhui@mds.qmw.ac.uk). He is interested in cross-cultural and epidemiological psychiatry, service development and explanatory models of illness. Dinesh Bhugra is a reader in cultural psychiatry and heads the Section of Cultural Psychiatry at the Institute of Psychiatry, London. His research interests include cultural factors in the aetiology and diagnosis of mental illness, religion, sexual dysfunction and sexual deviation.

-Unnati Parmar

<u>Procedure and Analysis</u>

       Websites like tandofline, google images and google forms were used to collect data. The theoretical data was mostly collected by the website and the images were collected by google images. We also added our personal touch while stating solutions to the issues mentioned in the objectives and aims part. The introduction part mostly mentions about the films that have taken the initiative to feature families as their main topic. We also mentioned the films that have taken up family issues as their topic. We used images to make the document interesting as well as the reader has clear idea about the movies. We also mentioned the issues coming up due to cultural differences in families. The boundaries between parents and in-laws which is commonly used in movies. We also analyzed the responses of our friends and families in this topic with the help of google forms. Here is the data for the following.

Do you think families are portrayed in a positive way in the recent films?

10 / 29 correct responses

yes	—19 (65.5%)
✓ no	—10 (34.5%)
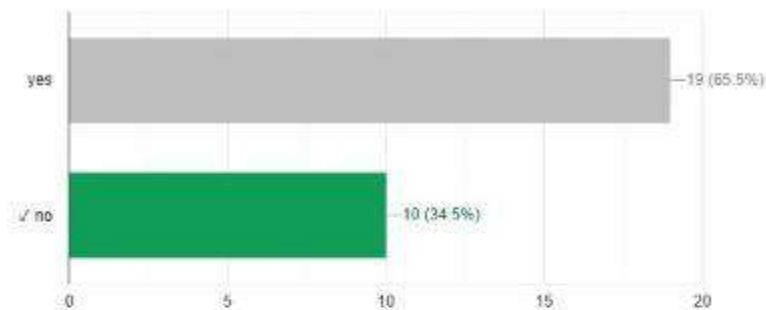
Do you think families were portrayed in a negative way in old films?

11 / 29 correct responses

yes	—18 (62.1%)
✓ no	—12 (41.4%)
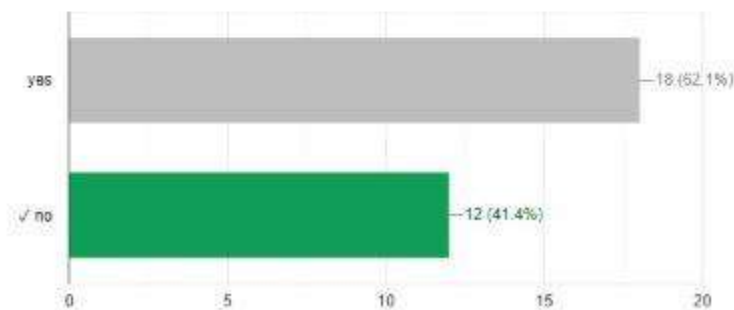
- Vishwa Saha

According to the above data, people think that families were portrayed in a much negative way in old films than they are portrayed in the recent films. This is mostly true because, 'good' families were shown to be religious, cultural and spiritual, which is not case every time in the real life. Families who weren't 'religious or cultural' were termed as negative. This stereotypical concept is changing gradually in the recent films.

Do you think a human has to be spiritual to be a part of the Indian family?

29 responses

- yes
- no
- maybe

34.5%

44.8%

20.7%

Do you think the stereotypical concept of arranged marriages should ever be promoted in Indian films?

29 responses

- Yes
- No
- Maybe

34.5%

51.7%

13.8%
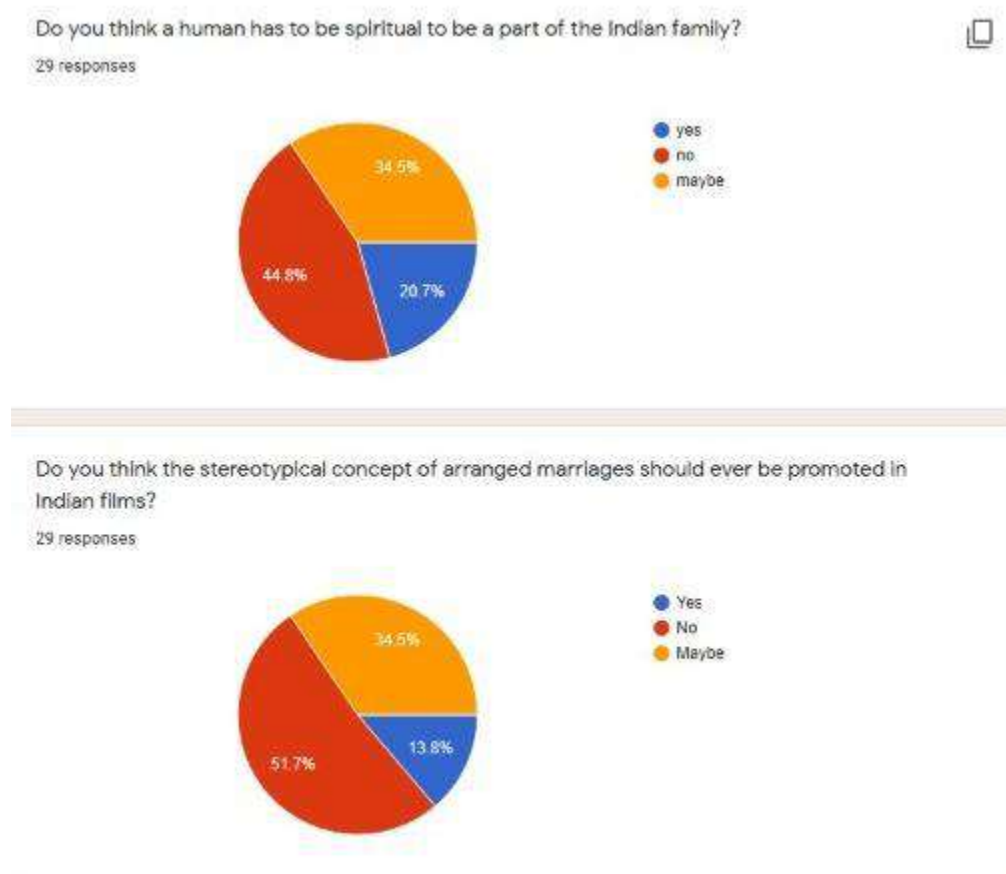
This data shows that the stereotypical concept of mandatory spirituality and forced arranged marriages are gradually disappearing too.

- Vishwa Saha

Do you think Indian families are becoming more liberal towards different sexual preferences?
29 responses

Yes
No
Maybe

48.3%
20.7%
31%
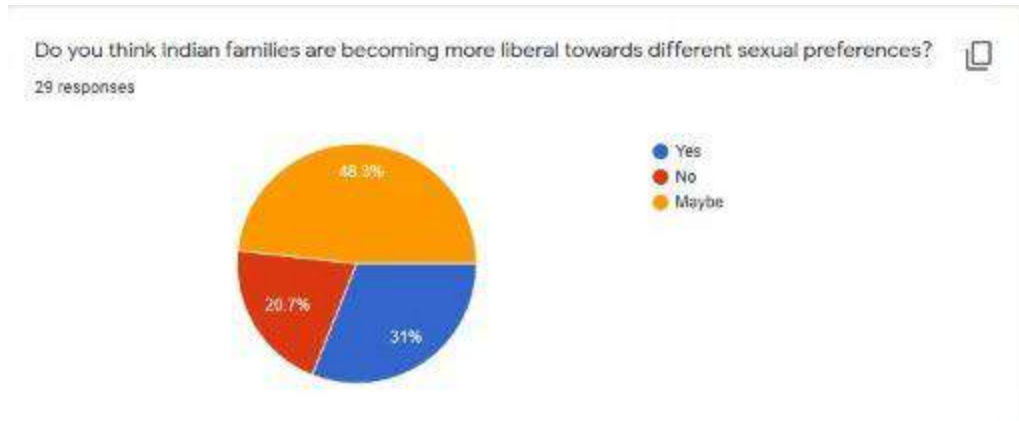
This data shows that families are gradually becoming aware about different sexual preferences too.

Who do you think has more toxic traits in such movies?
32 responses

The protagonist's family
The in-laws
Both

71.9%
25%

Do you think families are becoming aware about the mental concept?
32 responses

yes
no
gradually
not at all

81.3%
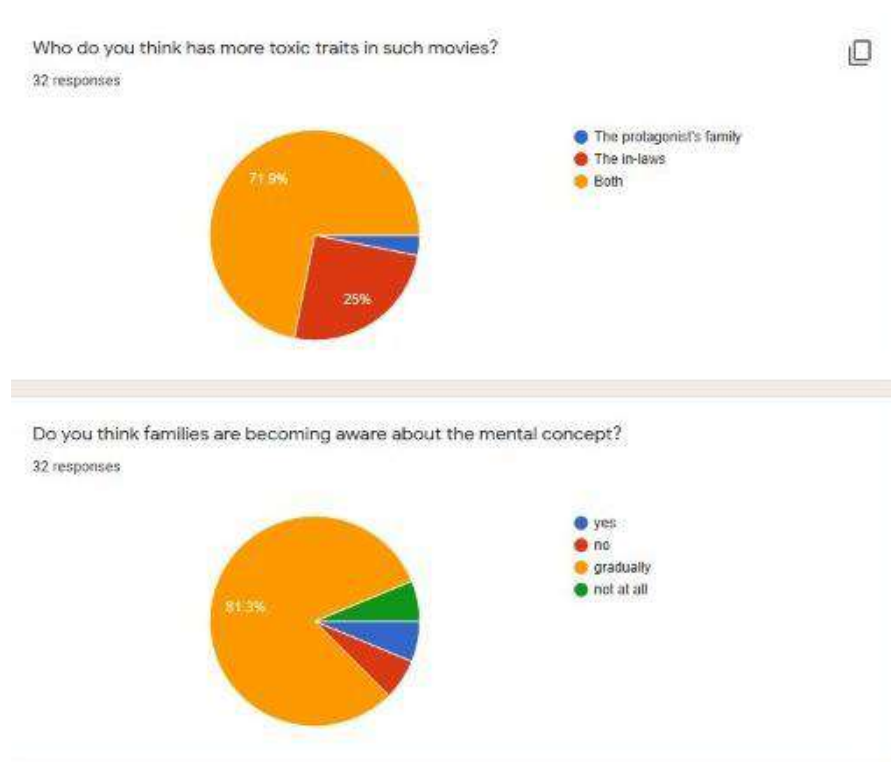
The above data shows that both sides of the families show some kind of toxic traits in these movies .These toxic traits can be also called as parasites, parasite of old ideologies. However, families are gradually becoming aware about the concept of mental health.
- Vishwa Saha

When we asked about the ways of making our families aware about the changing times, cultures and trends, mostly, we got answers like- Talk to them, have a healthy conversation with them and have a non- reluctant tone in your voice. This might not help them to be convinced but at least they are informed about the changing times. We can also make them watch movies which are based on these topics.

- Vishwa Saha

<u>Recommendations</u>

As mentioned earlier, even though we try our best to convince our families about the changing times, cultures and trends, they still wouldn't be convinced. There can two consequences- Either they force you to listen to their instructions or they let you take your own decisions and face any kind of consequence effectively. They will never completely agree to what you say. With increasing and rapid urbanization and population changes in India, a growing number of people are migrating from rural areas to urban areas, which brings about major changes in support systems. The portrayal of families has also changed in Hindi cinema over the last 50 years. Recent family melodramas have focused on an idealized version of joint and extended families. In this project we used some key Hindi films of the 1960s and of the last two decades to compare how films have changed and how, in view of changing audiences, they have created a version of the family which is far from real. Clinicians need to be aware of these changes while dealing with patients and their families (the latter may have unrealistic expectations of their own family members). Families are the building blocks of society, and social, political and economic changes influence their structure and functioning. It is inevitable that these will in turn influence how they are portrayed in the arts including films. Psychiatry as a medical specialism more than any other has the ability to use films and arts, including poetry, literature, folk tales and painting to learn about and understand strengths of other cultures. Any paper dealing with films will rely on a personal choice and a very specific way of interpreting films and portrayal of subjects and its contexts.

- Prabhat Waghambare

<u>Conclusion</u>

Families bring up children and thus influence their cognition and cognitive schema. It is therefore helpful in clinical settings to understand the role and the importance of family in understanding the patient. Films do not by themselves offer all the knowledge and the information but most certainly can provide pointers which can then be utilized for detailed understanding of these building blocks. Hindi cinema offers a mirror to our understanding of changing social mores and personal values and we must find ways of using it more. Various psychiatric conditions have co-morbidities associated with them and their impact on families and the family's understanding of the illness can form an important part in developing interventional strategies. The aim of this entire project was to state best solutions on how to make our families aware about the changing times which we did by using the reference of several movies. We also referred to a specific website and held a questionnaire in order to understand what other people think about this topic. We stated our own points too. We can't really say that we achieved our goal until we actually do it ourselves with our respective families. With the help of this project, we wanted to state the issues that one faces when they are a part of a certain family. Does that make our family bad? No, it's only the old ideologies which are 'bad'. Can we get rid of them? Not really, but, they will not be a bother when one becomes a financially independent. In other words, when one becomes capable of taking their own decisions, they don't really need to convince their parents anymore about anything, if they don't want to be convinced. By this, we don't mean that one should kick them out, that is not what we stated in our project. We are trying to say that, the issues regarding families will be less once the person is independent. In the future, issues regarding families will be as less as zero. Why? Because families in the future are going to extremely liberal about anything as well as they will specific points about what's wrong what isn't. Families would only work with proper logics and reasons. They won't rely on any cultural points as the concept of culture and religion is slowly fading way. So, keeping all these points and solutions in mind, we would conclude our project over here.

   - Snehal Hambire

References

1. Link- Full article: Families in Bollywood cinema: Changes and context (tandfonline.com)

- Snehal Hambire

INTERNET OF THINGS
BASED SMART HOME

A Project Report

Submitted in partial fulfilment of the
requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Kaustubh Ravindra Bharade

Seat Number: <u>19302A0018</u>

Under the esteemed guidance of

Mr./Mrs. Pushpa Mahapatro

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2020 - 2021

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

<u>CERTIFICATE</u>

This is to certify that the project entitled, **" Internet of Things based Smart Home "**, is bonafied work of **Kaustubh Ravindra Bharade** bearing Seat No: <u>19302A0018</u> submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

Date: **College Seal**   **Principal**

2

1. **COMPANY CERTIFICATE (for LIVE Project)**
2. **Avishkar/ Tantravihar/ Project Exhibition CERTIFICATE**
3. **Vsearch/ National/ International level Conference CERTIFICATE**
4. **RESEARCH PAPER**

ABSTRACT

Smart home systems achieved great popularity in the last decades as they increase the comfort and quality of life. Most smart home systems are controlled by smartphones and microcontrollers. A smartphone application is used to control and monitor home functions using wireless communication techniques. We explore the concept of smart home with the integration of IoT services and cloud computing to it, by embedding intelligence into sensors and actuators, networking of smart things using the corresponding technology, facilitating interactions with smart things using cloud computing for easy access in different locations, increasing computation power, storage space and improving data exchange efficiency. In this chapter we present a composition of three components to build a robust approach of an advanced smart home concept and implementation.

KEYWORDS: Smart home, IoT, cloud computing, event processing, home appliances

ACKNOWLEDGEMENT

We would like to express our special thanks and gratitude to ur project guide **Mrs. Pushpa Mahapatro** for guiding us to do the project work on time and giving us all support and guidance, which made complete our project duly. We are extremely thankful to her for providing such nice support and guidance.

We are also thankful for and fortunate enough to get constant encouragement, support and guidance from the teachers of information Technology who helped us in successfully completing our project work.

DECLARATION

I hereby declare that the project entitled, "**IOT BASED SMART HOME**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfilment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

Table of Contents

List of Figures

Chapter 1 Introduction

IOT or internet of things is an upcoming technology that allows us to control hardware devices through the internet. Here we propose to use IOT in order to control home appliances, thus automating modern homes through the internet. This system uses 4-loads to demonstrate as house Appliances Controlling. Our user-friendly interface allows a user to easily control these home appliances through the internet Worldwide. For this system we use an NodeMCU (Node Microcontroller Unit).This microcontroller is interfaced with a Relay modem to get user commands over the internet. Relays are used to switch loads. The entire system is powered by a 5V Adaptor/Charger (Micro- type). After receiving user commands over the internet, NodeMCU processes these instructions to operate these loads accordingly and display the system status on an Smart Phone Display. Thus this system allows for efficient home automation over the internet.

In this we have used the Blynk Community Application door controlling the Home Appliance all over the world. The Method used for controlling are Swiping the figures on Smartphone or Voice Control with Google assistant and After that we have used the latest technique that is IFTTT Platform & Web- Hooks For triggering our circuits. It will trigger the circuit as it gets input command from the Google assistant.

LITERATURE SURVEY

1) **BLUETOOTH BASED HOME AUTOMATION SYSTEM USING CELL PHONES:**

   • In Bluetooth based home automation system the home

appliances are connected to the Arduino BT board at input output ports using relay.

- The program of Arduino BT board is based on high level interactive C language of microcontrollers; the connection is made via Bluetooth.
- The password protection is provided so only authorized user is allowed to access the appliances.
- The Bluetooth connection is established between Arduino BT board and phone for wireless communication. In this system the python script is used and it can

  install on any of the Symbian OS environment, it is portable.
- One circuit is designed and implemented for receiving the
- feedback from the phone, which indicate the status of the device.

2) GSM BASED HOME AUTOMATION SYSTEM USING CELL PHONES:

- Because of the mobile phone and GSM technology, the GSM based home automation is lure to research.
- The SMS based home automation, GPRS based home automation and dual tone multi frequency (DTMF) based home automation, these options we considered mainly for communication in GSM.
- The home sensors and devices interact with the home network and communicates through GSM and SIM (subscriber identity module).
- The system use transducer which convert machine function into electrical signals which goes into microcontroller.
- The sensors of system convert the physical qualities like sound, temperature and humidity into some other quantity like voltage.
- The microcontroller analysis all signal and convert them into command to understand by GSM module.
- Select appropriate communication method among SMS, GPRS and DTFC based on the command which received GSM module.

3) WI-FI BASED HOME AUTOMATION SYSTEM USING CELLPHONES:

- Wi-Fi based home automation system mainly consist three modules, the server, the hardware interface module, and the software package.
- The figure shows the system model layout. Wi-Fi technology is used by server, and hardware Interface module to communicate with each other.
- The same technology uses to login to the server web based application. remote users can access server web based application through the internet using compatible web browser. Software of the latest home automation system is split to server application software, and Microcontroller (Arduino) firmware.
- The Arduino software, built using C language, using IDE comes with the microcontroller itself. Arduino software is culpable for gathering events from connected sensors, then applies action to actuators and pre- programmed in the server.
- Another job is to report the and record the history in the server DB. The server application software package for the proposed home automation system, is a web based application built using asp.net.
- The server application software can be accessed from internal network or from internet if the server has real IP on the internet using any internet navigator supports asp.net technology.
- Server application software is culpable of; maintain the whole home automation system, setup, and configuration.

Chapter 2 Survey of Technologies

The purpose of this is to present the Home Automation Systems (HAS) currently available over the world. It is very useful to the user for control and handle all the appliances that are connected to the system, from a controlling device. "EASY USE OF APPLIANCES" is main motive of this system. In this system home appliances can be monitored and controlled, and the user can interact with the system through a user-friendly interface. The home appliances like fans, lights, switches are remotely controlled through a main control board. It becomes too tedious to every time manually turn the switches ON or OFF. According survey we found that this is a big problem in case of disabled or handicapped people. For that reason, home automation system is useful.

1. **Door Automation system for smart Home Implementation:** In this paper is presented the design and the prototype implementation of a pneumatic door automation system intended to be used for access control in smart homes. The structure of the developed application is realized around the PIC 16F877A microcontroller which operates together with a pneumatic actuator based on a double acting cylinder controlled through an air distributor with solenoid valve. In the basic mode, the door opening and closing actions can be initiated manually by the user, through password authentication. The main parameters of the system can be configured locally, but an in-depth diagnoses and reconfiguration can be performed only through the serial interface which ensure the communication between the main module of the system and an

external PC. Compared with other similar systems, the proposed implementation solution allows a high operation speed and very good reliability due to the pneumatic actuation. In addition, the door automation module can be integrated in a centralized access control system dedicated to the smart homes that has all the appliances and other electricity-based equipment's connected into a local network. The door automation module presented in this paper can be integrated in any centralized access control system dedicated to the smart homes.

2. **A Safe approach using Virtual Devices to evaluate Home Automation Architecture prior installations:** This paper presents a solution based on virtual devices to evaluate home automation architectures without the need of deploying the corresponding physical devices. Our approach is focused on the specific situation of improving an existing installation, which consists of these steps: virtualize the installation and generates a software architecture, include the new elements as virtual devices, evaluate the behaviour of the whole architecture, test the new components with the physical installation, and incorporate the new devices to the installation. The approach is validated using a case study of a real installation that must be updated.

3. **Smart Home Automation with a unique door monitoring system for old age people using python, OpenCV, Android, Raspberry Pi:** In this paper, smart home automation system particularly for old age people is proposed based on python, OpenCV, raspberry pi and android application. The appliances are controlled by the Raspberry pi server, which operates according to the user command (touch or voice) received from the mobile phone. A unique door monitoring system is designed based on face detection and recognition from a camera installed outside the main door, which can be accessed from the phone using android application. One interesting feature that has been added is that all the appliances can also be controlled through the voice of user. For energy efficiency user can analyse the usage of each appliance from their phone. Moreover, user can also control the intensity of light as well as the speed of the fan. With all these features incorporated in a single system with good and simple user

interface, this system is cost effective and perfect for old age people living alone in their houses.

4. **Bluetooth based Home Automation system using cell phone:** This paper presents the design and implementation of a low cost yet flexible and secure cell phone-based home automation system. The design is based on a stand- alone Arduino BT board and the home appliances are connected to the input/ output ports of this board via relays. The communication between the cell phone and the Arduino BT board is wireless. This system is designed to be low cost and scalable allowing variety of devices to be controlled with minimum changes to its core. Password protection is being used to only allow authorised users from accessing the appliances at home.

5. **Embedded System for Home Automation using SMS:** This paper describes the design and development of a system for household appliance control using cell phone through global system for mobile communication (GSM) technology. The cellular communications are a potential solution for such remote controlling activities. SMS (short message service) technology can be used to control household appliances from distance. Remotely, the system allows the homeowner to monitor and control the home appliances via mobile phone set by sending commands in the form of SMS messages and receiving the appliances status as well. The proposed system makes use of wireless control hence can be effectively used in systems where unwired connections are desired. The system uses the user's mobile handset for control and therefore the system is more adaptable and cost-effective and providing ubiquitous access for appliance control.

Chapter 3 Requirements and Analysis

3.1 Problem Definition

Today people are looking at ways and means to better their lifestyle using the latest technologies that are available. Any new facility for home appliance that promises to enhance their lifestyle is grabbed by the consumers. The more such facilities and appliances are added,

it becomes inevitable to have easy and convenient methods and means to control and operate these appliances. Conventional wall switches are in different parts of a house and thus necessitates manual operations like to switch on or off these switches to control various appliances. It gets virtually impossible to keep track of appliances that are running and to monitor their Performances. And Aim is to Build a system which controls home appliances with less efforts, like control using mobile, or voice based controlled

3.2 Requirement Specification

- **NodeMCU**: NodeMCU is a low-cost open source IoT platform.It initially included firmware which runs on the ESP8266 Wi-Fi SoC from Espressif Systems, and hardware which was based on the ESP-12 module.[6][7] Later, support for the ESP32 32-bit MCU was added.

- **DHT11 Temperature & Humidity Sensor (4 pins):** The DHT11 is a commonly used Temperature and humidity sensor that comes with a dedicated NTC to measure temperature and an 8-bit microcontroller to output the values of temperature and humidity as serial data.

  DHT11 Specifications:

  ➢ Operating Voltage: 3.5V to 5.5V
  ➢ Operating current: 0.3mA (measuring) 60uA (standby)
  ➢ Output: Serial data
  ➢ Temperature Range: 0°C to 50°C
  ➢ Humidity Range: 20% to 90%
  ➢ Resolution: Temperature and Humidity both are 16-bit
  ➢ Accuracy: ±1°C and ±1%

- **Jumper wires:** Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

- **Laptop:** A laptop, is a small, portable personal computer with a "clamshell" form factor, typically having a thin LCD or LED computer screen mounted on the inside of the upper lid of the clamshell and an alphanumeric keyboard on the inside of the lower lid. The clamshell is opened to use the computer.

- **LED'S:** A light-emitting diode (LED) is a semiconductor light source that emits light when current flows through it.

- **Resistors:** A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and

- **Google Assistant:** Google Assistant is the Google Voice Assistant. Designed Initially, Google Assistant intelligently extracts snippets of information relevant to you. He knew where you work, your meetings, your travel plans, the sports teams you like and what interests you so that he can provide the information that matters to you [42] [44]. Google Assistant combines these personal elements with a variety of voice commands. It supports text or voice input and will continue the conversation regardless of the input method you use.

- **IFTTT:** IFTTT is the free way to get all your apps and devices talking to each other. Not everything on the internet plays nice. IFTTT is a web-based service that allows various platforms, apps and gadgets to trigger responses in one another that otherwise wouldn't be possible. Automate tasks that might otherwise be repetitive or unable to talk to each other. It works like this: users are guided through a process to make simple scripts, aka "applet," where some type of event in one device or service automatically triggers an action in another.

  IFTTT is also completely free, and well supported. There are now more than 300 channels — which are what you reference when creating applets — spread across a range of devices and services, including social networks, smart appliances, smart home systems, and devices such as weather stations, audio systems, and wearables.

- **4 relay module**

  The 4 Channel Relay Module is a convenient board which can be used to control high voltage, high current load such as motor, solenoid valves, lamps and AC load. It is designed to interface with microcontroller such as Arduino, PIC and etc. The relays terminal (COM, NO and NC) is being brought out with screw terminal. It also comes with a LED to indicate the status of relay.

- **DC Motor**

This DC Motor – 10RPM – 12Volts can be used in all-terrain robots and a variety of robotic applications. These motors have a 3 mm threaded drill hole in the middle of the shaft thus making it simple to connect it to the wheels or any other mechanical assembly.

METHODOLOGY

1) Make Connection As Per Circuit Diagram, Make Connection On NodeMCU
2) And Then Connect NodeMCU To The Wifi using hotspot/Router.
3) Then Connect The NodeMCU pins Output To The Relay Driver Circuit
4) Then Start Programming the NodeMCU Module.
5) Programme The NodeMCU Using Aurdino IDE Software.
6) Download the Blynk Liberary zip File, Install it from add liberary files.
7) Downold the NodeMCU boards From preferences, by inserting the library linkin it.
8) Set The Output Of NodeMCU (D0 – D14) For Different Control Function.
9) Compile the Typed Programme check whether errors are occur or not….
10) Upload the Programme onto NodeMCU using mocro-type USB Cables.
11) Then Connect The NodeMCU Module To the Internet using   Router/Hotspot.
12) Now Pair The NodeMCU Module With Android Application . i.e Blynk App.

CONTROL TYPE

- ➢ **MANUAL CONTROL.**

1. Now Set The Function of Switches In Application.
2. Checkout All The Connection First..
3. Now To Test The Model…..

> **VOICE CONTROL**

1. GoTo site IFTTT sign in Create the Google Assistant Applets (triggers forcontrolling).
2. Then after creating applets Configure those applets with WebHooks.
3. Connect Blynk the Web-Hooks by creating the Trigger weblink to Blynk App.
4. The link is available on net.. just copy the link and add AuthToken and set thepin Numb.
5. All set now just check the set-up with google assistant by giving commands

3.3 Planning and Scheduling

WATERFALL MODEL.:

If you are into software development at some point or the other, you would have bumped into the Waterfall Model.

Considered as the traditional method of explaining the software development process in software engineering, waterfall model happens to clarify the process into a linear flow with a specified sequence to let the users understand that further level is made progressive on completion of the previous one. Moreover, this methodology also talks about the fact that going back to deal with the changes is not possible.

The Waterfall Method

Requirements

Design

Implementation

Verification or Testing

19
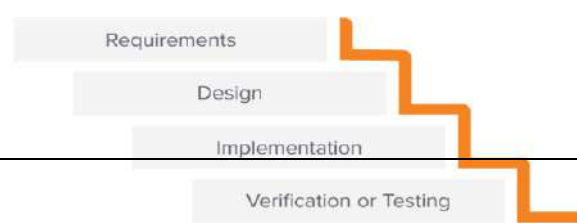
Figure 1 Waterfall Method

Prototyping Model-

The seven stages of Waterfall include:

1. **Conception:** This stage starts with an idea and a baseline assessment of the project, its cost analysis, and its benefits.
2. **Initiation:** Once the idea is created, the project team is hired and objectives, scope, purpose, and deliverables are defined.
3. **Requirement gathering and analysis**: A feasibility analysis is conducted for the project and documented in the requirement specification document.
4. **Design:** Design specifications are created, studied, and evaluated to understand what the final product should look like, along with the actions needed to get there
5. **Implementation/Coding:** The coding of the software begins. All previous planning is put into action during this phase.
6. **Testing:** After the coding is completed, testing is performed to ensure that there are no errors before the software is delivered to the customer. An optional user acceptance test (UAT) can also be performed, where users try the software before distributing it to the greater public.

7. **Maintenance:** This phase relies on the customers to report on any additional issues that may have been encountered in the real world. The development team works to solve and modify the software based on this feedback.

GANTT CHART:

Gantt chart, commonly used in project management, is one of the most popular and useful ways of showing activities (tasks or events) displayed against time. On the left of the chart is a list of the activities and along the top is a suitable time scale. Each activity is represented by a bar; the position and length of the bar reflects the start date, duration and end date of the activity.

	Semester V													
	June		July				August			September			October	
	04-06-2020	13-06-2020	08-07-2020	16-07-2020	24-07-2020	29-07-2020	08-08-2020	16-08-2020	22-08-2020	01-09-2020	12-09-2020	27-09-2020	07-10-2020	20-10-2020
Activities	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Project Idea Finalization	▓	▓												
Requirements														
Survey of data/ need (Literature Review)			▓	▓										
Feasibility and need validation				▓										
Scope Freezing				▓										
Requirements Detailing					▓	▓								
Use Case Diagrams					▓									
Static User Interface Prototype						▓								
Design														
Database Design/ Block Diagram (ER Diagram, Key Data Structures)							▓							
Other UML Diagrams (Sequence, Activity, Flow Chart etc.)								▓						
Class Diagrams								▓	▓					
Hardware Design - [for embedded/ IoT projects]										▓				
Evaluate Technology options											▓			
Prototype														
Key Technical Issue defination												▓		
Build basic Working Prototype													▓	
Planning & Review														▓
Overall Project Plan	▓	▓	▓											
Weekly Review/ Discussion with Guide	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓

Figure 2 Gantt chart

PERT Chart:

PERT chart is a project management tool that provides a graphical representation
of a project's timeline. The Program Evaluation Review Technique (PERT) breaks
down the individual tasks of a project for analysis.
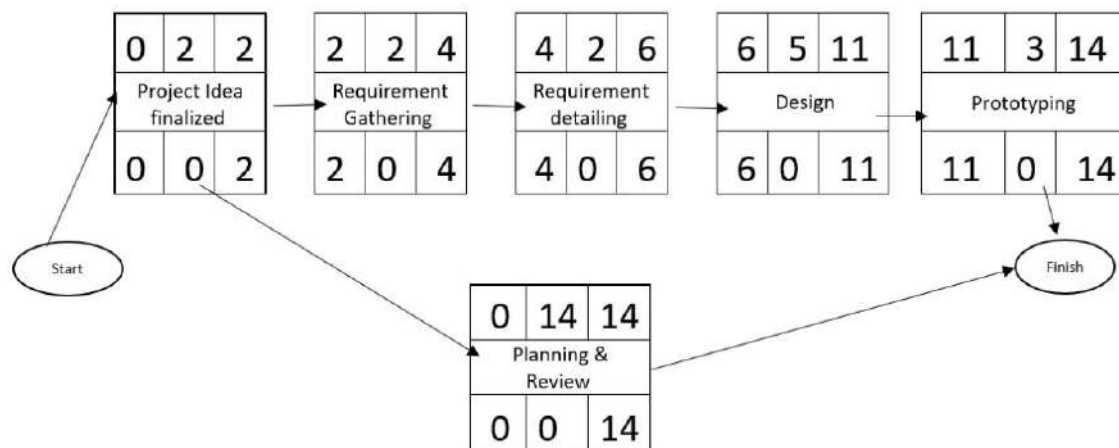
Figure 3 PERT chart

3.4 Software and Hardware Requirement

HARDWARE SPECIFICATION:

1.NODEMCU:
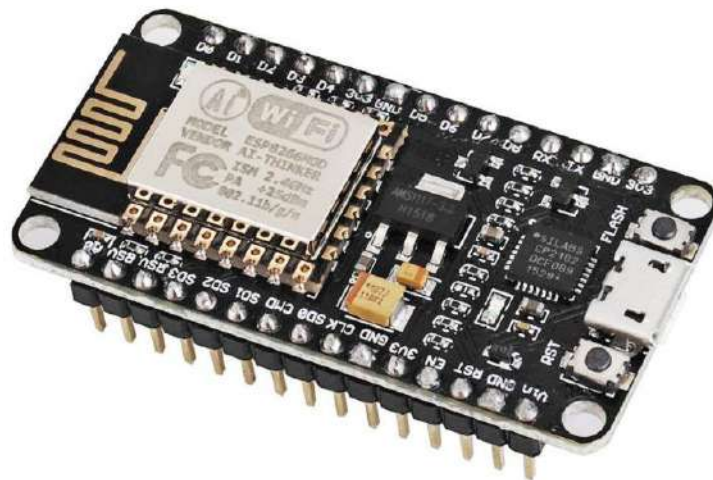
Figure 4 node MCU

NodeMCU is an open source firmware for which open source prototyping board designs are available. The name "NodeMCU" combines "node" and "MCU" (micro-controller unit). The term "NodeMCU" strictly speaking refers to the firmware rather than the associated development kits

Both the firmware and prototyping board designs are open source.

The firmware uses the Lua scripting language. The firmware is based on the eLua project, and built on the Espressif Non-OS SDK for ESP8266. It uses many open source projects, such as lua-cjson and SPIFFS. Due to resource constraints, users need to select the modules relevant for their project and build a firmware tailored to their needs. Support for the 32-bit ESP32 has also been implemented.

The prototyping hardware typically used is a circuit board functioning as a dual in-line package (DIP) which integrates a USB controller with a smaller surface-mounted board containing the MCU and antenna. The choice of the DIP format allows for easy prototyping on breadboards. The design was initially based on the ESP-12 module of the ESP8266, which is a Wi-Fi SoC integrated with a Tensilica Xtensa LX106 core, widely used in IoT applications (see related projects)

FEATURES OF NODEMCU

Developer	ESP8266 Open-source Community
Type	Single-board microcontroller
Introductory price	300-400 Rs
Operating system	XTOS
CPU	ESP8266
Memory	128kBytes
Storage	4MBytes
Power	USB
Website	www.nodemcu.com

Figure 5 Features of NODEMCU

SPECIFICATIONS

✓ Voltage:3.3V.
✓ Wi-Fi Direct (P2P), soft-AP.
✓ Current consumption: 10uA~170mA.
✓ Flash memory attachable: 16MB max (512K normal).
✓ Integrated TCP/IP protocol stack.
✓ Processor: Tensilica L106 32-bit.

24

- ✓ Processor speed: 80~160MHz. • RAM: 32K + 80K.
- ✓ GPIOs: 16 (multiplexed with other functions).
- ✓ Analog to Digital: 1 input with 1024 step resolution.
- · +19.5dBm output power in 802.11b mode • 802.11 support: b/g/n.
- ✓ Maximum concurrent TCP connections: 5.

PIN DIAGRAM/ PIN LOYOUT OF NodeMCU
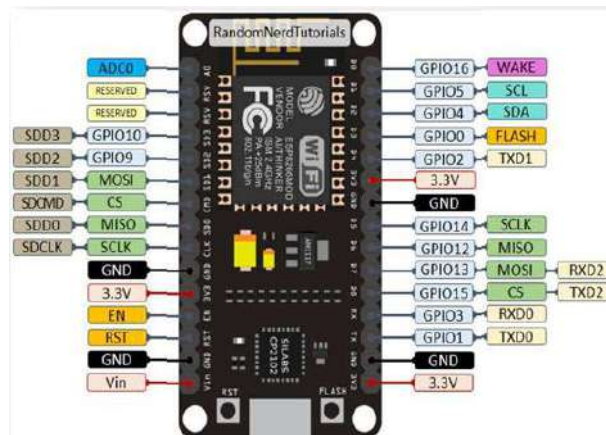
Figure 6 Pin layout of NodeMCU

NodeMCU GH O pin for Lua

Nodemcu dev kit	ESP8266 Pin	Nodemcu dev kit	ESP8266 Pin
D0	GPIO16	D7	GPIO13
D1	GPIO5	D8	GPIO15
D2	GPIO4	D9	GPIO3
D3	GPIO0	D10	GPIO1
D4	GPIO2	D11	GPIO9
D5	GPIO14	D12	GPIO10
D6	GPIO12		

2. 4 relay module
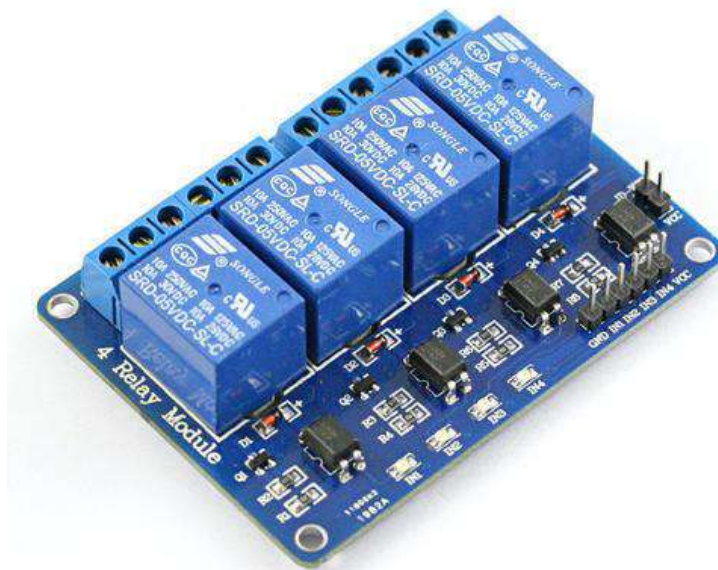
Figure 7 4 Relay Module

The 4 Channel Relay Module is a convenient board which can be used to control high voltage, high current load such as motor, solenoid valves, lamps and AC load. It is designed to interface with microcontroller such as Arduino, PIC and etc. The relays terminal (COM, NO and NC) is being brought out with screw terminal. It also comes with a LED to indicate the status of relay.

Specification:
- Digital output controllable
- Compatible with any 5V microcontroller such as Arduino.
- Rated through-current: 10A (NO) 5A (NC)

26

- Control signal: TTL level
- Max. switching voltage 250VAC/30VDC
- Max. switching current 10A
- Size: 76mm x 56mm x 17mm

3.Jumper wires
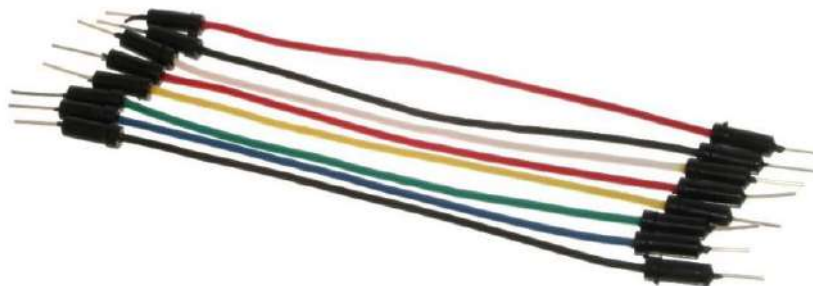
Figure 8 Jumper Wire

Jumper wires are simply wires that have connector pins at each end, allowing them to be used to connect two points to each other without soldering. Jumper wires are typically used with breadboards and other prototyping tools in order to make it easy to change a circuit as needed.

Though jumper wires come in a variety of colours, the colours don't mean anything. This means that a red jumper wire is technically the same as a black one. But the colours can be used to your advantage to differentiate between types of connections, such as ground or power.

Jumper wires typically come in three versions: male-to-male, male-to-female and female-to-female. The difference between each is in the end point of the wire. Male ends have a pin protruding and can plug into things, while female ends do not and are used to plug things into. Male-to-male jumper wires are the most common and what you likely will use most often. For example - When connecting two ports on a breadboard, a male-to-male wire is what you'll need.

4. LED'S
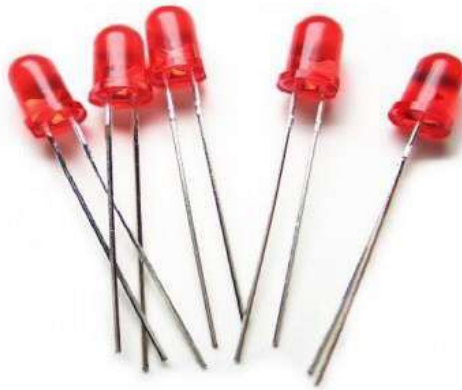
Figure 9 LED

A light-emitting diode (LED) is a semiconductor light source. LEDs are used as indicator lamps in many devices, and are increasingly used for lighting. When a light-emitting diode is forward biased (switched on), electrons are able to recombine with holes within the device, releasing energy in the form of photons. This effect is called electroluminescence and the colour of the light (corresponding to the energy of the photon) is determined by the energy gap of the semiconductor. An LED is often small in area (less than 1 mm^2), and integrated optical components may be used to shape its radiation pattern. LEDs present many advantages over incandescent light sources including lower energy consumption, longer lifetime, improved robustness, smaller size, faster switching, and greater durability and reliability.

5. Resistors

Figure 10 Resistors

A resistor is a passive two-terminal electrical component that implements electrical resistance as a circuit element. In electronic circuits, resistors are used to reduce current flow, adjust signal levels, to divide voltages, bias active elements, and terminate transmission lines, among other uses.

6.DHT11 Temperature & Humidity Sensor (4 pins):
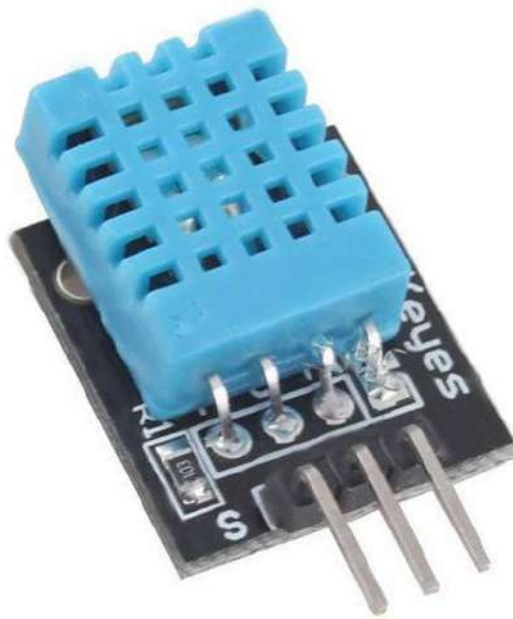
Figure 11 DHT11 Temperature & Humidity Sensor (4 pins)

The DHT11 is a commonly used Temperature and humidity sensor that comes with a dedicated NTC to measure temperature and an 8-bit microcontroller to output the values of temperature and humidity as serial data.

DHT11 Specifications:

➢ Operating Voltage: 3.5V to 5.5V
➢ Operating current: 0.3mA (measuring) 60uA (standby)
➢ Output: Serial data
➢ Temperature Range: 0°C to 50°C
➢ Humidity Range: 20% to 90%
➢ Resolution: Temperature and Humidity both are 16-bit
➢ Accuracy: ±1°C and ±1%

7.10 RPM DC MOTOR

Figure 12 DC MOTOR

These motors are simple DC Motors featuring gears for the shaft for obtaining the optimal performance characteristics. They are known as Center Shaft DC Geared Motors because their shaft extends through the center of their gear box assembly.

These standard size DC Motors are very easy to use. Also, you don't have to spend a lot of money to control motors with an Arduino or compatible board. TheL298N H-bridge module with onboard voltage regulator motor driver can be used with this motor that has a voltage of between 5 and 35V DC.

This DC Motor – 10RPM – 12Volts can be used in all-terrain robots and a variety of robotic applications. These motors have a 3 mm threaded drill hole in the middle of the shaft thus making it simple to connect it to the wheels or any other mechanical assembly.

SOFTWARE SPECIFICATION:

Programming in C

C programming is a procedural programming language. It was initially developed by Dennis Ritchie in the year 1972. It was mainly developed as a system programming language to write an operating system. The main features of C language include low-level access to memory, a simple set of keywords, and clean style, these features make C language suitable for system programming like an operating system or compiler development. Many later languages have borrowed syntax/features directly or indirectly from C language. Like syntax of Java, PHP, JavaScript, and many other languages are mainly based on C language. C++ is nearly a superset of C language.

Arduino IDE

Arduino is an open-source platform used for building electronics projects. Arduino consists of both a physical programmable circuit board (often referred to as a microcontroller) and a piece of software, or IDE (Integrated Development Environment) that runs on your computer, used to write and upload computer code to the physical board. Additionally, the Arduino IDE uses a simplified version of C++, making it easier to learn to program. Finally, Arduino provides a standard form factor that breaks out the functions of the micro-controller into a more accessible package.

The Arduino Integrated Development Environment - or Arduino Software (IDE) - contains a text editor for writing code, a message area, a text console, a toolbar with buttons for common functions and a series of menus. It connects to the Arduino and Genuino hardware to upload programs and communicate with them.

Figure 13 Arduino IDE

Figure 14 Arduino IDE

Writing Sketches

Programs written using Arduino Software (IDE) are called sketches. These sketches are written in the text editor and are saved with the file extension. ino. The editor has features for cutting/pasting and for searching/replacing text. The message area gives feedback while saving and exporting and displays errors. The console displays text output by the Arduino Software (IDE), including complete error messages and other information. The bottom righthand corner of the window displays the configured board and serial port. The toolbar buttons allow you to verify and upload programs, create, open, and save sketches, and open the serial monitor.

3.5 Preliminary Product Description

Functional Requirements:

How the system should react to inputs & how the system should behave situations:

- o The ultrasonic sensor detects the level of water & displays it on the screen.

- o If the water level about to reach the set level the buzzer will turn on so it can notify the user & a real-time graphical representation will be shown on the screen.

What the system should not do:

- o System should not work improperly.

- o System must not exceed a specified time to generate a response.

Non-functional Requirements:

Usability:

Frequently used functions should be tested for usability.

Reliability:

Users must trust the system.

Performance:

Think of stress periods.

Supportability:

The system needs to be cost-effective to maintain.

BLYNK

Blynk was designed for the Internet of Things. It can control hardware remotely, it can display sensor data, it can store data, vizualize it.

There are three major components in the platform:

- **Blynk App** - allows to you create amazing interfaces for your projects using various widgets we provide.
- **Blynk Server** - responsible for all the communications between the smartphone and hardware. You can use our Blynk Cloud or run your private Blynk server locally. It's open-source, could easily handle thousands of devices and can even be launched on a Raspberry Pi.
- **Blynk Libraries** - for all the popular hardware platforms - enable communication with the server and process all the incoming and outcoming commands.
- **Blynk works over the Internet.** This means that the hardware you choose should be able to connect to the internet. Some of the boards, like Arduino Uno will need an Ethernet or Wi-Fi Shield to communicate, others are already Internet-enabled: like the ESP8266,

Raspberri Pi with WiFi dongle, Particle Photon or SparkFun Blynk Board.

But even if you don't have a shield, you can connect it over USB to your laptop or desktop.

Figure 14 BLYNK

Chapter 4 System Design

4.1 Basic Modules

Temperature and Humidity (Monitoring) Module –

- DHT11 is a digital sensor for sensing temperature and humidity.
- DHT11 sensor consists of a capacitive humidity sensing element and a thermistor for sensing temperature.
- The temperature range of DHT11 is from 0 to 50 degree Celsius with a 2-degree accuracy. Humidity range of this sensor is from 20 to 80% with 5% accuracy. The sampling rate of this sensor is 1Hz.i.e., it gives one reading for every second. DHT11 is small with operating voltage from 3 to 5 volts. The maximum current used while measuring is 2.5mA.
- This sensor is used in various applications such as measuring humidity and temperature values in heating, ventilation and air conditioning systems.
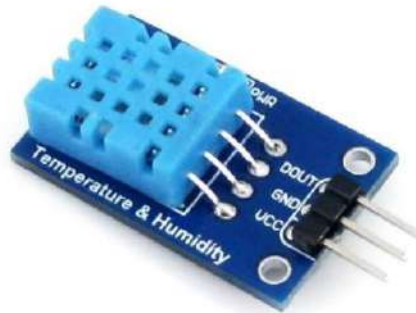
Figure 15 Temperature and Humidity Module

4 Relay module

- The 4 Channel Relay Module is a convenient board which can be used to control high voltage, high current load such as motor, solenoid valves, lamps and AC load. It is designed to interface with microcontroller such as Arduino, PIC and etc. The relays terminal (COM, NO and NC) is being brought out with screw terminal. It also comes with a LED to indicate the status of relay.

Specification:

- Digital output controllable
- Compatible with any 5V microcontroller such as Arduino.
- Rated through-current: 10A (NO) 5A (NC)
- Control signal: TTL level
- Max. switching voltage 250VAC/30VDC
- Max. switching current 10A
- Size: 76mm x 56mm x 17mm

36
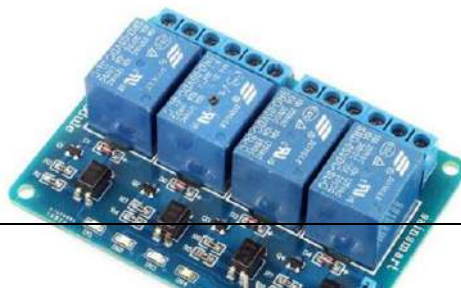
4.2 Diagrams

4.2.1 E-R Diagram /Block Diagram
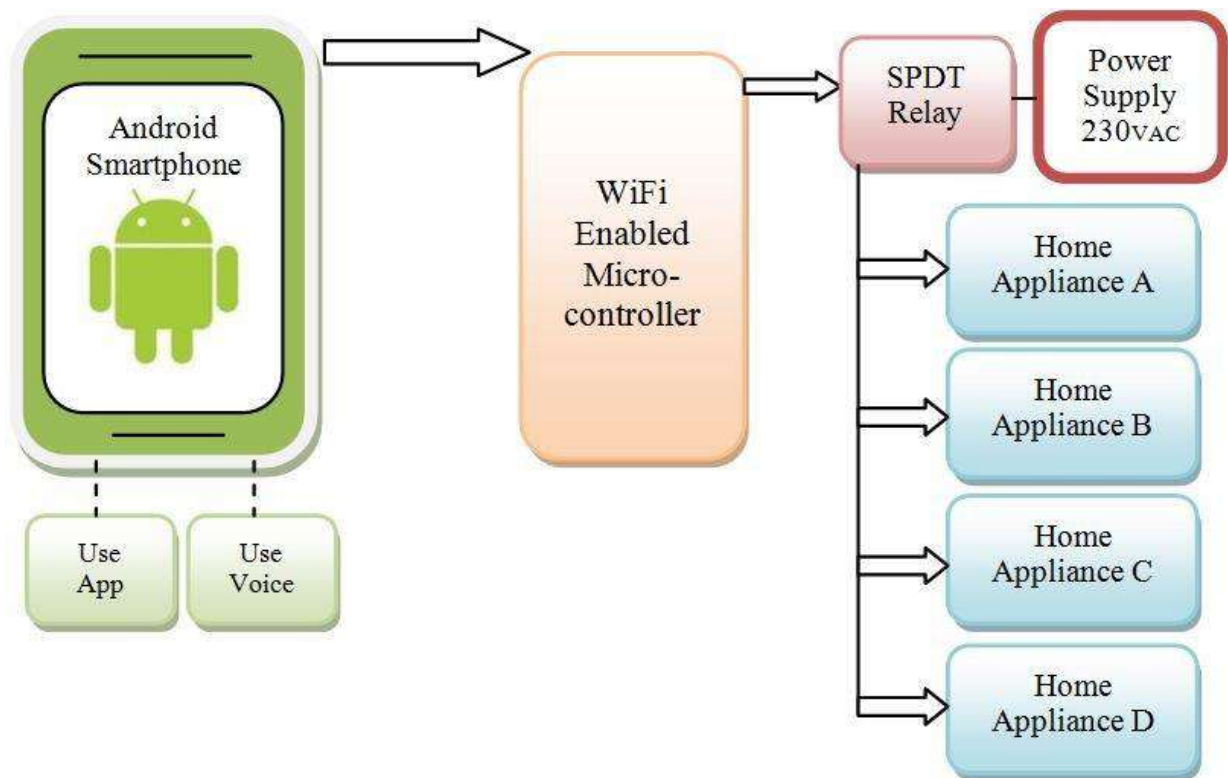
Figure 17 Block diagram

DESCRIPTION

SMART PHONE

Used for controlling Purpose, for giving command and gain output, for this blynk Android app is required.

NodeMCU Esp-8266 (Wi-Fi Enable Microcontroller).

To take input and perform operation. As per programme fed in the Microcontroller and obtain output as per user requirements.

RELAY DRIVER

Basically the output of microcontroller is in Mili-volts so this output volt is not sufficient to run the bulky load output.

So as to run the appliances on 230v we require an Relay module so the output is fed to the relay module according to given input to the relay module it will generate output and drive various appliances and load e.g. Lamp, Fan ,Tube light ,T.V, etc.

Output

These are the output Generated from the given input by the user The user can set the various output sections and can gain output through any of the section like Home appliance A for lights, Home appliance B for fans, Home appliance C for T.V .and many more……….

Home appliance A
Home appliance B
Home appliance C
Home appliance D

4.3.2 Class Diagram / Data Flow Diagram
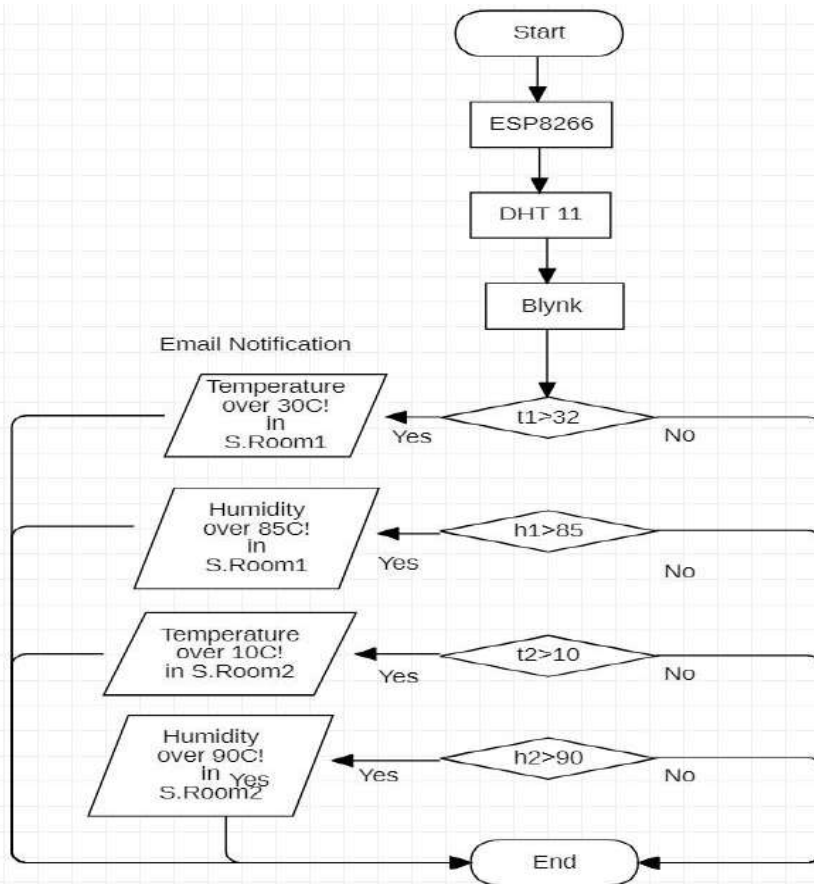
Figure 18 Flow diagram
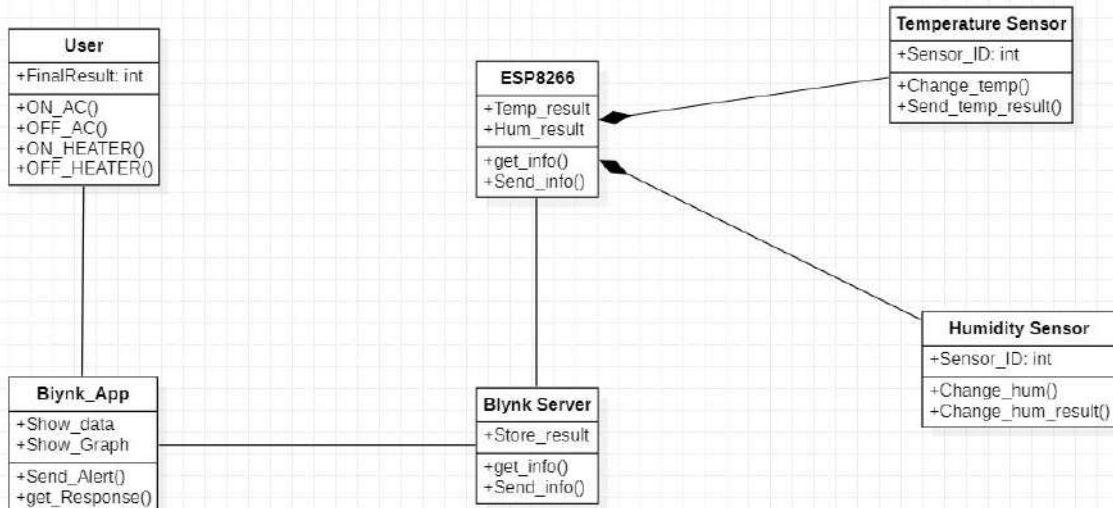
Figure 19 Class diagram

4.3.3 Use Case Diagram
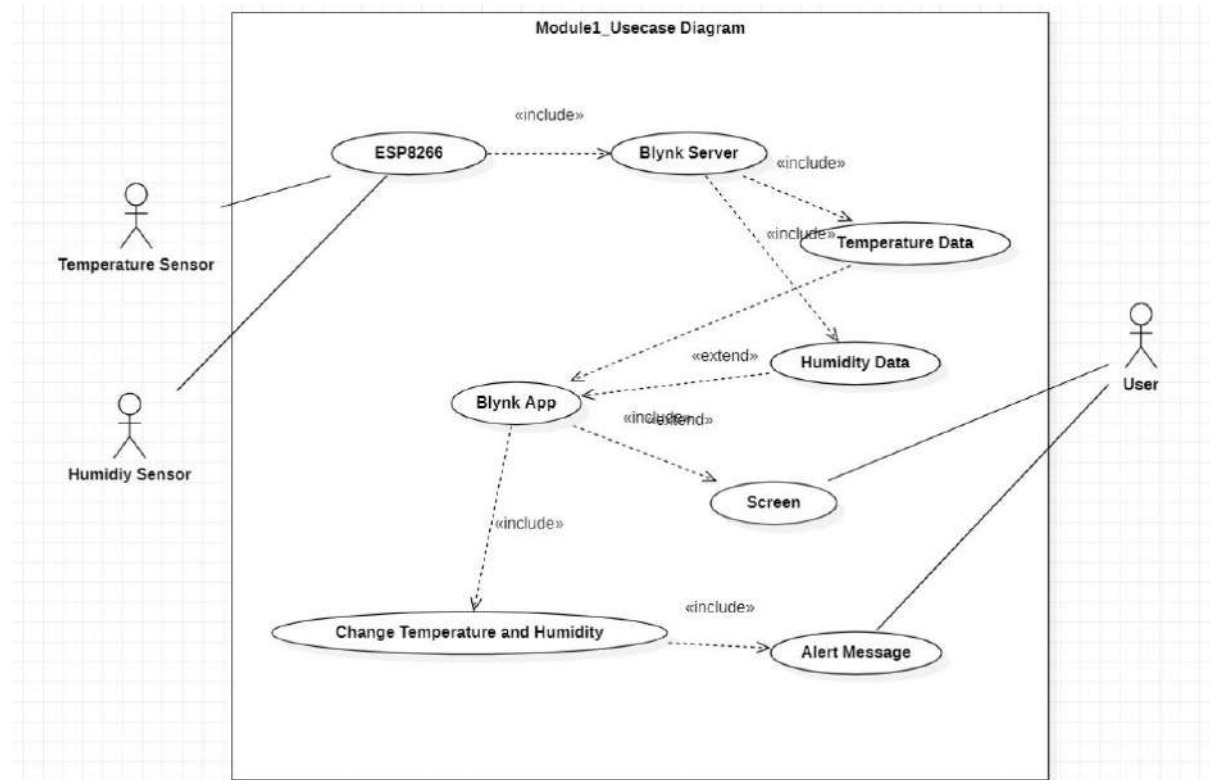
Figure 20 Use case diagram

4.3.4 Sequence Diagram
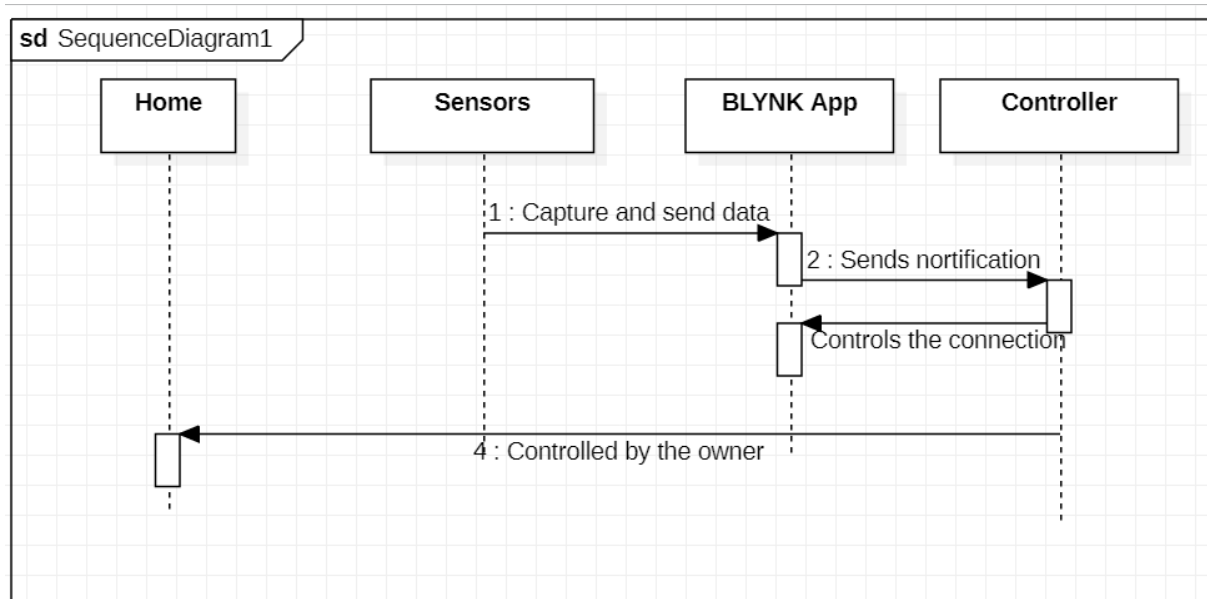
Figure 21 Sequence diagram

4.3.5 Activity Diagram
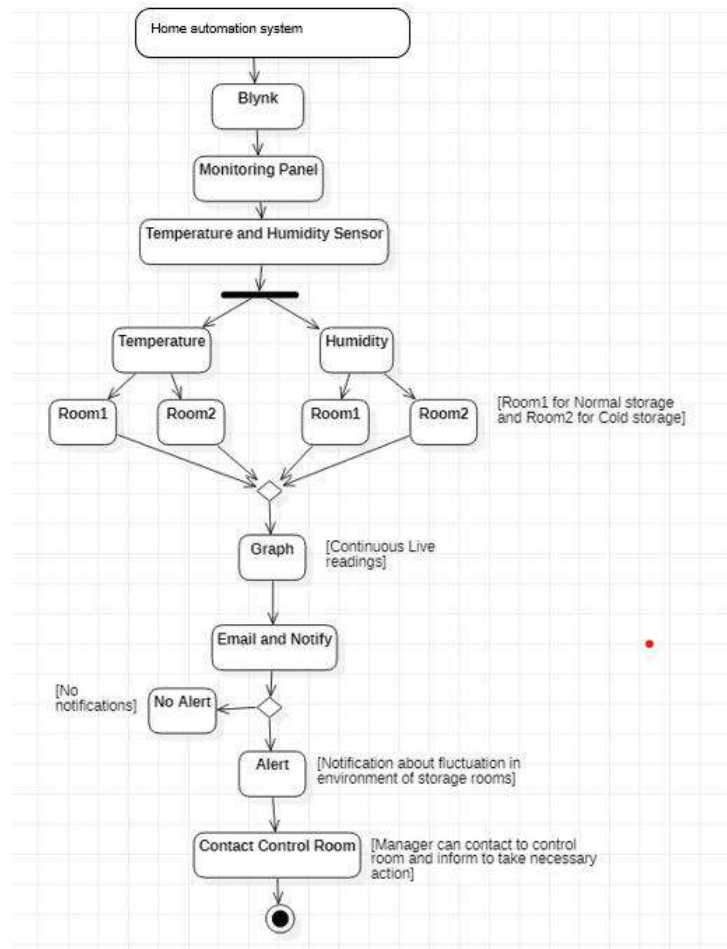
Figure 22 Activity diagram

[Check Internet connectivity]

[Data captured by sensor is stored on virtual server]

(Unique)
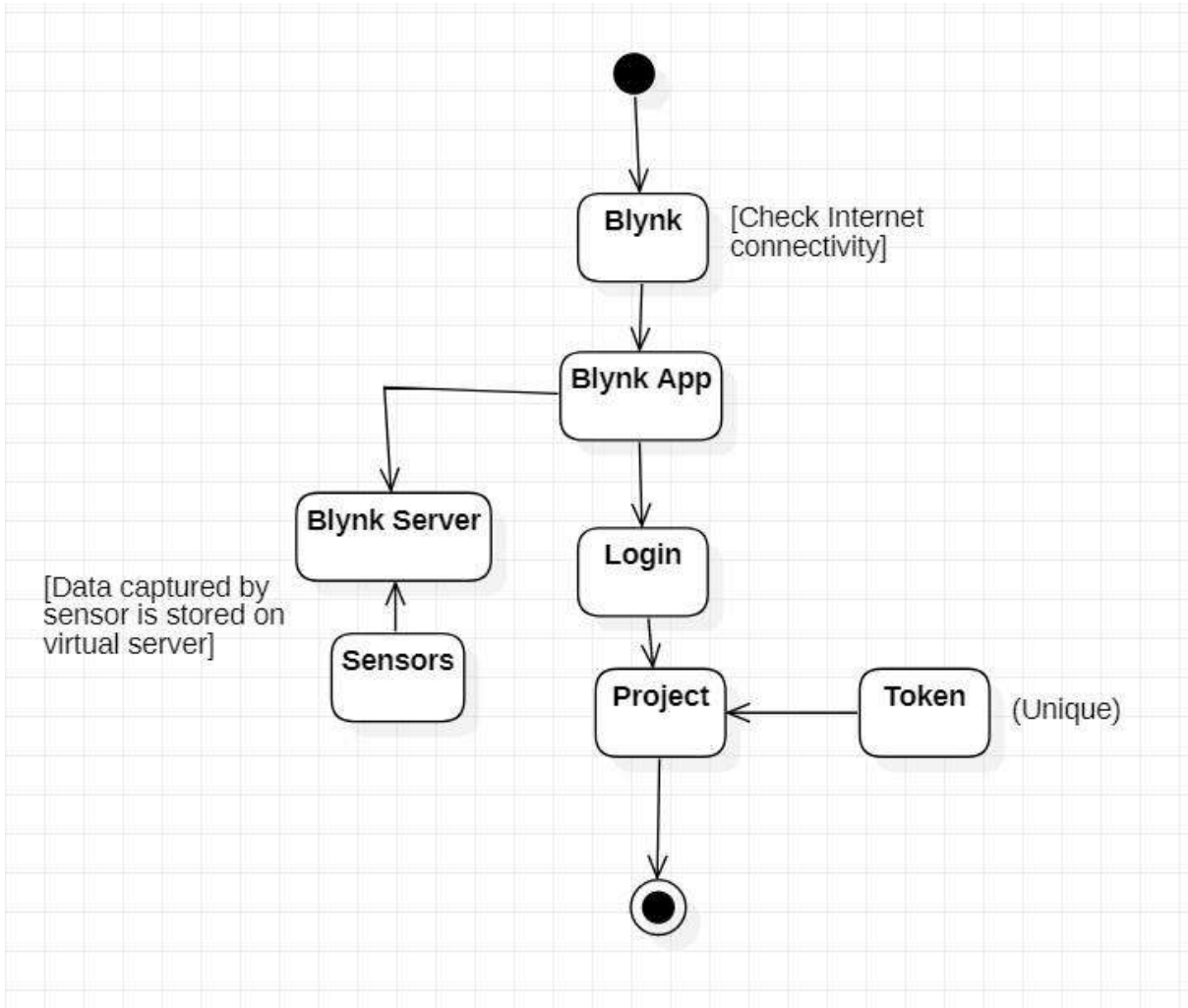
4.3.6 Component Diagram
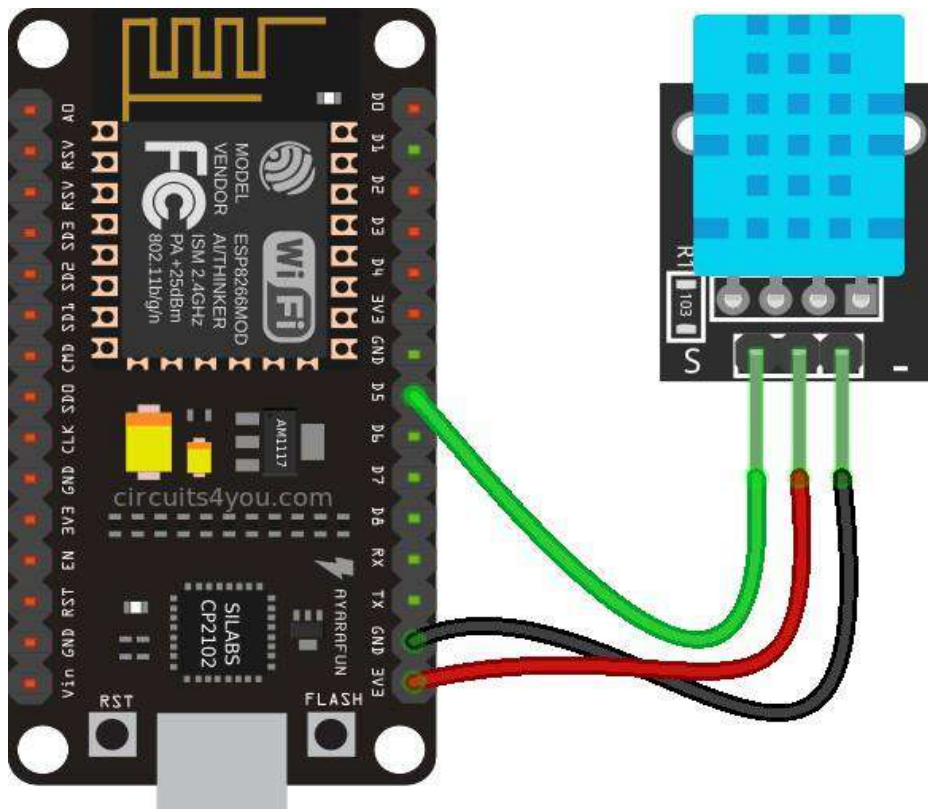
Figure 23 Component diagram

4.3.7 Menu Tree / Circuit Diagram
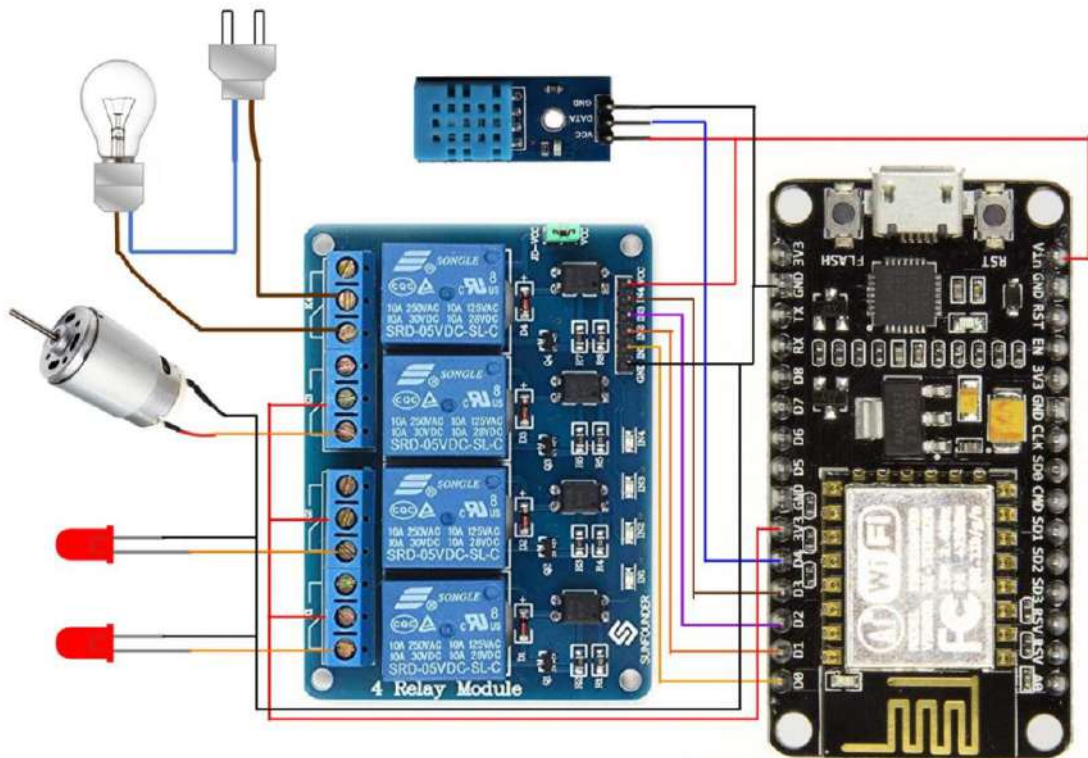
Figure 24 Curcuit diagram

4.3.8 Event Table

Table 1 Event table

No	Event	Trigger	Activity	Source	Response	Destination
1	Blynk App	Installing	App installation	User	Select	User
2	Blynk Interface	ON/OFF the component	Observation and Control	User	Observe the details and Response accordingly	Blynk Server
3	Activating Temperature Sensor	Sensor Activated/Not Activated	Sensor ON/OFF	User	Change in Temperature	ESP8266
4	Activating Humidity Sensor	Sensor Activated/Not Activated	Sensor ON/OFF	User	Change in Humidity	ESP8266

4.3.9 User Interface Design
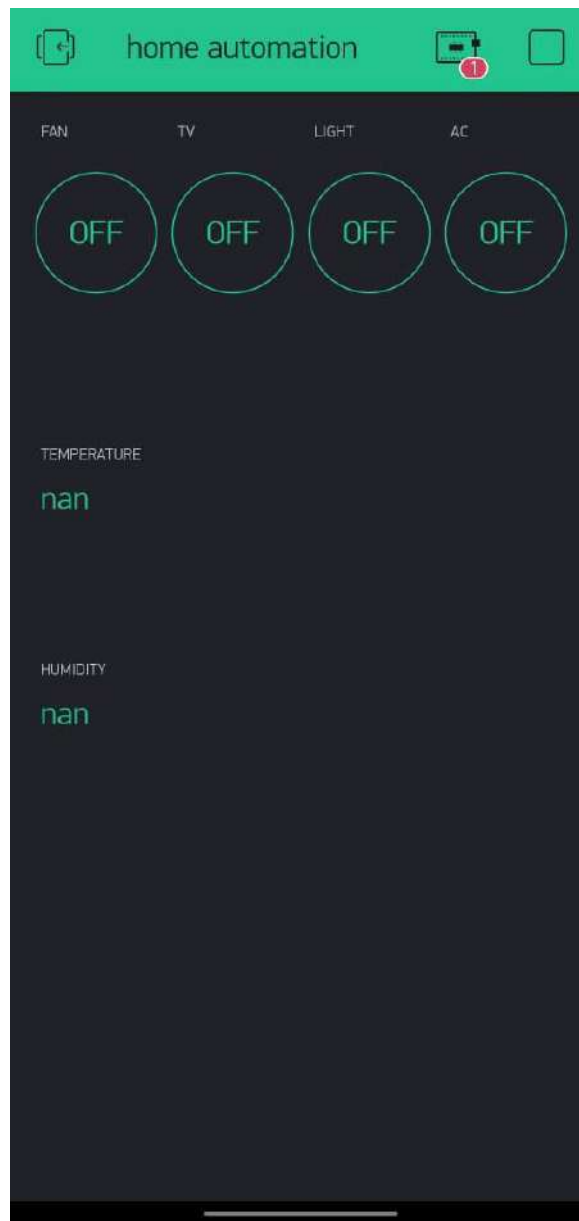
Figure 25 User interface design

WORKING OF HOME AUTOMATION
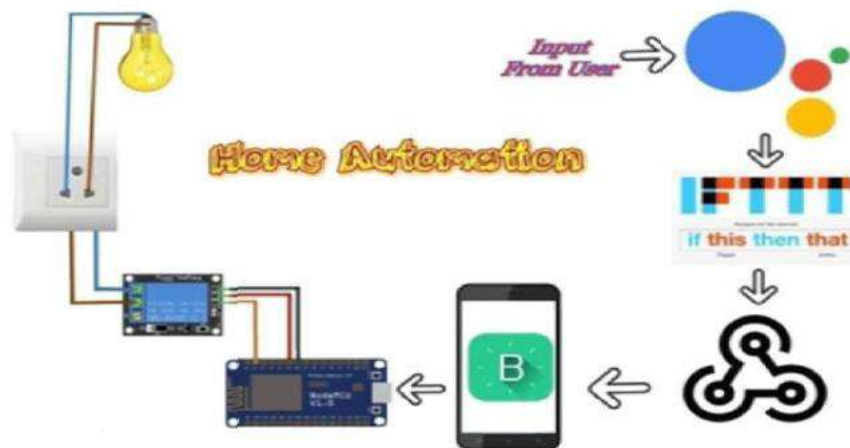
Figure 26 Working diagram

1. Android Device –

The Device used to provide the Commands, Control theAppliances, Switch the Loads over the Internet

(**Internet of Things**) Through Voice Commands Or Swiping on Screen/Display of Smartphones.

2. NodeMCU Processing –

The Heart Of Home Automation, Used to Process the Information/Commands/Instruction provided by the User or Owner, Its function is to Process the data & Pass the signal to the Relay and Switch the loads as per given Input.

3. Applications/Appliances-

The Load Can be of any type which is the output of the circuit. The Output oif relaydrives the appliances. i.e switch the Loads.

1. Fan
2. Led Bulbs
3. Computers
4. Motors
5. Pumps
6. Tele-Vision(T.V)
7. Speakers
8. DVD players
9. Switches etc…………….

Chapter 5 Implementation and Testing

5.1 Implementation Approaches

Sr. No.	Implementation Plan	Action
1.	Module	**Temperature and Humidity (Monitoring) Module** **4 Relay module**
2.	Percentage Completed	Temperature and Humidity module :- 60% 4 Relay module:- 80%
3.	Status	On Schedule
4.	Day Started	January 11 2022
5.	Day to be Completed	February 13 2022
6.	Actual Completion Date	March 3 2022
7.	Module Assignment	Sairam Gundu Kaustubh Bharade
8.	Importance of Module	High,

5.2 Coding Details and Code Efficiency:

```
#include <ESP8266WiFi.h>

#include <BlynkSimpleEsp8266.h>

#include "DHT.h"          // including the library of DHT11 temperature and humidity sensor

//#include <SimpleTimer.h>   //including the library of SimpleTimer

#define DHTTYPE DHT11      // DHT 11


#define dht_dpin 2

DHT dht(dht_dpin, DHTTYPE);

SimpleTimer timer;

char auth[] = "imP6qvq3maV1JaDfATRTlg5acs_7AE0g";          // You should get Auth
Token in the Blynk App.

                          // Go to the Project Settings (nut icon).


char ssid[] = "Sairam Gundu";    // Your WiFi credentials.

char pass[] = "12345678";  // Set password to "" for open networks.

float t;                          // Declare the variables

float h;
```

• **Code Efficiency:**

1. Cannot execute the code without the specific library
2. Cannot run the application without connecting it to the wifi mentioned in the code
3. Cannot connect the application to the BLYNK app without getting the AUTH token

5.3 Testing approaches

When in sync, all these layers help the smart home operate by converting data into information and response. However, these layers often make an IoT system convert into a complex architecture that needs extensive testing support.

Therefore, each IoT smart home system layer has to undergo essential protocol and interoperability testing through security testing, network testing, performance testing, real-time testing, and usability testing.

In short, working on diverse testing procedures is vital to avoid any errors or usability issues with an IoT system. Moreover, a validated and secure environment is the basic operational need of creating a smart home system.

5.3.1 Unit Testing

Figure 27 working of BLYNK app
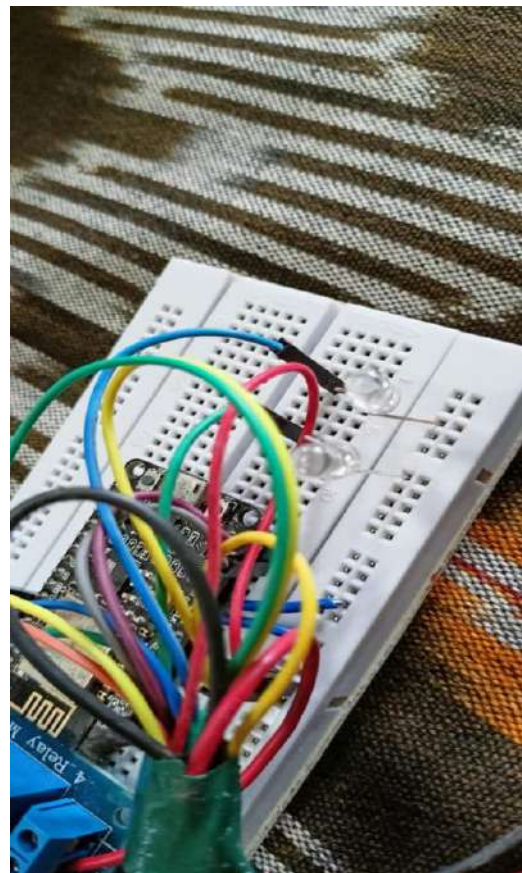
Figure 28 Working of LED

Figure 29 Working of DC motor
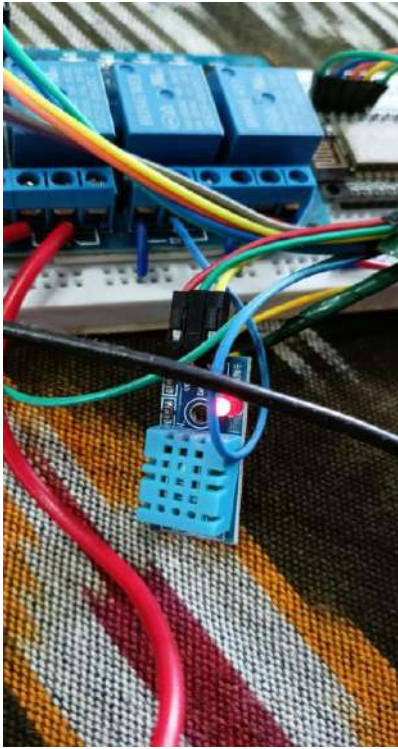
Figure 30 Working of TMP sensor

Figure 31 Working of 4 relay module

5.3.2 Integration Testing
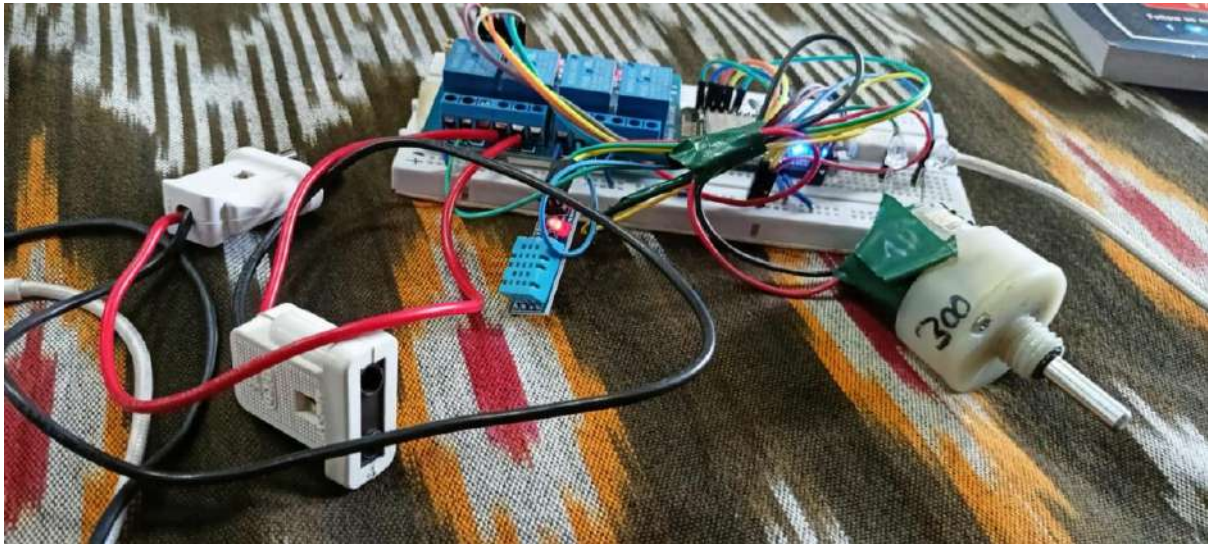
Figure 32 Home Automation system
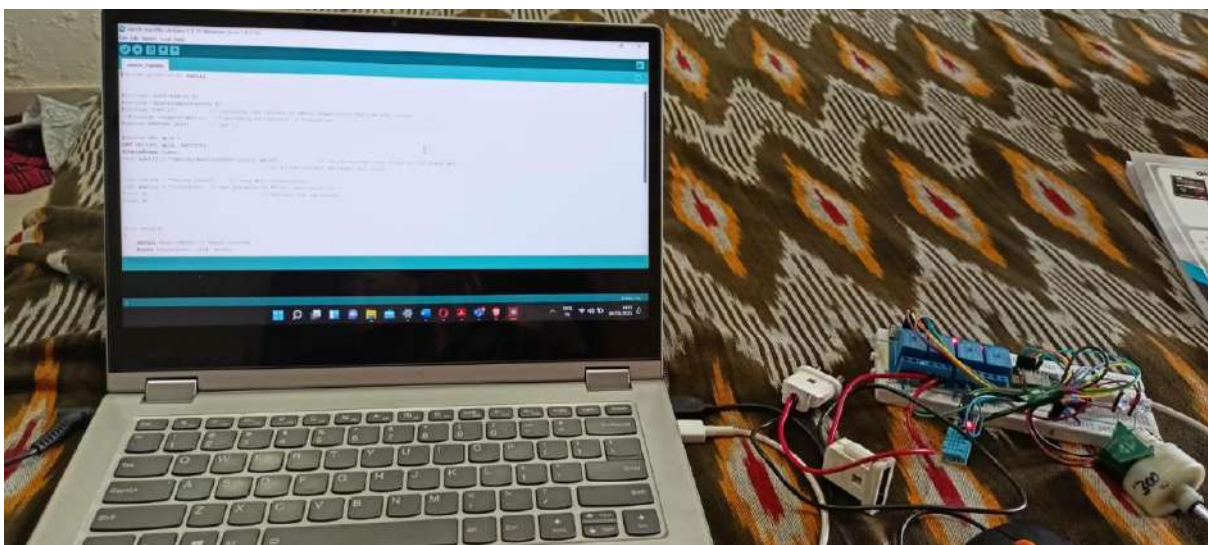
Figure 33 working of Home automation

Chapter 6 Results and Discussion

6.1 Test Reports

Our tester, Elias, assessed home automation/security kits, starter home automation kits, and stand-alone smart LED light-bulbs.

Smart LED bulbs

The majority of testing was undertaken on the LED smart bulbs, to assess their ease of use, power usage, luminance, and heat output. Power usage figures have been calculated but not included in the overall score. Luminance has been used in the performance score and is based on variance between measured results and stated claim from the manufacturer.

Ease of use is based on: how easy it is to get the bulbs up and running; remote access; general layout and usage of the app; and in-box documentation.

Performance also takes in to account the responsiveness of the app that controls the LED bulb, and scoring for this is based on the tester findings and comments based on those findings. Performance is based on the luminosity of the bulb, as well as the responsiveness of the bulb's app. Average light output is the measured average light output (in lumens) after 100 hours burn-in at the CHOICE lab using its default on state, compared to the manufacturer's stated light output.

Smart switches

Ease of use is based on: how easy it is to get the switches up and running; remote access; general layout and usage of the app; the physical characteristics of the switch; and in-box documentation

Performance is based on the responsiveness of the switch as used through its supported app

Power consumption for each switch was recorded in both its on state and its standby (off) state, but not included in the overall score.

All-in-one starter kits

Ease of use is based on: how easy it is to get the kits up and running; remote access; general layout and usage of the app; and in-box documentation

Performance is based on the responsiveness of the kit's components as used through its supported application

After measuring the light performance of the bulbs, he assessed the kits and switch devices to and highlighted the available product feature and what each device required in order to work in an automated home environment.

6.2 User Documentation

1. Security Tap your finger to turn on the lights when get home so you worried about What's hiding in the shadows. Or in your pathways. Or automate to turn on when You are not home to look like you are to ward off potential robbers. Door lacks are another automated home product that increase your home security.

2. Energy Efficiency Increase your home energy efficiency by remotley powering off systems and appliances when they aren't in use. In addition to the standard home automation Products that give you active control. Some products actively monitor systems and arm the homeowner with knowledge. Insight and guidance to achiere greater control and energy efficiency.

3. Saving Home automation literally pays off. When you are use home systems And appliances only when needed. The saving will apparent in the first Utilty bill. No more wasting money on lights left on when you are not home.

Chapter 7 Conclusion

7.1 Conclusion

While wearing down this endeavor we have grabbed a lot of finding out about various modules being used in this errand. We are glad we can Built this Project as a part in this endeavor and set up new musings. We believe the assignment completes as needed and the data grabbed in the midst of this period will be used in our future corporate life. Additionally, we might want to include that home computerization isthe fate of places of new world.

Home automation is a resource which can make home environment Automated. People can control their electrical devices via. Smartphone These home automation devices and set-up controlling action through mobile. In future these products may have high potential for marketing.

7.2 Future Scope of the Project

1. The going with stage for home robotization advertise will happen subject to a couple of key overhauls in the progression open in Automation, for example, improvement in Wireless Automation blueprints and moreover bringing down of regard appears as the market starts perceive Home mechanization use in more noteworthy volumes. A couple of examples that we foresee for this time of the business are,

2. Big associations like Philips, Siemens and Schneider will as time goes on bring out truly mass market mechanization things with interfacing with UI in any case at lower esteem point as contrast with today, and more people will be able to bear the cost of the things.

3. Solution commitments will bit by bit move to an all the more straightforward structure, where next to two or three key parts, customers will have the ability to buy and use the Automation things themselves without the guide of any specificace .

4. Future Scope for the home automation system involves making homes even smarter. Homes can be interfaced with the sensors including the motion sensors, light sensors and temperature sensors and thus this may provide the automatic toggling of the devices according to the conditions.

5. More energy can be conserved by ensuring occupation of the house before turning on devices and checking the brightness and turning off the light if not necessary.

6. The system can be integrated closely with the home security solutions enhancing the safety for home owners.

References

1. Sirsath N. S, Dhole P. S, Mohire N. P, Naik S. C & Ratnaparkhi N.S Department of Computer Engineering, 44, Vidyanagari,Parvati,Pune-411009,India University of Pune, "Home Automation using Cloud Network and Mobile Devices".

2. Charith Perera, Student Member, IEEE, Arkady Zaslavsky, Member, IEEE, Peter Christen,and DimitriosGeorgakopoulos, Member, IEEE "Context Aware Computing for The Internet of Things: A Survey". IEEE COMMUNICATIONS SURVEYS & TUTORIAL.

3. Charith Perera_y, Arkady Zaslavskyy, Peter Christen_ and Dimitrios Georgakopoulosy Research School of Computer Science, The Australian National University, Canberra, ACT 0200, Australia yCSIRO ICT Center, Canberra, ACT 2601, Australia " CA4IOT: Context Awareness for Internet of Things".

4. Bill N. Schilit, Norman Adams, and Roy Want, "Context-AwareComputing Applications".

5. Jayavardhana Gubbi, ,Rajkumar Buyya, Slaven Marusic,a Marimuthu Palaniswamia, "Internet of Things (IoT): A Vision, Architectural Elements, and Future Directions".

6. S.P. Pande, Prof. Pravin Sen, "Review On: Home Automation System For Disabled People Using BCI" in IOSR Journal of Computer Science (IOSR-JCE) e- ISSN:2278-0661, p-ISSN: 2278-8727 PP 76-80.

7. Basil Hamed, "Design & Implementation of Smart House Control Using LabVIEW" at International Journal of Soft Computing and Engineering (IJSCE) ISSN: 2231-2307, Volume-1, Issue-6, January 2012.

8. Basma M. Mohammad El-Basioni1, Sherine M. Abd Elkader2 and Mahmoud Abdelmonim Fakhreldin3, "Smart HomeDesign using Wireless SensorNetwork and Biometric Technologies" at Volume 2, Issue 3, March 2013.

9. Inderpreet Kaur, "Microcontroller Based Home Automation System With Security" at IJACSA) International JournalofAdvanced ComputerScience and Applications,Vol. 1, No. 6, December 2010.

Website Used

1. https://www.elprocus.com/home-automation-projects-engineering-students/
2. https://openhomeautomation.net/
3. https://publications.waset.org/5037/pdf
4. https://www.academia.edu/11182817/WIFI_BASED_WIRELESS_ADVANCED_HOME_AUTOMATION_SYSTEM
5. https://circuitdigest.com/microcontroller-projects/diy-smart-plug-using- esp8266
6. https://circuitdigest.com/home-automation-projects
7. https://www.makeuseof.com/tag/getting-started-blynk-simple-diy-iot- devices/
8. ttps://www.blynkcommunity.in
9. https://www.gits.in
10. https://www.iftt.in
11. https://www.arduino.in

Summary

The home automation system has been experimentally proven to work satisfied by connecting sample appliances to it and the application were successfully controlled from a wireless mobile device.

We learned many skills such as soldering wiring the circuit and other tools that we use for this project and was able to work together as a team during this project.

The Bluetooth client was successfully tested on a multitude of different mobile phones from different manufacturers, thus proving its portability and wide compatibly. Thus a low- cost home automation system was successfully designed. Implement and tested.

Plagiarism Report

PLAGIARISM SCAN REPORT

| 11% Plagiarised | 89% Unique | 275 Words | 1784 Characters |

Excluded Url : None

Content Checked For Plagiarism

However, all existing systems inform the blind of the presence of an object at a particular distance before of or almost about him. Information about the item characteristics can create additional knowledge to boost the space manifestation and memory of the blind. To beat the above mentioned limitations, this work offers an easy, efficient, configurable electronic guidance device for the blind and visually

SEWAGE TREATMENT – TECHNOLOGIES
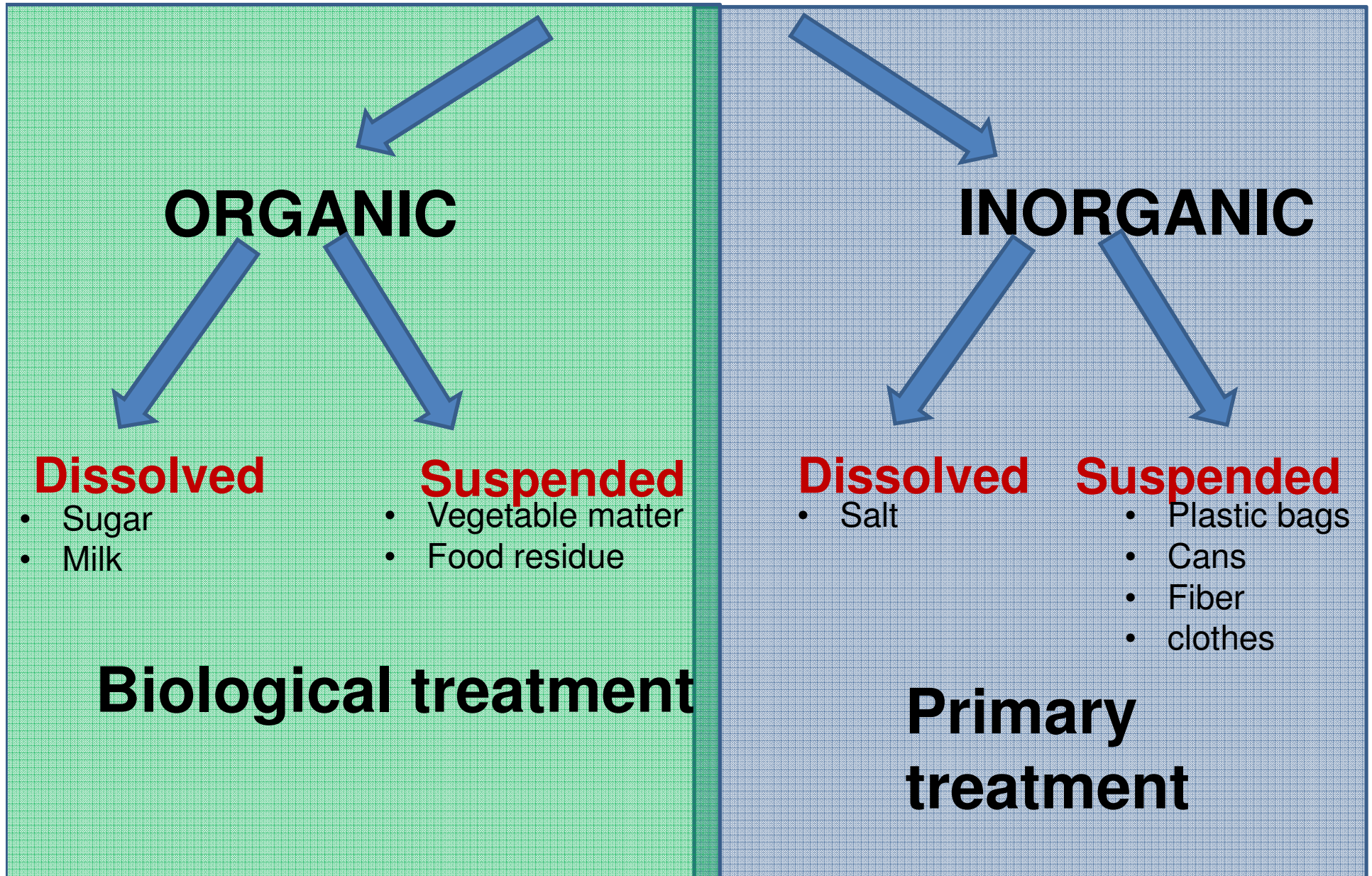
Important Waste Water Contaminants

Sl. No	Contaminant	Source	Environmental significance
1	Suspended solids	Domestic use, industrial wastes	Cause sludge deposits and anaerobic condition in aquatic environment
2	Biodegradable organic	Domestic use , industrial wastes	Cause biological degradation
3	Pathogens	Domestic water	Transmit communicable disease
4	nutrients	Domestic and industrial waste	Cause eutrophication
5	Refractory organics	Industrial waste	Cause taste and odour problems

Pollutants in sewage

- BOD(Bio Chemical Oxygen demand)
- COD(Chemical Oxygen demand)
- TSS(Total Suspended Solids)
- PH

BOD(Biochemical Oxygen demand)

The BOD is an important measure of water quality .It is measure of the amount of oxygen needed by bacteria and other organisms to oxidize the organic matter present in a water sample over a period of 5 days at 20 degree C.

COD (Chemical Oxygen Demand)

➢COD Measures all organic carbon with the exception of some aeromatics (BENZENE,TOLUENE,PHENOL etc.) which are not completely oxidized in the reaction.
➢ COD is a chemical oxidation reaction
➢Ammonia will not be oxidized.

Total Suspended Solids
➢Total suspended solids(TSS) include all particles suspended in water which will pass through a filter.

➢As levels of TSS increase, a water body begins to lose its ability to support a diversity of aquatic life.
➢Suspended solids absorb heat from sunlight, which increases water temperature and subsequently decreases levels of dissolved oxygen(warmer water holds less oxygen than cooler water)

STANDARDS OF RAW/ TREATED SEWAGE

Sr. No.	Parameter	Public Sewers	Treated Effluent	
			After secondary treatment	After tertiary treatment
1	pH value	5.5 – 9.0	5.5 – 9.0	5.5-9.0
2	Oil and grease, mg/l max	20	10	2
3	Total residual chlorine, mg/l max	–	1.0	0.5
4	Ammonical nitrogen (as N),mg/l, max	50	50	6
5	Total kjeldahl nitrogen (as N);mg/l, max. mg/l, max	–	100	16
6	Free ammonia (as NH3), mg/l, max	–	5.0	6
7	Biochemical oxygen demand (3 days at 27°C), mg/l, max	350	30	<5
8	Chemical oxygen demand, mg/l, max	–	250	50
9	Suspended solids mg/l, max	600	100	8.00

Components of Sewage Treatment Plants

- Pumping of Sewage

- Primary Treatment

- Secondary treatment

- Tertiary Treatment

Typical Flow Diagram of Sewage Treatment Plant
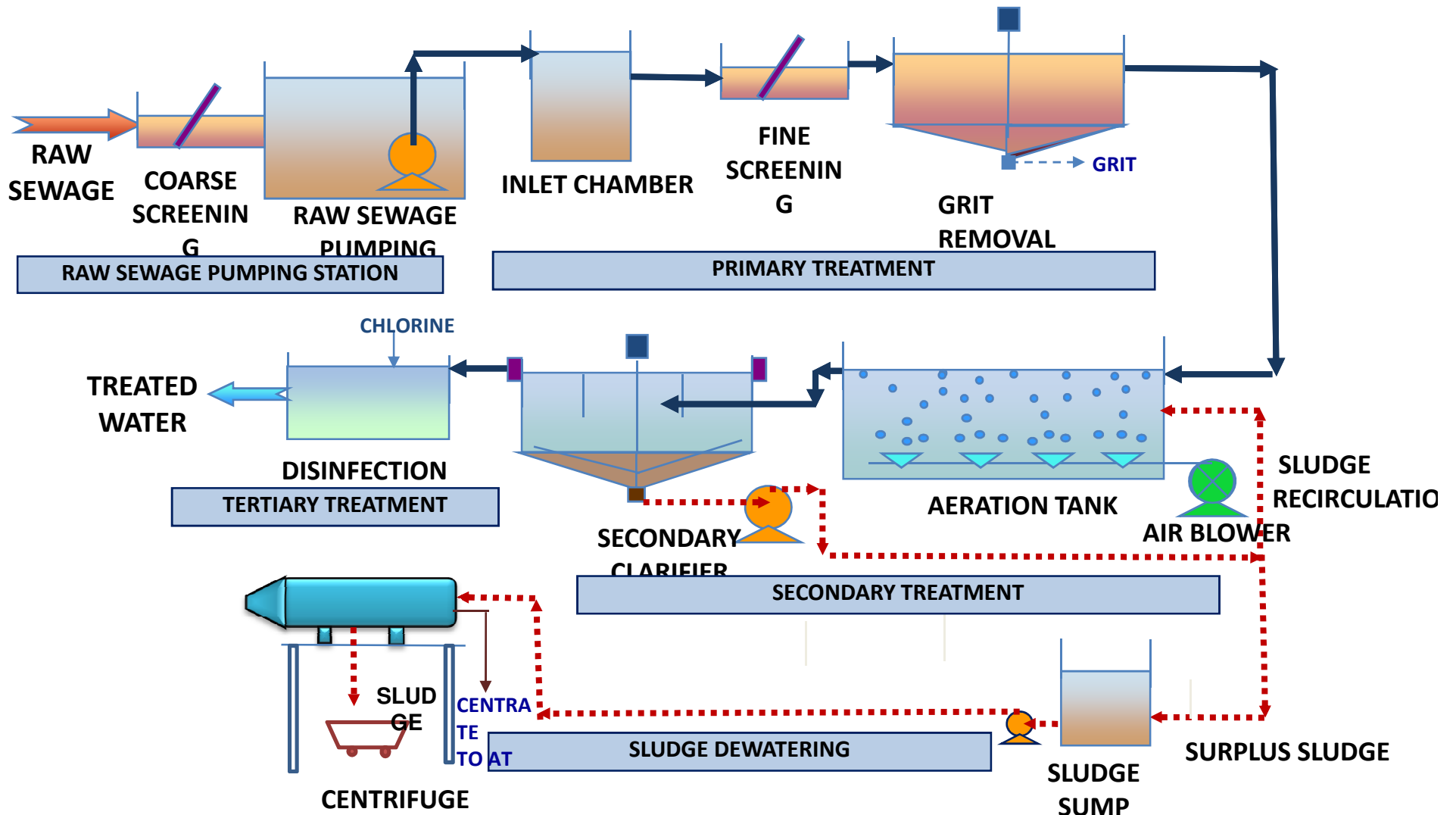
Pumping Station

- Receiving Chamber
- Coarse Screening
- Wet Well (Raw Sewage Sump)
- Pump House
- Raw Sewage Pumps

SELECTION OF PUMPS FOR RAW SEWAGE

- FOR MAIN PUMPING STATION (MPS)   I:S. 5600-2005

  NUMBER OF PUMPS REQUIRED (INCLUDING STANBY)

  2 No. of ½ DWF

  2 No. of 1 DWF

  1 No. of 3 DWF

- FOR INTERMEDIATE PUMPING STATION (IPS)

  NUMBER OF PUMPS REQUIRED (INCLUDING STANBY) FOR CAPACITY OF PUMPING STATION UPTO 3 MLD

  1 No. of 1 DWF

  1 No. of 2 DWF

  1 No. of 3 DWF

  NUMBER OF PUMPS REQUIRED (INCLUDING STANBY) FOR CAPACITY OF PUMPING STATION ABOVE 3 MLD

  2 No. of ½ DWF

  2 No. of 1 DWF

  1 No. of 3 DWF

VELOCITY CONSIDERATION IN DESIGN OF PUMPING (RISING) MAIN FOR PUMPING SEWAGE

- The size of Rising main should be designed after taking into consideration that:

  Maximum velocity at peak flow should not exceed 2.7 m/s.

  Minimum velocity at low flows should not be less than 1 m/s.

Pumping Station with submersible pump set

PUMP HOUSE

VALVE CHAMBER

GATE

SCREENING

MANHOLE

BYPASS

RECEIVING CHAMBER

SUBMERSIBLE PUMP

WET WELL
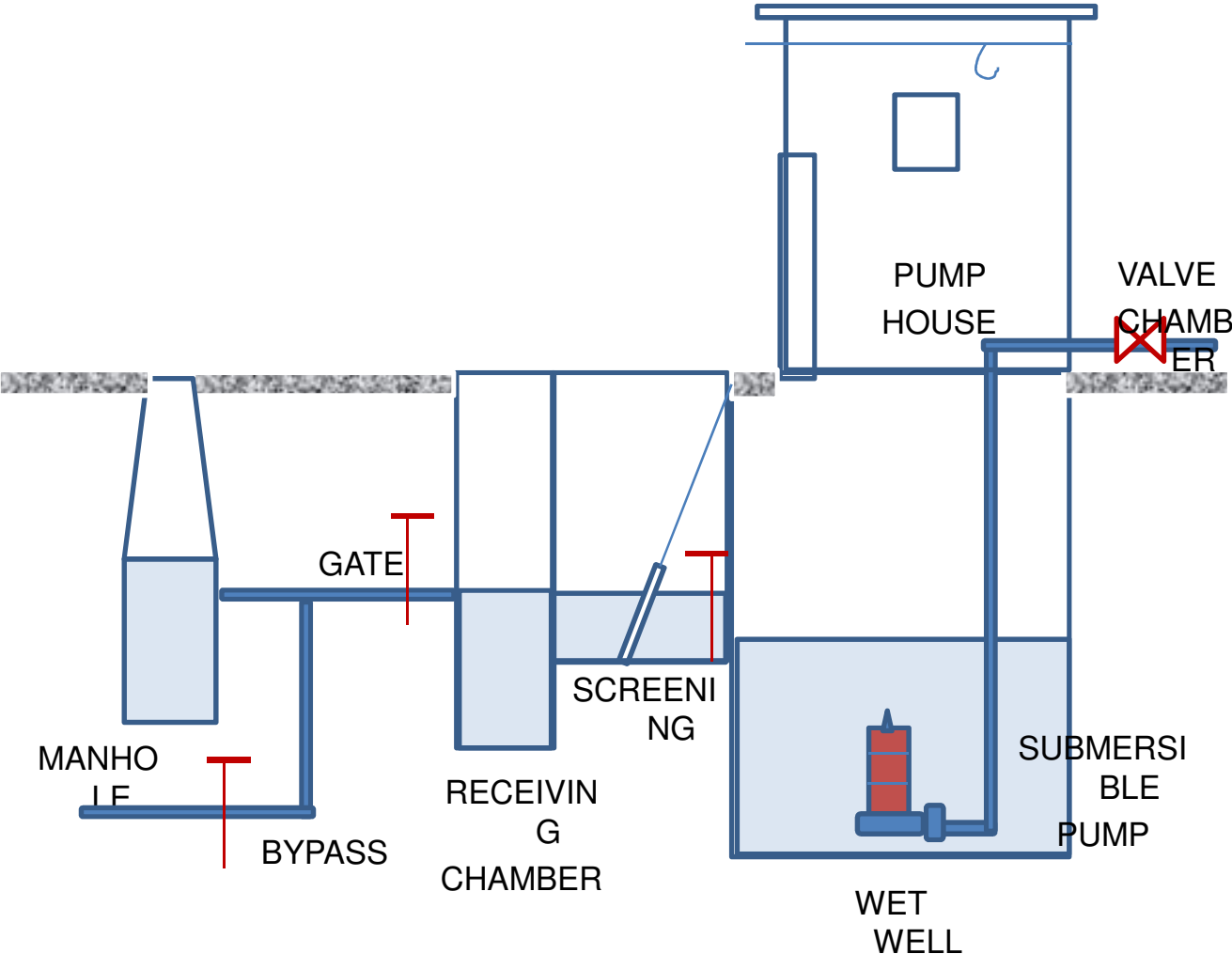
Pumping Station with Centrifugal Pump set

PUMP HOUSE

GATE

MANHOLE

BYPASS

RECEIVING CHAMBER

SUBMERSIBLE PUMP

SCREENING

WET WELL

CENTRIFUGAL HORIZONTAL PUMPS
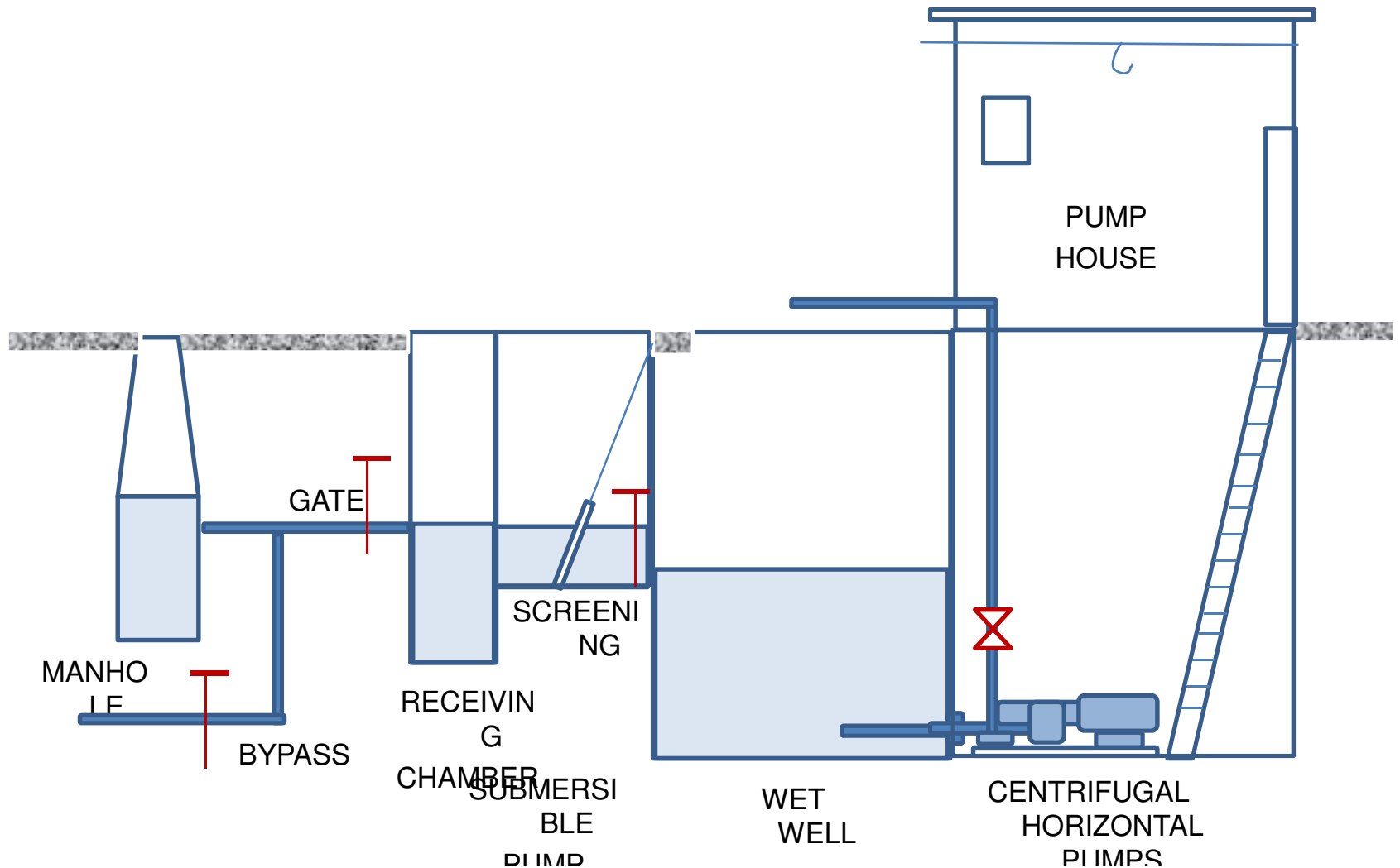
Primary Treatment

- Fine Screening
- Grit Removal
- Primary Clarification

Screening

- Objective : Removal of coarse solids

- Types of screens : Fine / medium / coarse

- Cleaning of screens : Manual / mechanical

- Benefits : Protection of pumps

- Coarse Screening : 20mm clear spacing in bars

- Fine screening : 6mm clear spacing in bars

Screening
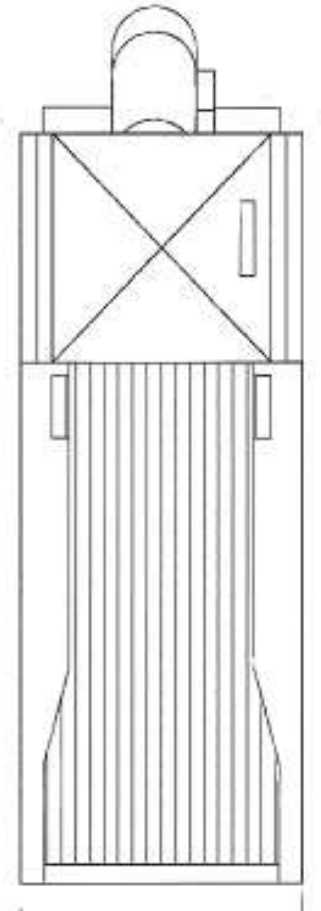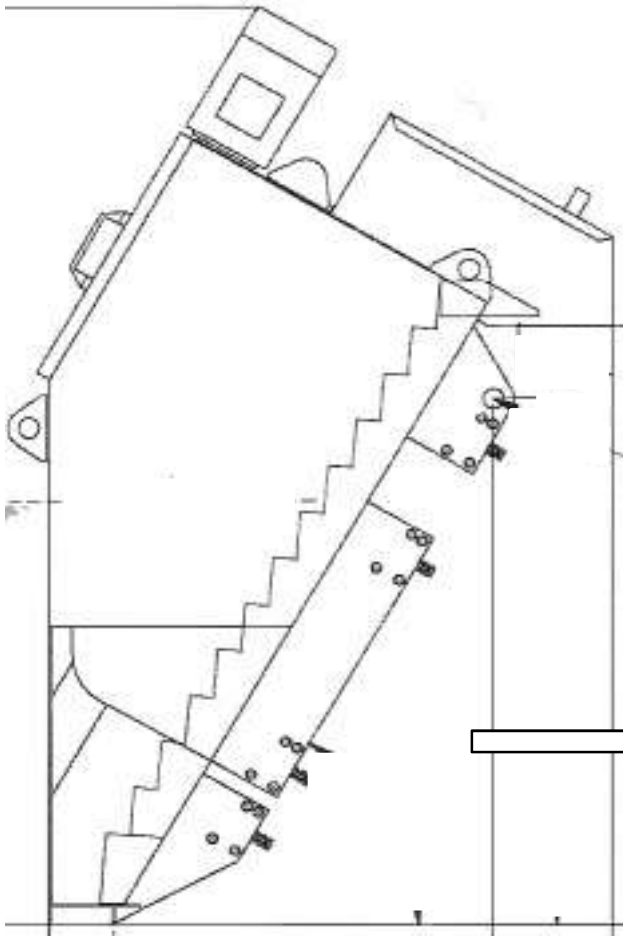
Screening
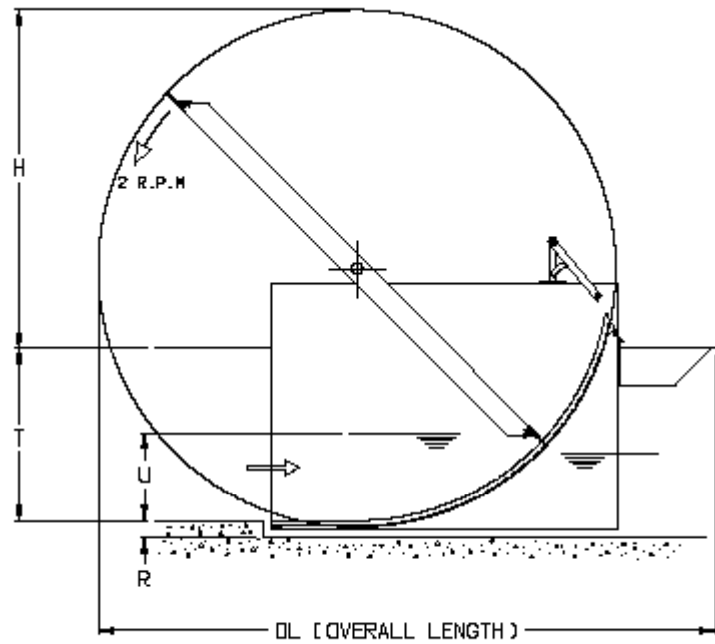
ARC BAR SCREEN

Primary Treatment

Grit Removal

- Objective : Removal of inorganic solids eg. ebbles/ sand/ Silt to protect moving mechanical equipment

- Principle : Gravity separation (a) effective size 0.15 mm (b) specific gravity – 2.65

- Types : Manual grit removal - Rectangular channel

  Mechanical grit removal - Circular tank

- Grit removal

  Mechanism : Screw classifier / reciprocating classifier
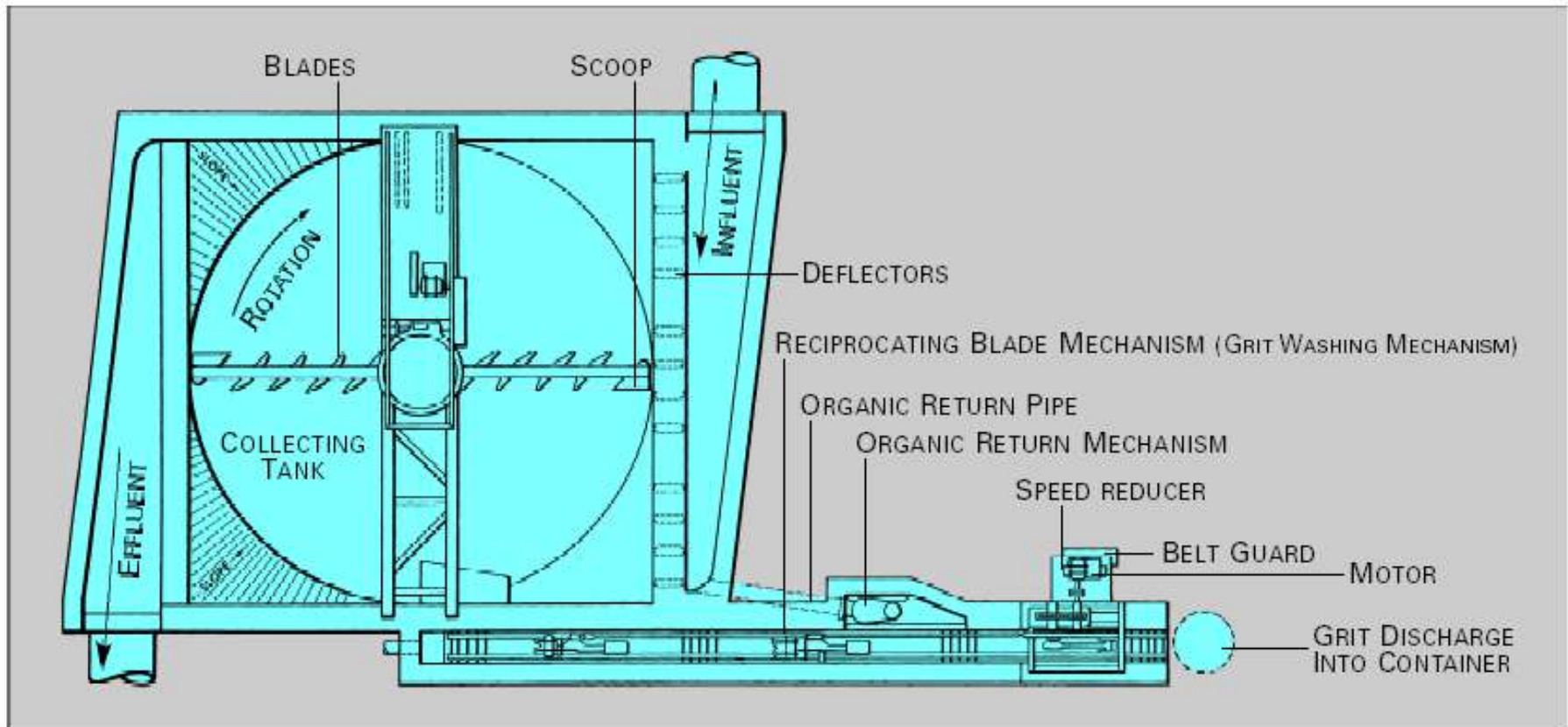
MECHANICALLY CLEANED GRIT CHAMBER WITH ORGANIC WASHER

Grit Removal
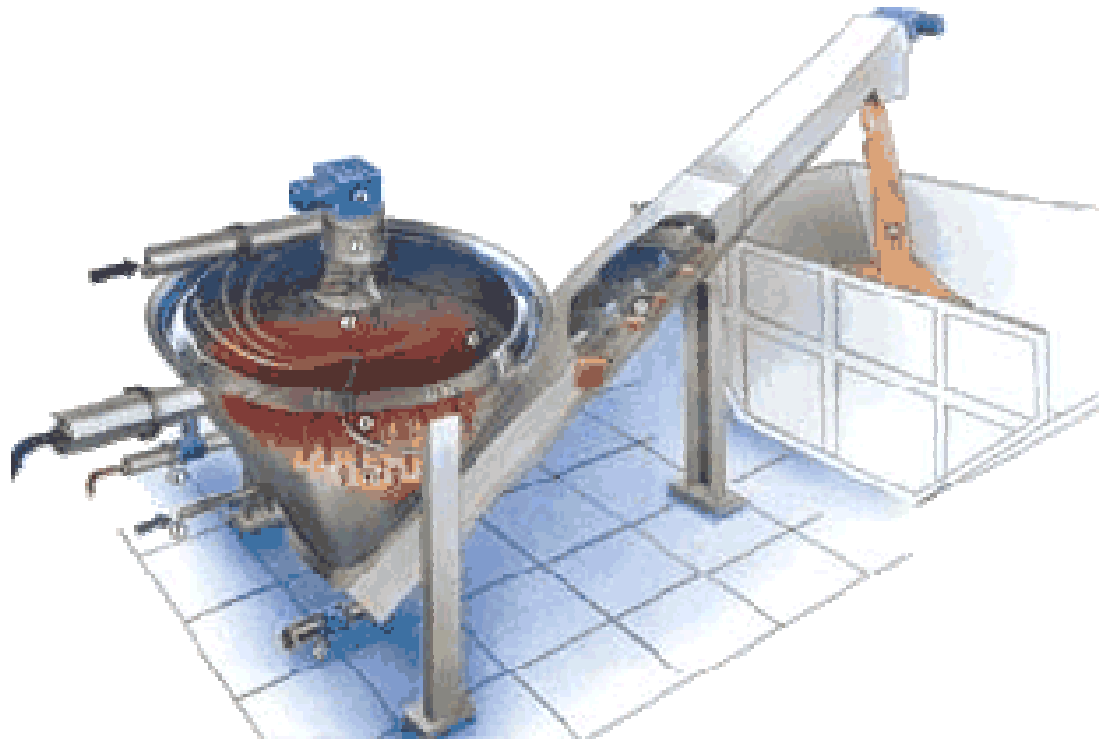
GRIT CHAMBER WITH CLASSIFIER & WASHER

Secondary Treatment

Biological treatment

Sewage Treatment

Method of Treatment-Aerobic, Anaerobic.

- **<u>Aerobic</u>**-Sewage treatment in the presence of Oxygen-MBBR, SBR-where aerators/blowers are installed-generally no smell during treatment.

- **<u>Anaerobic</u>**-Sewage treatment in the absence of Oxygen-UASB-No aerators/blowers are required-foul smell during treatment.

VARIOUS SEWAGE TREATMENT TECHNOLOGIES

- Activated Sludge Process (ASP)
- Upflow Anaerobic Sludge Blanket Reactor (UASB)
- Moving Bed Biofilm Reactor (MBBR)
- Sequential Batch Reactor (SBR)

Activated Sludge Process - ASP
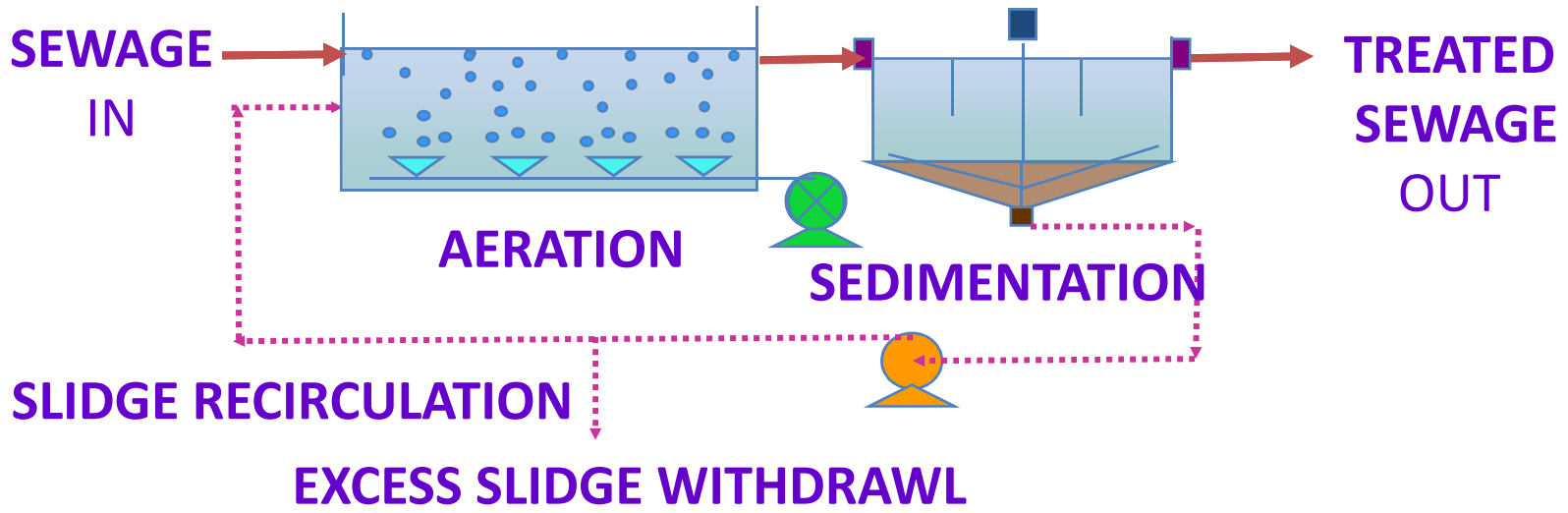
- Raw Effluent In
- Aeration
- Sedimentation
- Treated water out
- Sludge Recirculation
- Sludge withdrawl

ASP - Flow Diagram

PC-AT-SC-CHL
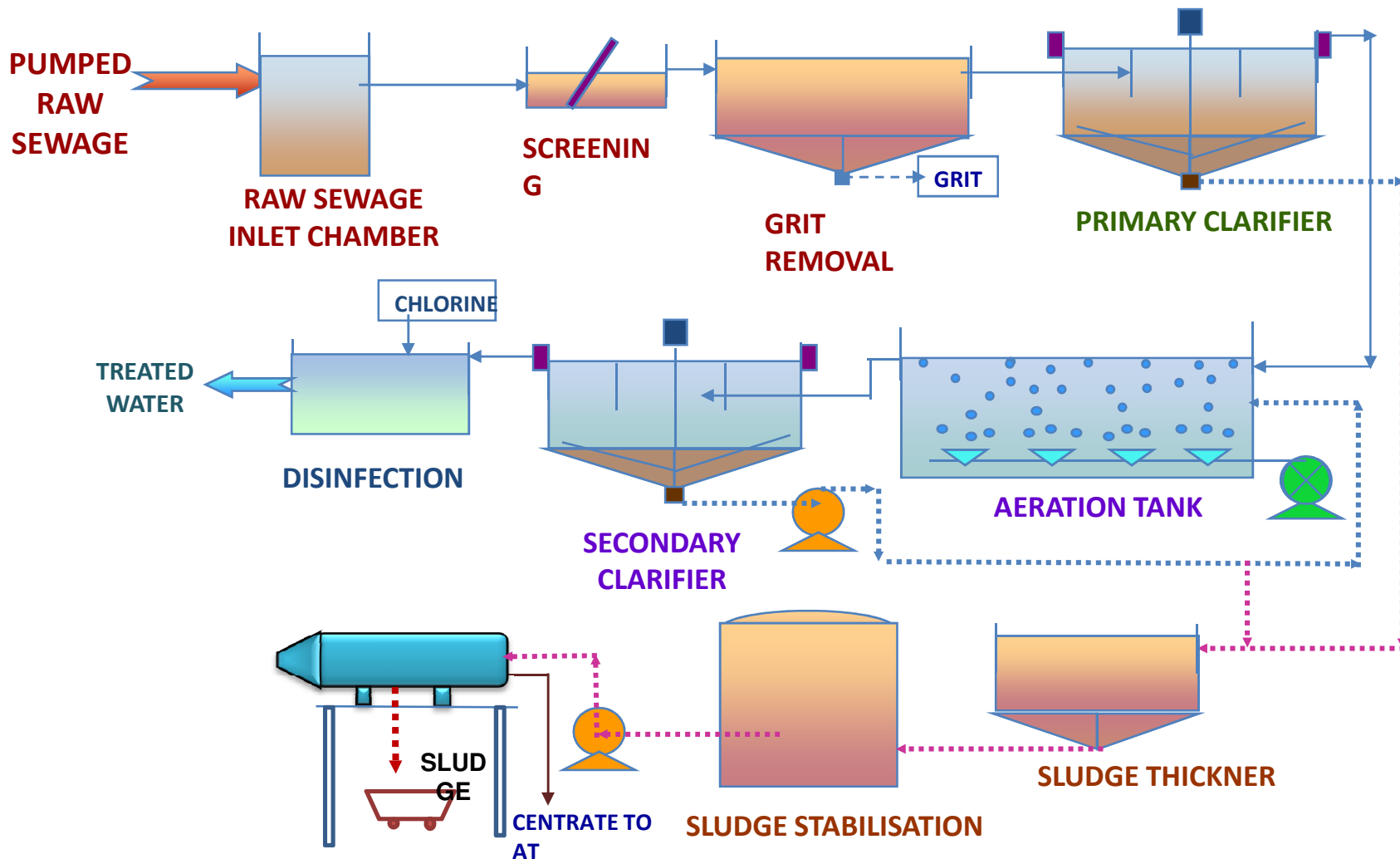
Activated Sludge Process (ASP) Technology

- An activated sludge plant essentially consists of the following:

1) Aeration tank containing micro organisms in suspension in which reaction takes place.

2) Activated sludge recirculation system.

3) Excess sludge wasting and disposal facilities.

4) Aeration systems to transfer oxygen

5) Secondary sedimentation tank to separate and thicken activated sludge.

ASP

- **Advantages**
  - Can sustain seasonal variation
  - Less land requirement than UASB
- **Disadvantages**
  - High energy consumption
  - Foaming, particularly in winter season, may adversely affect the oxygen transfer, and hence performance
  - Requires elaborate sludge digestion /drying/disposal arrangement
  - More land requirement than SBR & MBBR
  - Nitrogen and Phosphorous removal requires additional anoxic tank and > 3 times internal recirculation

ASP

Upflow Anaerobic Sludge Blanket Reactor (UASB)

- The Up flow Anaerobic Sludge Blanket reactor (UASB) maintains a high concentration of biomass through formation of highly settleable microbial aggregates. The sewage flows upwards through a layer of sludge.

- The sludge in the UASB is tested for pH, volatile fatty acids (VFA), alkalinity, COD and SS. If the pH reduces while VFA increases, the sewage should not be allowed into the UASB until the pH and VFA stabilise.

- The reactor may need to be emptied completely once in five years, while any floating material (scum) accumulated inside the gas collector channels may have to be removed every two years to ensure free flow of gas.

- All V-notches must be cleaned in order to maintain the uniform withdrawal of UASB effluent coming out of each V-notch. The irregular flow from each V-notch results in the escape of more solids washout. Similarly, blocking of the V-notches of the effluent gutters will lead to uneven distribution of sewage in the reactor.

Up – Flow Anaerobic Sludge Blanket Rector (UASB) Flow Diagram

UASB-AT-SC-CHL

RAW SEWAGE

RAW SEWAGE INLET CHAMBER

SCREENING

GRIT

GRIT REMOVAL

UASB

ELECTRICITY

GAS ENGINE

GAS HOLDER

CHLORINE

TREATED WATER

DISINFECTION

SECONDARY CLARIFIER

AERATION TANK

SLUDGE DEWATERING SYSTEM
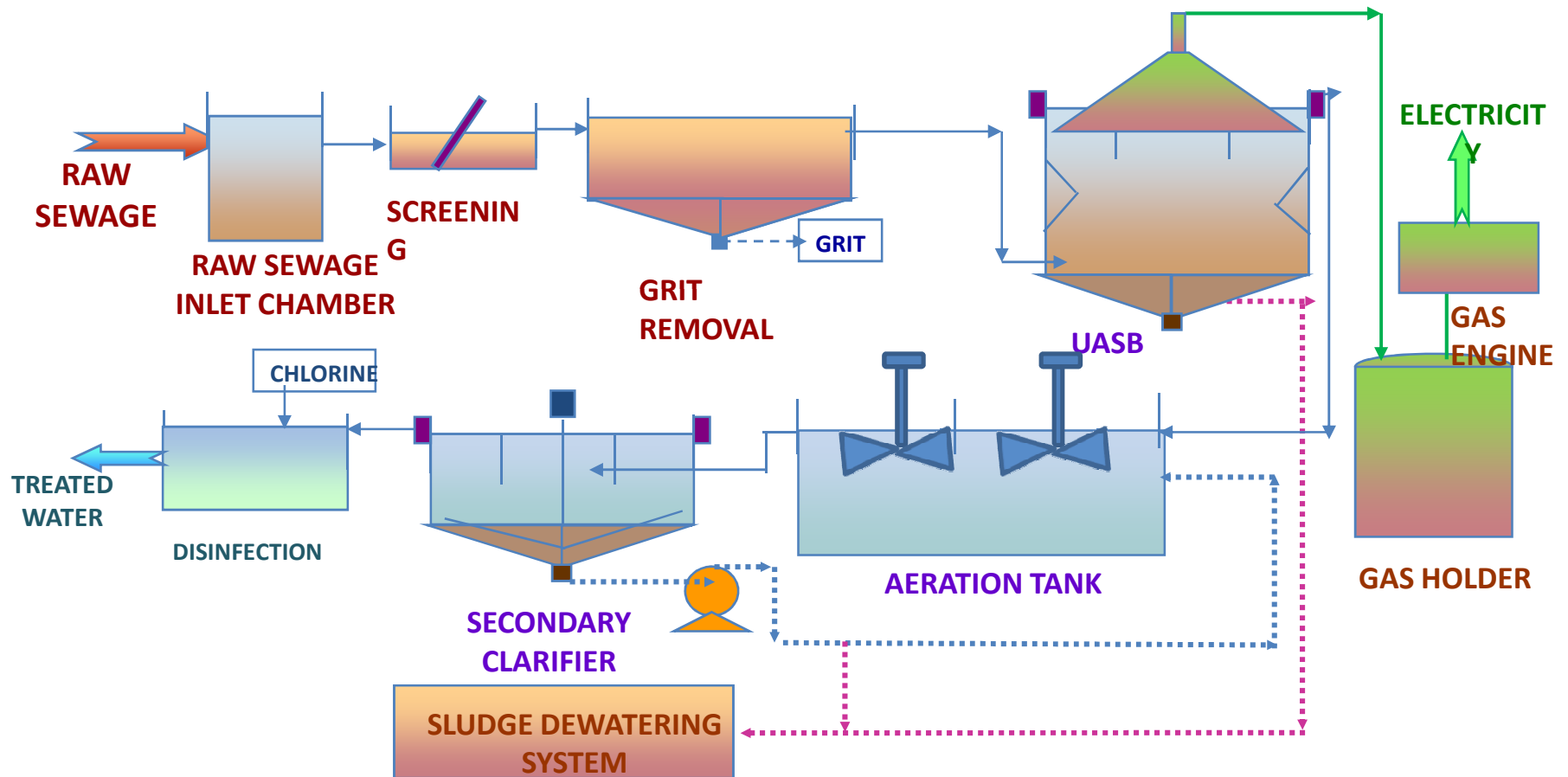
Upward-flow Anaerobic Sludge Blanket
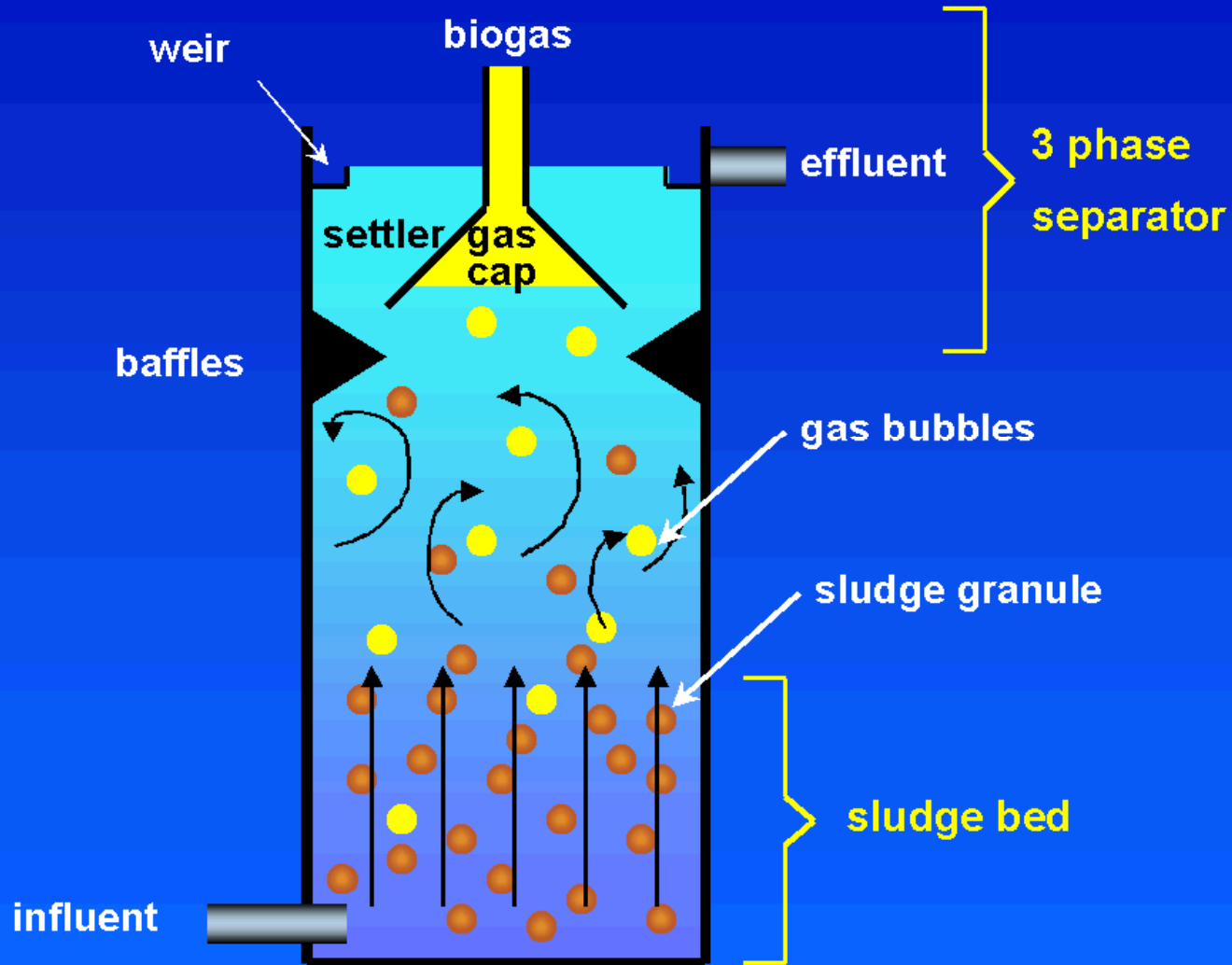
UASB

Advantages

- Requires less power than aerobic processes
- Biogas generated can be used as fuel or electricity.

Disadvantages

- UASB alone does not treat the sewage to desirable limits, therefore downstream aerobic treatment is compulsory
- Requires very large space due to post treatment
- Recovery of biogas is not sufficient to produce substantial electricity in case of municipal

UASB + AL+FL

MOVING BED BIO REACTOR (MBBR) PROCESS

- Moving Bed Bio Reactor (MBBR) process is based on the bio-film of organisims developed on carrier elements.

- This media is floating in the Aeration tank and kept floating by air from diffusers which are placed at the bottom of tank.

- The process is intended to enhance the activated sludge process by providing greater biomass in aeration tank and thus by reducing volume of the tank

- After aeration tank sedimentation tank is provided for settlement of sloughed biomass

- Clear water clarifier overflows from weir and is further subjected to disinfection.

Moving Bed Bio Rector (MBBR) - Flow Diagram

MBBR-SC-CHL

PUMPED RAW SEWAGE

RAW SEWAGE INLET CHAMBER

SCREENING

GRIT

GRIT REMOVAL

CARRIER MEDIA

CHLORINE

TREATED WATER

DISINFECTION

SECONDARY CLARIFIER

AERATION TANK (MBBR)

SLUDGE DEWATERING

FILTRATE TO AERATION TANK
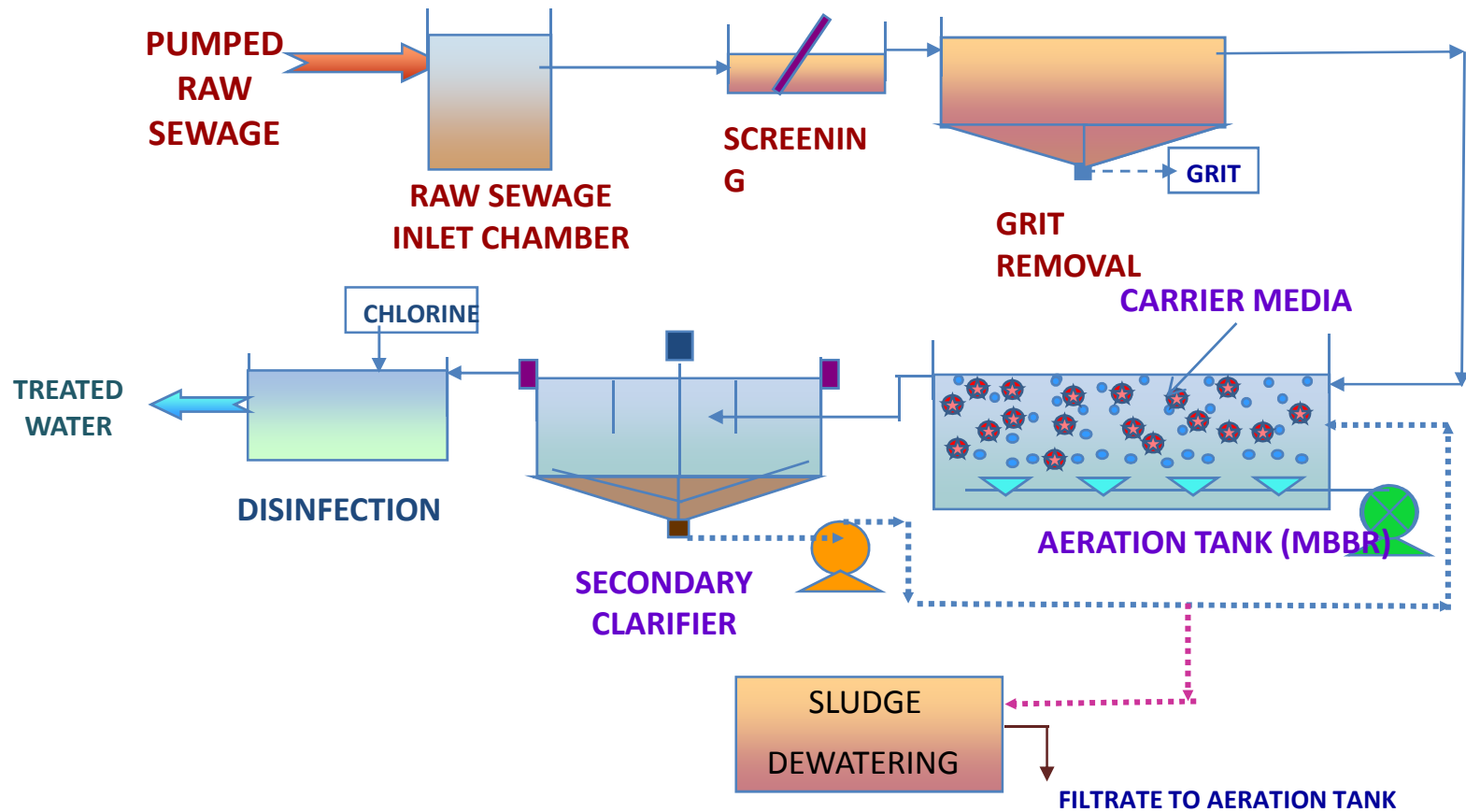
MBBR

Quantity of BIO Media

- Check Design approved by SE to see quantity of BIO media 1m^3 per 7.5 Kg BOD considering surface area of media 250 m^2/m^3

- The specifications are given in agreement. Specific gravity 0.96.

- Make by Kaldnes biofilm carrier

SEQUENTIAL BATCH REACTOR (SBR) PROCESS

- Sequential Batch Reactor is true batch process where fill, aeration, settle and decant steps are carried out in sequence of batches in a single basin.

- Screened, de-gritted sewage is fed into the SBR Basins for biological treatment to remove BOD, COD, Suspended Solids, Biological Nitrogen and Phosphorous.

- SBR process shall work on batch mode in single step.

- It performs biological organic removal, nitrification, de-nitrification and biological phosphorous removal.

Sequential Batch Rector (SBR) - Flow Diagram

SBR-CHL

DIFFUSERS   DECANTER

RAW SEWAGE

SCREENING

INLET CHAMBER

GRIT

GRIT REMOVAL

BLOWER

SBR - 1

BLOWER

SBR - 2

RETURN SLUDGE

SURPLUS SLUDGE

SLUDGE

CENTRIFUGE (SLUDGE DEWATERING)

PUMP

SLUDGE SUMP

TREATED WATER TO DIPSOS

CHLORINE

CHLORINE CONTACT TANK

Modular Design

RAW SEWAGE PUMPING STATION

INLET CHAMBER

SCREENS

GRIT REMOVAL TANKS

SELECTORS

SBR BASIN

SBR BASIN

RAS/SAS PUMPS

SBR BASIN

DECANTERS

CHLORINATION → FINAL DISCHARGE

SLUDGE HANDLING SYSTEM

SBR Process

Fill & Start Aeration

Stop Aeration

Stop Decanting

Start Settling

Start Decanting

SBR / Cyclic Activated Sludge Process

- Better Quality Effluent: 98 % BOD removal efficiency. Sewage can be treated to reuse/recycle quality of TSS < 10 mg/l, COD < 100 ppm, BOD < 10 ppm, TN < 10 ppm, TP < 2 ppm in a single stage of treatment using Batch process.

- Bio-nutrient removal (BNR) : N & P removal

- Secondary clarifier not required, less foot print area

- Flexibility for efficient removal of BOD, TSS, N& P under all loading conditions.

- Automatically controlled by PLC . Based on process requirement, the aeration facility is optimized based on DO levels and by varying operating frequency of the blowers. Less power consumption.

.

SBR / Cyclic Activated Sludge Process

Advantages

- Controls growth of filamentous bacteria and avoids bulking of sludge.

- Provides stabilised sludge.

- Process with primary clarifier can generate power

- Allows for easy modular expansion for population growth

- **Disadvantages**

- Compared to the conventional ASP / MBBR /UASB, a higher level of sophistication and maintenance is associated due to automation

.

SBR gives high performance with Nutrient removal
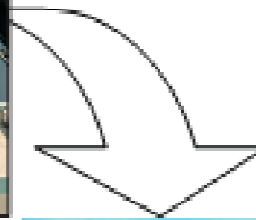
BOD   < 5 ppm
TSS   < 10 ppm
NH4-N < 1 ppm
TP   < 1 ppm

Fully Automatic PLC operated

Plant Aesthetics

Sludge Handling – Sludge Drying Beds

- **Objective** : Dewatering of sludge
- **Important Features**
  - Conventional method of sludge drying
  - No power requirement
  - Substantial area is required
  - Difficult to operate in monsoon
  - Labour intensive
  - Manual scrapping and loading of dried sludge

SLUDGE DRYING BED
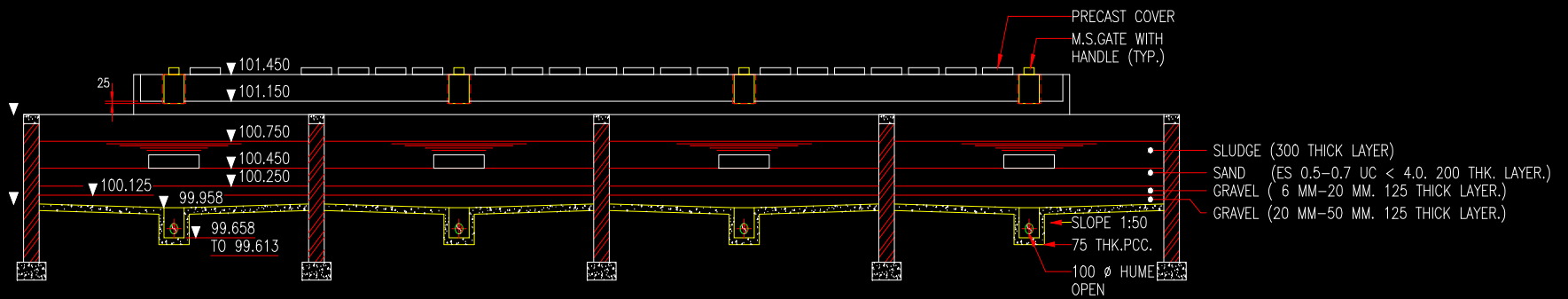
Sludge Handling – Centrifuge

- Objective : Dewatering of sludge @ 95% of the BOD removed in Kg.

- Important Features
  - Advanced method of solid-liquid separation
  - Less area
  - Power required for pumping the sludge and operation of centrifuge
  - Less time
  - Efficient dewatering

- Design criteria
  - Inlet sludge solid consistency : min 0.8 to1%
  - Outlet sludge solid consistency : 20% expected
  - Polyelectrolyte dosing increases the efficiency

Centrifuge

BELT PRESS

SOLID BOWL CENTRIFUGE
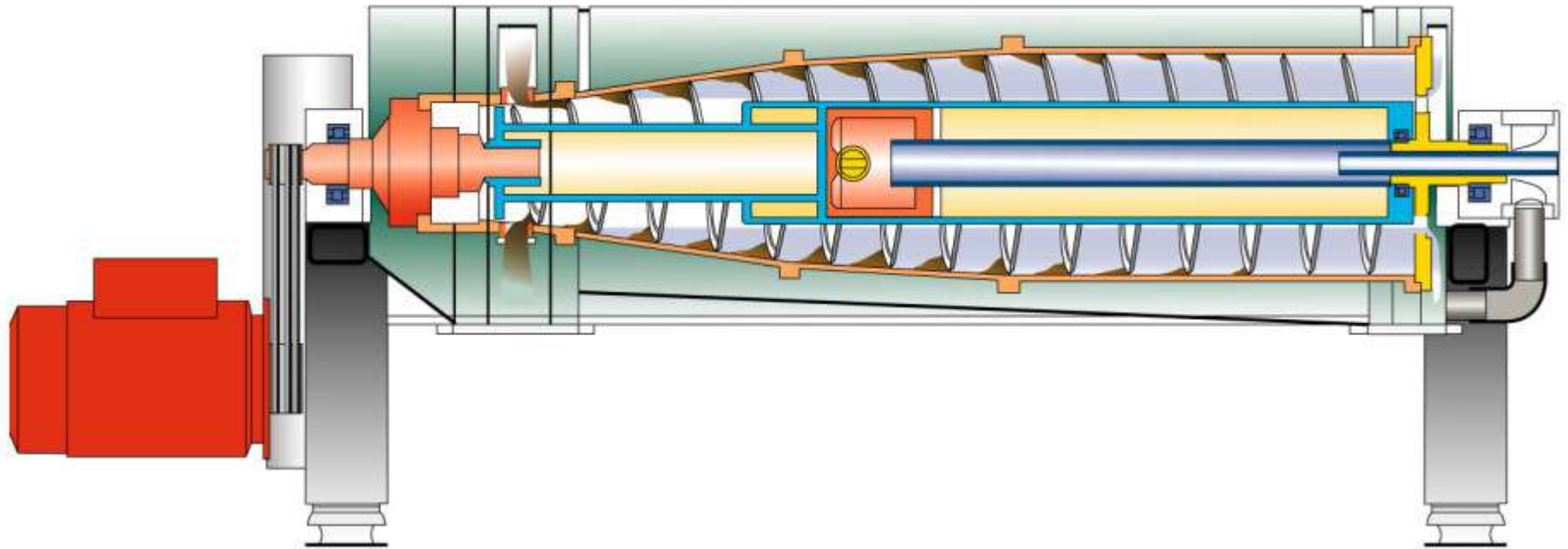
Tertiary Treatment

It is supplementary to primary and secondary treatment for the purpose of removing the residual organic and inorganic substances for reuse of effluent for the purposes of cooling systems, boiler feed, process water etc.

```
┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
│ Treated effluent │   →    │ Multi Grade Filter│   →    │ Activated Carbon │
│ from secondary   │        │                  │        │     Filter       │
│   treatment      │        │                  │        │                  │
└──────────────────┘        └──────────────────┘        └──────────────────┘
                                                                  │
┌──────────────────┐        ┌──────────────────┐                 ↓
│      Reuse       │   ←    │   Chlorination   │   ←
└──────────────────┘        └──────────────────┘
```

MGF ACF BT CLSOFT

To Drain

21 mm MS   24 mm MS

100 mm GI

100 mm GI

100 mm MS   100 mm GI

100 mm MS

TREATED WAETR OUTLET

Secondary Treated
Water Tank

100 mm MS

100 mm GI   100 mm GI

MGF   ACF   BT   SOFT

25 mm MS   25 mm MS

100 mm MS   100 mm GI   100 mm GI   100 mm MS
To Drain
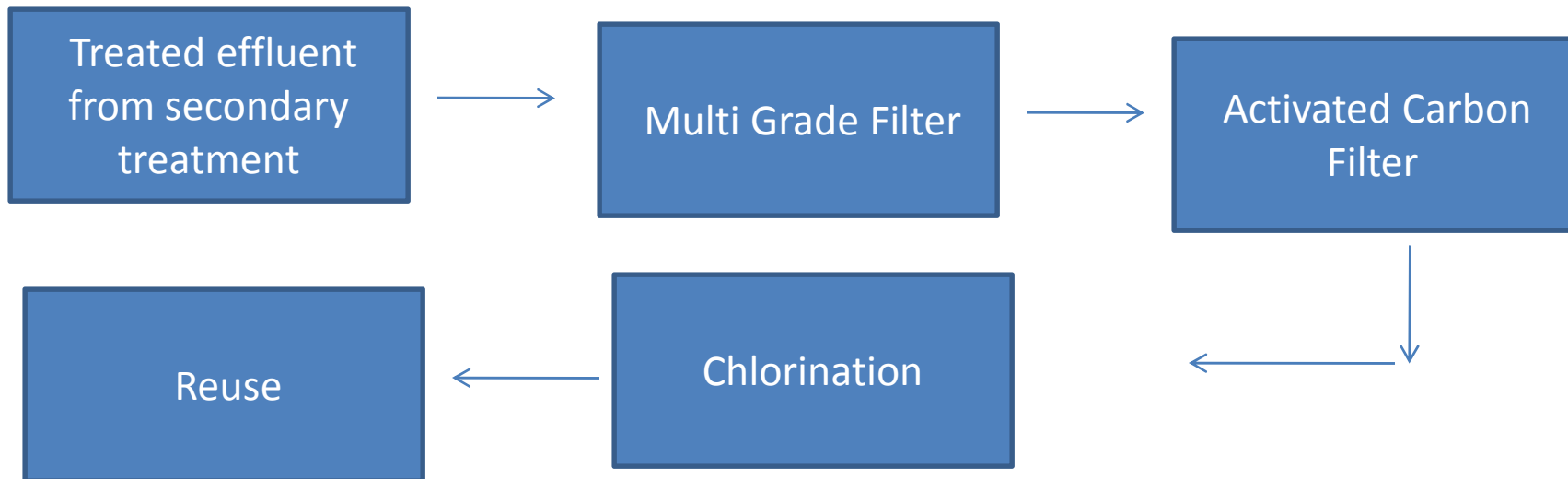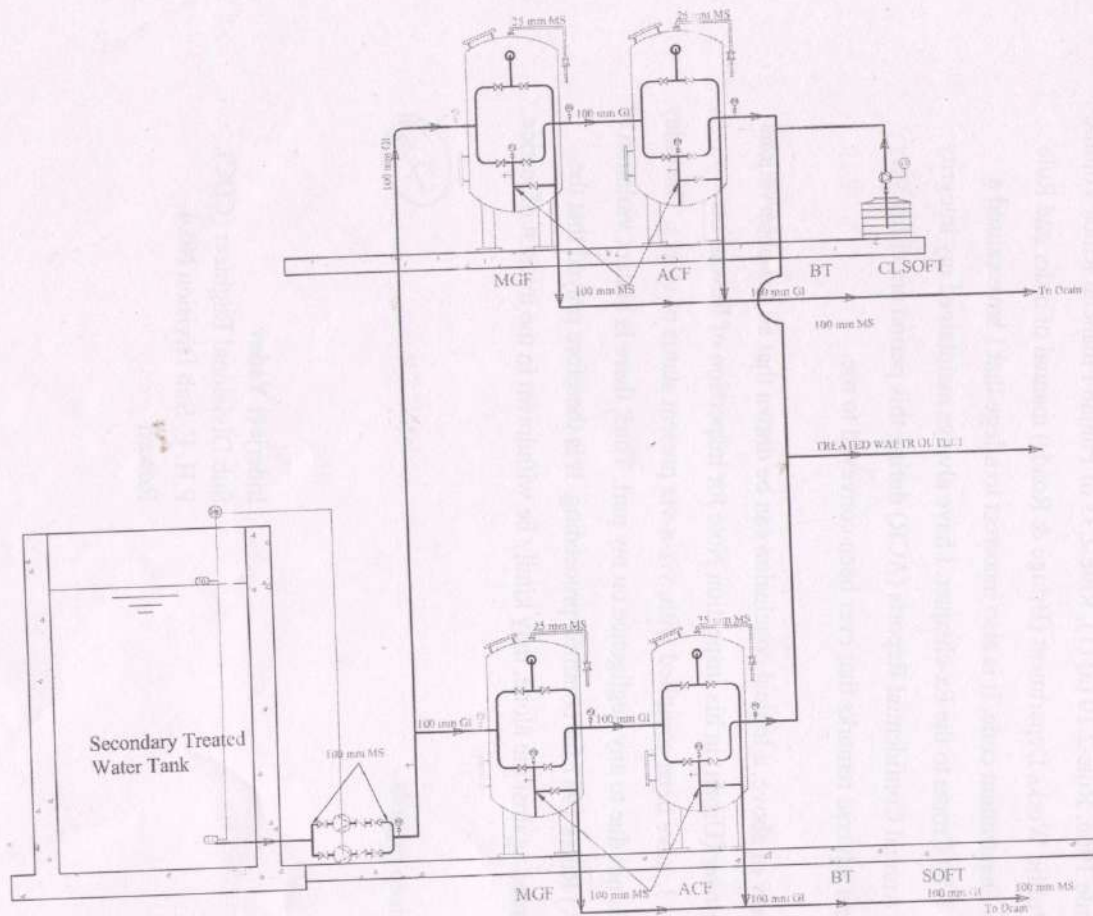
Legend	
Mark	Description
——	Effluent Line
——	Water Level
⋈	Butterfly Valve
⋝	Non Return Valve
⊕	Pressure Gauge
⊕	Pressure Switch
⊚	Pump
⊕	Air Blower
⊨	Ball Valve
⊶	High Level
⊶	Low Level
⊢	Sampling Point

List of Electromechnical Unit				
Mark	Description	Make	Capacity	Quantity
MGF	Multigrade Filter	Brisanzia	35000 LPH	2 No's
ACF	Activated Carbon Filter	Brisanzia	35000 LPH	2 No's
BT	Brine Tank	Sintex	-	2 No's
Soft	Softener	Brisanzia	35000 LPH	2 No's
CL	Chlorine Dosing	Asia MI	0-6 LPH	1 No

Chlorination

- Objective : Disinfection of wastewater to kill pathogens

- Important Features
  - Simple & widely used method of disinfection
  - Used for wastewater treatment

- Design criteria :
  - Types : Dosing chemicals – Sodium hypochlorite
    Vacuum Chlorination – Chlorine gas
  - Contact time : 30 min
  - Dosage after wastewater treatment
    Activated sludge : 3 – 5 mg/l

Chlorine Contact Tank

Chlorine is a Hazardous chemical requiring adequate safety while handling

1. Chlorine leak detector
2. Chlorine absorption system
3. Personal safety eqpt .– mask etc.
4. Safety shower
5. Statutory records

Other options for disinfection

- Chlorine produces carcinogenic disinfection byproducts that are harmful to human and aquatic life.

- It is banned in developed countries.

- Still used in India as it is cheap

- Other options are;
    - Ultra Violet (UV) - like Aquaguard
    - Ozone

GAMIFICATION FOR HEALTH AND FITNESS

A Project Report

Submitted in partial fulfilment of the
requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

AAVISHKAR CHANDRAKANT BARASKAR

Seat Number: _____

Under the esteemed guidance of

Mr. PRABAL DEEP DAS

Assistant Professor, Department of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

<u>CERTIFICATE</u>

This is to certify that the project entitled, **" GAMIFICATION FOR HEALTH AND FITNESS ",** is bonafied work of **AAVISHKAR CHANDRAKANT BARASKAR** bearing Seat No: _____ submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

Date: **College Seal**   **Principal**

1. **COMPANY CERTIFICATE (for LIVE Project)**
2. **Avishkar/ Tantravihar/ Project Exhibition CERTIFICATE**
3. **Vsearch/ National/ International level Conference CERTIFICATE**
4. **RESEARCH PAPER**

ABSTRACT

Today People are very least indulged in-home workouts. Most people feel no motivation to continue workout daily. So, to make home workouts more interactive we have created this project. The primary goal of this project is to make daily fitness session more interesting and engaging so that user can enjoy it. This Project can help make the home workout session interesting, as it will make the user do the workout in a gamified way. Gamifying Exercises using points system so that exercises become more engaging and interactive. Our project is an application which schedules regular tasks which have different exercises. Application will track users daily progress and push them to do best of their previous record. Our project will help people do exercises regularly and allow them to push their fitness goals every day.

ACKNOWLEDGEMENT

I would like to express my special thanks to our guide Prabal Deep Das Sir who helped us by guiding us to do project work on time and giving us all support, which made complete our project duly.

We are also thankful for and fortunate enough to get constant encouragement, support and guidance from the teachers of Information Technology who helped us in successfully completing our project work.

DECLARATION

I hereby declare that the project entitled, "**Gamification in Health and Fitness**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

Table of Contents

List of Tables

List of Figures

Chapter 1 Introduction

1.1 Background

Today's Fitness Applications are not very engaging like most of the games are, which results in lesser participation of people in home workouts and physical maintenance.

To create more engagement in home workouts we have created an application which recommends exercises and tracks the exercise targets achieved each day. And help them push their own fitness goals every day. Application works like this.

User must enter their weight, height and age once they install the app. Everyday there will be workout tasks scheduled according to person's BMI. To complete this task, user must do their exercises onto the timer given and enter repetition done in that exercise, which will create more engagement in the app.

Based on their performance, they are given points which will make it more engaging.

1.2 Objectives

Main objective of this project is to make people more interested in personal health. In busy schedule of people, they cannot give enough time to their health and fitness.

Also, today's fitness applications are not very interactive, and goal based so people find it hard to continue working out daily and push their fitness goals.

Daily updating tasks can help users keep them engaged in the app.

1.3 Purpose, Scope, Applicability (Feasibility Study)

1.3.1 PURPOSE:

An application which will help people track their exercise and motivate them to do workout daily by creating interaction with them.

Current fitness applications are very static and not very interactive so most of the people get disinterested in the app and soon stop working out as motivation for fitness ends.

To maintain the interest of people in fitness we are creating an app which will track person's progress and give them tasks on daily basis so they get engaged in the app.

1.3.2 SCOPE:

Fitness is very important in everyone's life to keep them healthy physically as well as mentally. Our application will help them maintain their physical health by providing them information about different exercises

The application will have a user-friendly interface. So that it would be easy to use and be beneficial for workout sessions.

On daily basis they will be given a Progress Report based on their daily task performance. Depending on the BMI of a person, daily task will be given to help them achieve their fitness goals.

There will also be a Blog section which will provide Fitness Blog to give more information about fitness, tip and trick to improve performance and flexibility, diet plans, etc.

1.3.3 APPLICABILTY:

Why Android Studio Application?

Tablets and other Android-powered devices are popular among techies. Because of its open-source infrastructure, it makes mobile app development simple. App makers can also publish their apps right away without any fuss. Because of its phenomenal growth, a large number of developers are becoming involved in mobile app development for the Android platform.

Android Studio (AS) makes use of the Gradle build system, which is very well integrated. It's a fantastic tool for managing dependencies. Because it's more extensible, it improves the development experience.

Instant Run for Faster Coding: It detects changes in the code as soon as they occur. This modification is visible without having to restart or rebuild your app. If you're making an app, this speeds up the development process.

Intelligent Code Editor: Development is much faster with the Intelligent Code Editor. The editor suggests enhanced code compilation and code analysis while you're creating code. The dropdown selection makes it simple to check the recommendation. To insert the code, all you have to do is press the tab key.

Great Emulator: The Android Studio's Emulator allows you to simulate a range of items. It enables you to test your code on a range of devices, including smartphones.

Why Firebase?

Firebase is a less technical and time-saving alternative to writing full-fledged backend code for dynamic apps. You might also want to use this tool if you intend to host and administer your app in the cloud in the future. Because Firebase is serverless, it eliminates the need to bother about cloud server configuration details.

It also allows you access to other Google goods and capabilities, such as Google Drive and Sheets, as a Google Cloud service.

With Firebase, it's pretty simple to connect and use built-in third-party authentication providers, including Google, Facebook, Twitter, among others. You also have the option of using a pre-built authentication UI.

All of them can save you a big amount of money on development because you won't have to start from scratch. Pricing for Firebase is also very flexible. Although there are pay-as-you-go options, if your app is still in its early stages, you can start with a free plan and only use the most basic functions.

If you need to quickly deploy a working product to the cloud, Firebase is a viable option. Plus, as mentioned, you might want to try it out if you need a backend but don't have a backend development background.

Chapter 2 Survey of Technologies

Android Studio:

The official Integrated Development Environment (IDE) for Android app development is Android Studio. Android Studio adds on IntelliJ's excellent code editor and developer tools by providing even more capabilities to help you build Android apps faster.

Structured code modules allow you to break down your project into functional parts that you can create, test, and debug independently.

Some features of Android Studio:

1. Visual Layout Editor:
   a. It makes it simple to edit the front-end.
   b. Its Constraint-Layout feature aids in the creation of complicated designs by allowing you to link each view to other views and guidelines.
2. APK Analyzer:
   a. Examine the contents of your app APK file for ways to reduce the size of your Android app, even if it wasn't created with Android Studio.
3. Fast Emulator:
   a. Installs and runs your programmes more quickly on a physical device, simulating various settings and features.
4. Intelligent Code Editor:
   a. Code completion and corrections are provided.

Firebase:

Google Firebase is a Google-backed app development platform that lets developers build apps for iOS, Android, and the web. It includes data analysis, reporting, and app crash repair capabilities, as well as marketing and product testing tools.

Firebase offers number of services including:

1. Analytics.

2. Authentication.

3. Cloud messaging.

4. Realtime database.

5. Crashlytics.

6. Performance.

7. Test Lab.

Realtime Database:

Realtime database is a NoSQL database that syncs and stores data on the Google Cloud Platform. Any changes to data are reflected in milliseconds across all platforms and devices in Realtime. Most traditional databases employ a request/response architecture, but the Realtime Database uses data synchronisation and subscriber methods instead of standard HTTP requests, allowing you to create more flexible real-time programmes with less effort and without worrying about networking code.

Many apps become unresponsive when your network connection is lost. Realtime Database provides exceptional offline support since it preserves an internal cache of all the data you've queried.

The app uses data from the cache to keep the app responsive when there is no Internet connection. When the device connects to the Internet, the Realtime Database synchronises local data changes with remote updates that occurred while the client was offline, automatically resolving any conflicts.

Client devices connect directly to the Realtime Database, eliminating the need for an application server. Security policies govern who has access to what data and how they can access it.

Chapter 3 Requirements and Analysis

3.1 Problem Definition

Today people have very tight schedule due to their workload, so instead of going to gym they try doing home workouts.

So, our app will show them the counts of a particular exercise scheduled on that day and the user will have to start performing the exercise by clicking on the timer and then insert the count of exercise. It will also track their daily goal and achievements. If the person is performing the exercise daily, he will be given points based on the performance.

3.2 Requirement Specification

We need a basic smartphone with android version 8.0 or above to run the app smoothly. Internet connection is necessary to store data on databases and read the mentioned blogs.

3.3 Planning and Scheduling

Activities	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14	W
Project Idea Finalization	■	■													
Requirements															
Survey of data/ need (Literature Review)			■												
Feasibility and need validation				■											
Scope Freezing				■											
Requirements Detailing															
Use Case Diagrams					■										
Static User Interface Prototype						■									
Design															
Database Design/ Block Diagram (ER Diagram, Key Data Structures)							■								
Other UML Diagrams (Sequence, Activity, Flow Chart etc.)								■							
Class Diagrams								■	■						
Hardware Design - [for embedded/ IoT projects]										■					
Evaluate Technology options											■				
Prototype															
Key Technical issue defination												■			
Build basic Working Prototype													■		
Planning & Review															
Overall Project Plan	■	■	■												
Weekly Review/ Discussion with Guide		■		■		■	■	■		■		■	■	■	

Figure 1: Gantt Chart

In this project we are using **Waterfall Model**, as it illustrates the software development process as a sequential flow of events. This indicates that any step of the development process can start only after the previous one has finished. The phases in this waterfall model do not overlap.
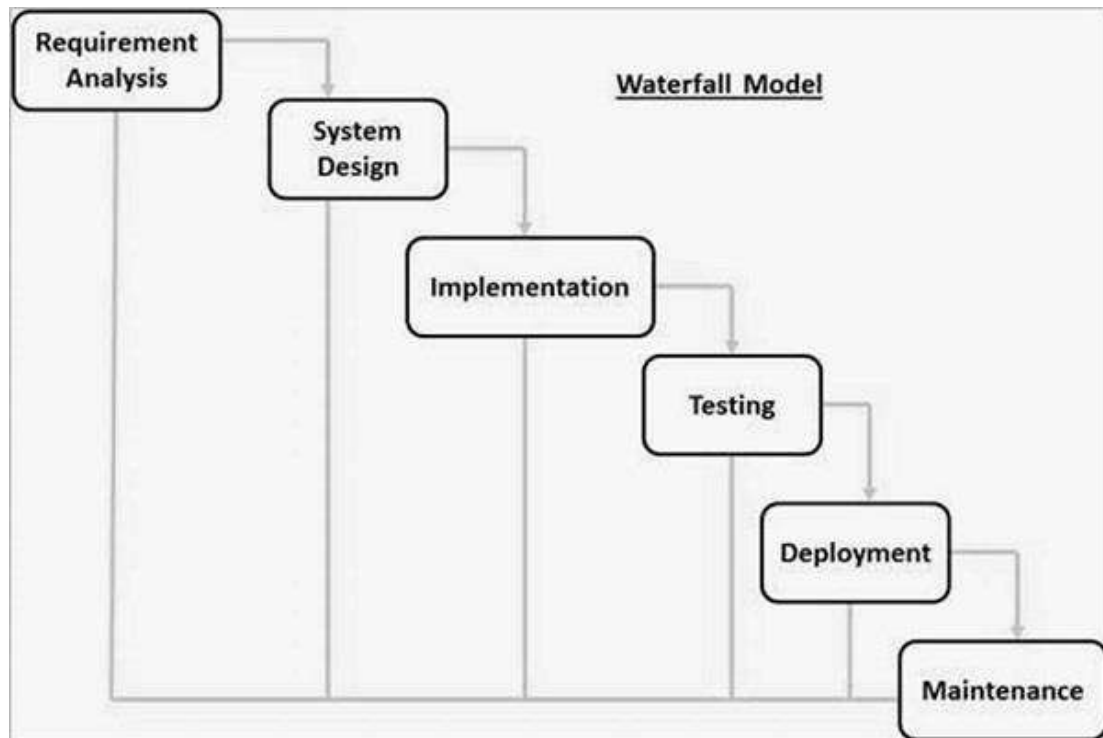
Figure 2: Waterfall Model

Requirement Analysis: This phase captures all feasible needs for the system to be created and documents them in a requirement specification document.

System Design: This phase examines the requirements specifications from the previous phase and prepares the system design. This system design helps in designing the overall system architecture as well as describing hardware and system requirements.

Implementation: The system is first built as discrete programmes called units, which are then merged in the next phase, using inputs from the system design. Unit testing is the process of developing and testing each unit for its functioning.

Integration and Testing: After each unit has been tested, all of the units built during the implementation phase are merged into a system. The entire system is then tested for any flaws or failures after it has been integrated.

Deployment of System: The product is deployed in the client environment or released into the market once functional and non-functional testing is completed.

Maintenance: In the client environment, there are a few issues that arise. Patches are published to address these vulnerabilities. In order to improve the product, newer versions have been produced. Maintenance is carried out to bring about these modifications in the customer's environment.

3.4 Software and Hardware Requirement

3.4.1 PLATFORM

3.4.1.1 ANDROID STUDIO

Figure 3: Android Studio

Android Studio is an official Integrated Development Environment (IDE) for Android-based operating systems that was created with Android development in mind. It was created specifically for Android in order to speed up development and create the highest-quality apps for all other Android devices.

It uses a Gradle-based flexible build mechanism. It also includes an emulator that is both feature-rich and quick. Because it provides a uniform environment, you can create for all

Android devices. You do not need to restart your app because modifications to your push code affect your running app's resources.

Features:

- Gradle-based build support
- Android-specific refactoring and quick fixes
- Lint tools to catch performance, usability, version compatibility and other problems
- ProGuard integration and app-signing capabilities
- Template-based wizards to create common Android designs and components
- A rich layout editor that allows users to drag-and-drop UI components, option to preview layouts on multiple screen configurations.
- Support for building Android Wear apps
- Built-in support for Google Cloud Platform, enabling integration with Firebase Cloud Messaging (Earlier 'Google Cloud Messaging') and Google App Engine.
- Android Virtual Device (Emulator) to run and debug apps in the Android studio.

3.4.1.2 FIREBASE

Provider of backend-as-a-service (BaaS). Firebase started out as a YC11 startup. It grew into a next-generation app development platform on Google Cloud Platform. Firebase is a real-time NoSQL Json database that allows you to store a tree-like collection of items. Data can be synchronised across many devices.
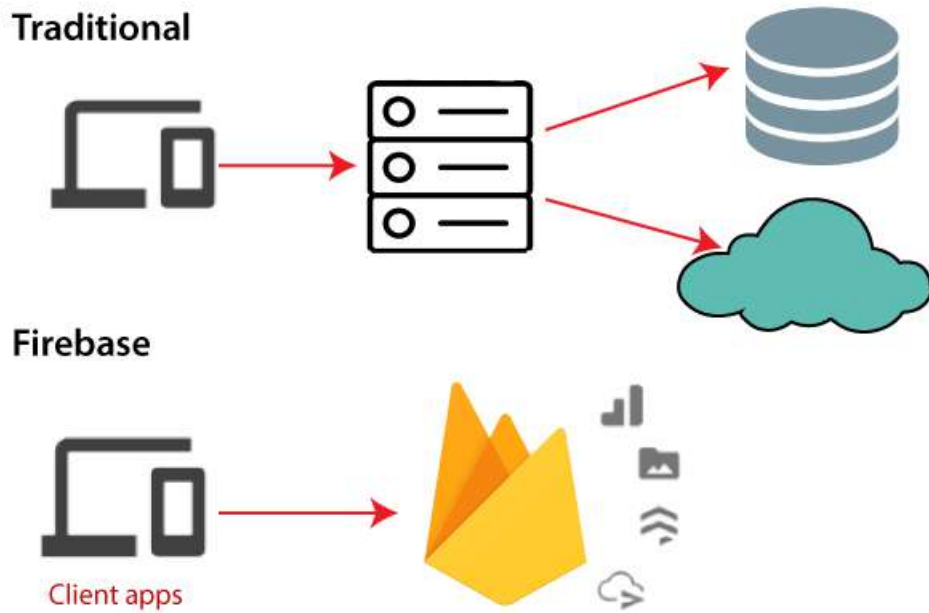
Figure 4.1: Firebase

Google Firebase is an app development platform powered by Google that allows developers to create apps for Android, iOS, and the web. Firebase provides a number of tools for reporting and fixing app faults, gathering analytics, and creating marketing and product experiments.

A real-time database, user authentication, and hosting are the three core services provided by Firebase. We can construct apps using these services and the Firebase iOS SDK without having to write any server code.
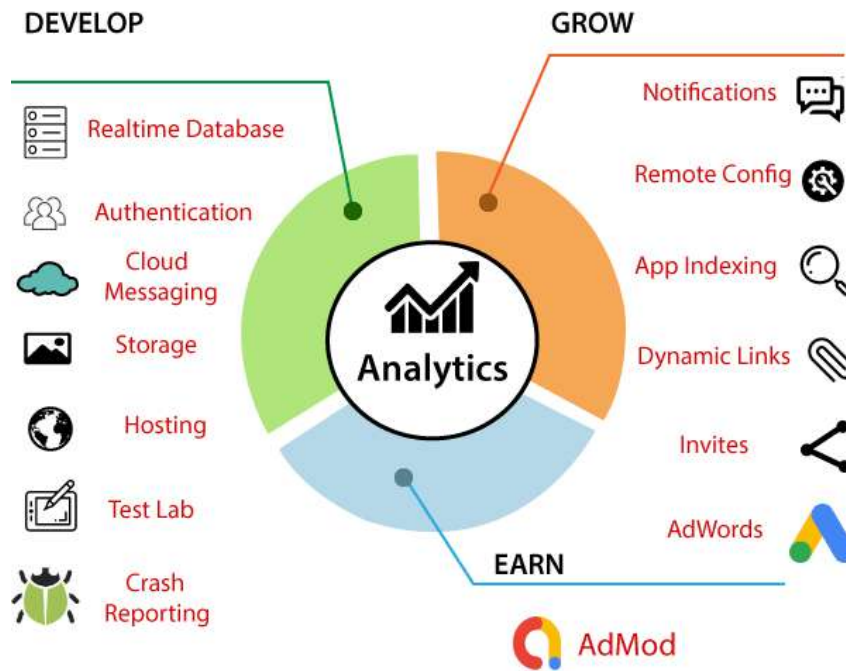
Figure 4.2: Firebase

Why use Firebase?

Firebase is a database that maintains real-time data. As a result, data is readily and swiftly exchanged to and from the database. As a result, we may utilise Firebase to construct mobile apps such as live streaming, chat messaging, and so on.

Without having to refresh the screen firebase allows you to sync real-time data across all your devices,

To construct our apps with quick and precise administration and maintenance, Firebase enables connectivity with Google Advertising, Ad Mob, Data Studio, Big Query DoubleClick, Play Store, and Slack.

Firebase includes everything from databases to analytics to crash reports. As a result, the app development team will be able to concentrate on improving the user experience.

A secure connection to the Firebase server may be used to launch Firebase apps.

A basic control dashboard is provided by Firebase.

Pros:

- Massive storage size potential.
- It is server-less.
- Most advanced BaaS solution.
- It has JSON storage, which means no barrier between data and objects.

Cons:

- Limited querying and indexing.
- Provides no aggregation.

Chapter 4 System Design

4.1 Basic Modules

The flow of the application goes like this:

1. Once the application is installed user must sign up and fill the health related data which will help application to plan the tasks.

2. The tasks will be physical exercise such as push ups, squats, etc which will be scheduled every day for user.

3. As user does regularly exercise a progress can be maintained, which will be shown in the progress panel.

4. According to the performance of the user points will be add to user's account.

5. There is also a Blog Panel which will help user by providing them fitness related Articles. It will get updated every day.

4.2 Data Design (Table Design)
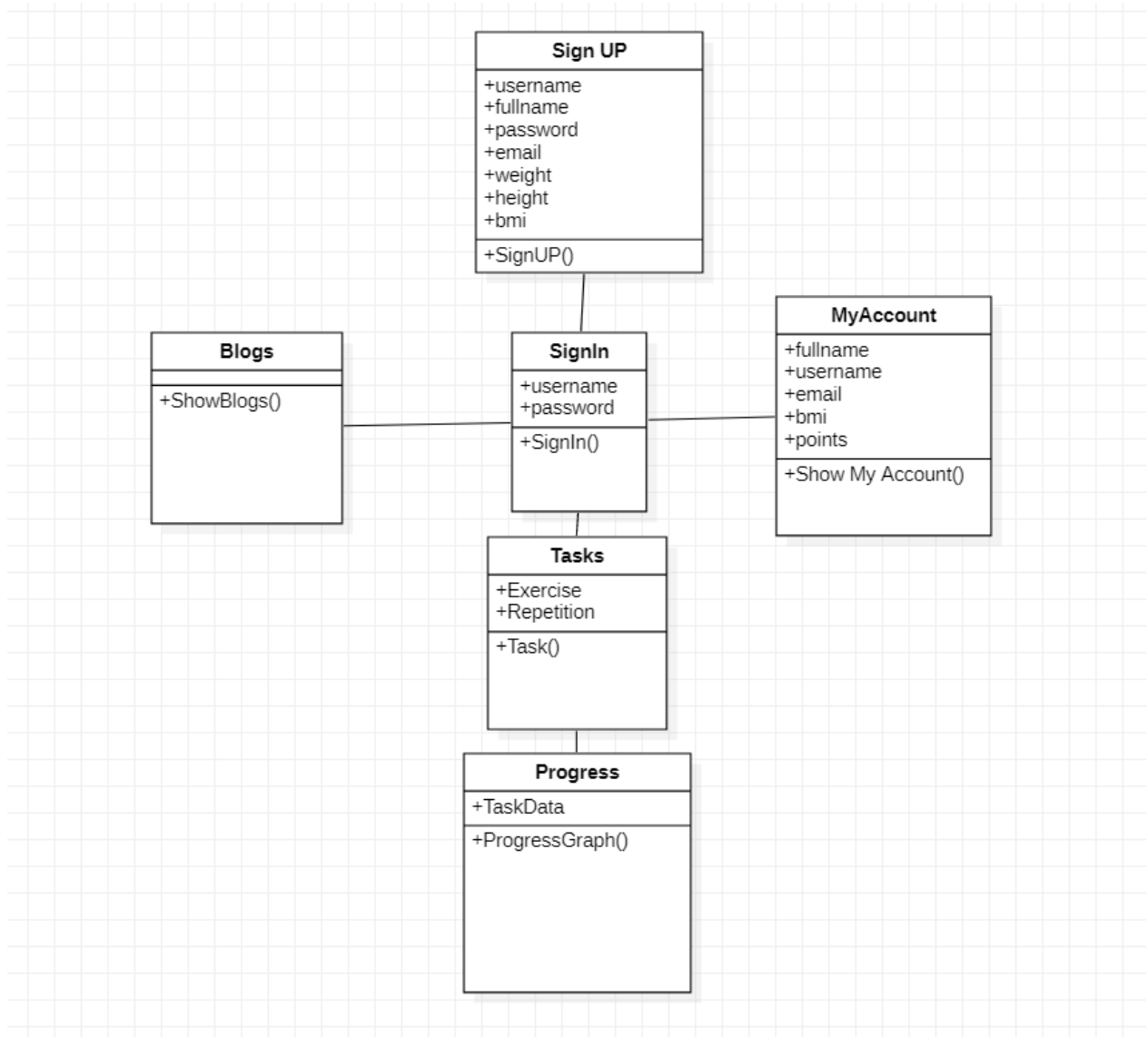
4.2.1 Schema Design

Figure 5: Schema Design

4.2.2 Data Integrity and Constraints

Column Name	Data Type	Size	Description	Constraints
ID	String	11	Id of User	Primary Key
Name	String	20	Username	Not Null
Password	String	20	User's Password	Not Null
Email	String	50	User's Email Id	Not Null
Age	String	100	User's Age	Not Null
Weight	String	-	User's Weight	Not Null
Height	String	-	User's Height	Not Null
BMI	String	-	Body Mass Index	Not Null

Table 1:Data Integrity and Constraints

4.3 Diagrams

4.3.1 E-R Diagram /Block Diagram
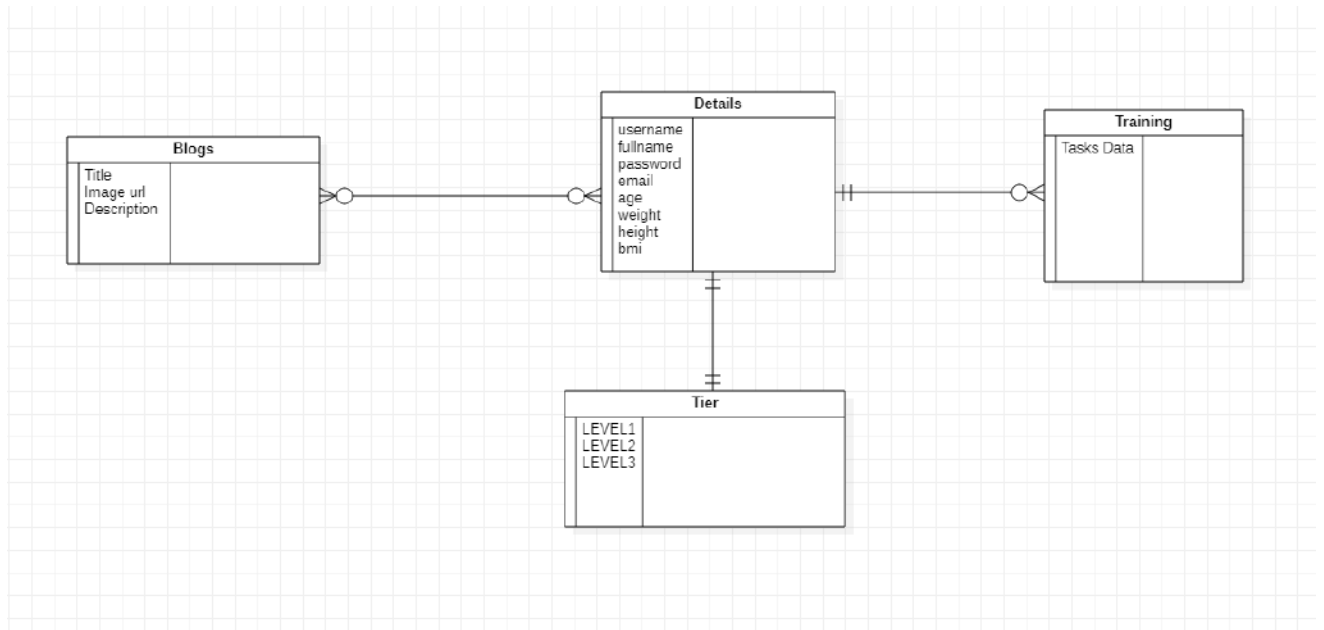
Figure 6: ER/Block Diagram

4.3.2 Class Diagram / Data Flow Diagram
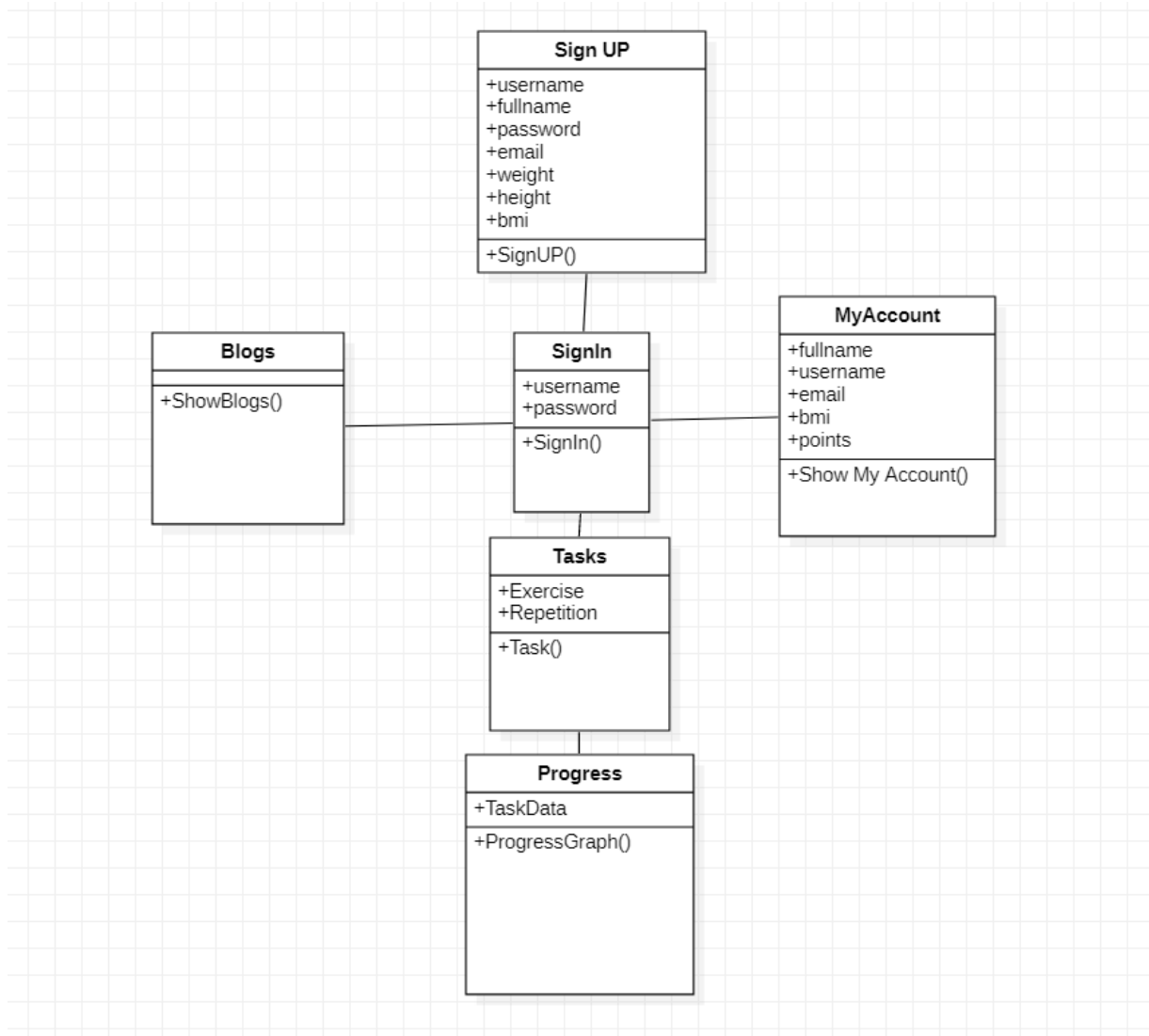
Figure 7: Data Flow Diagram

4.3.3 Use Case Diagram
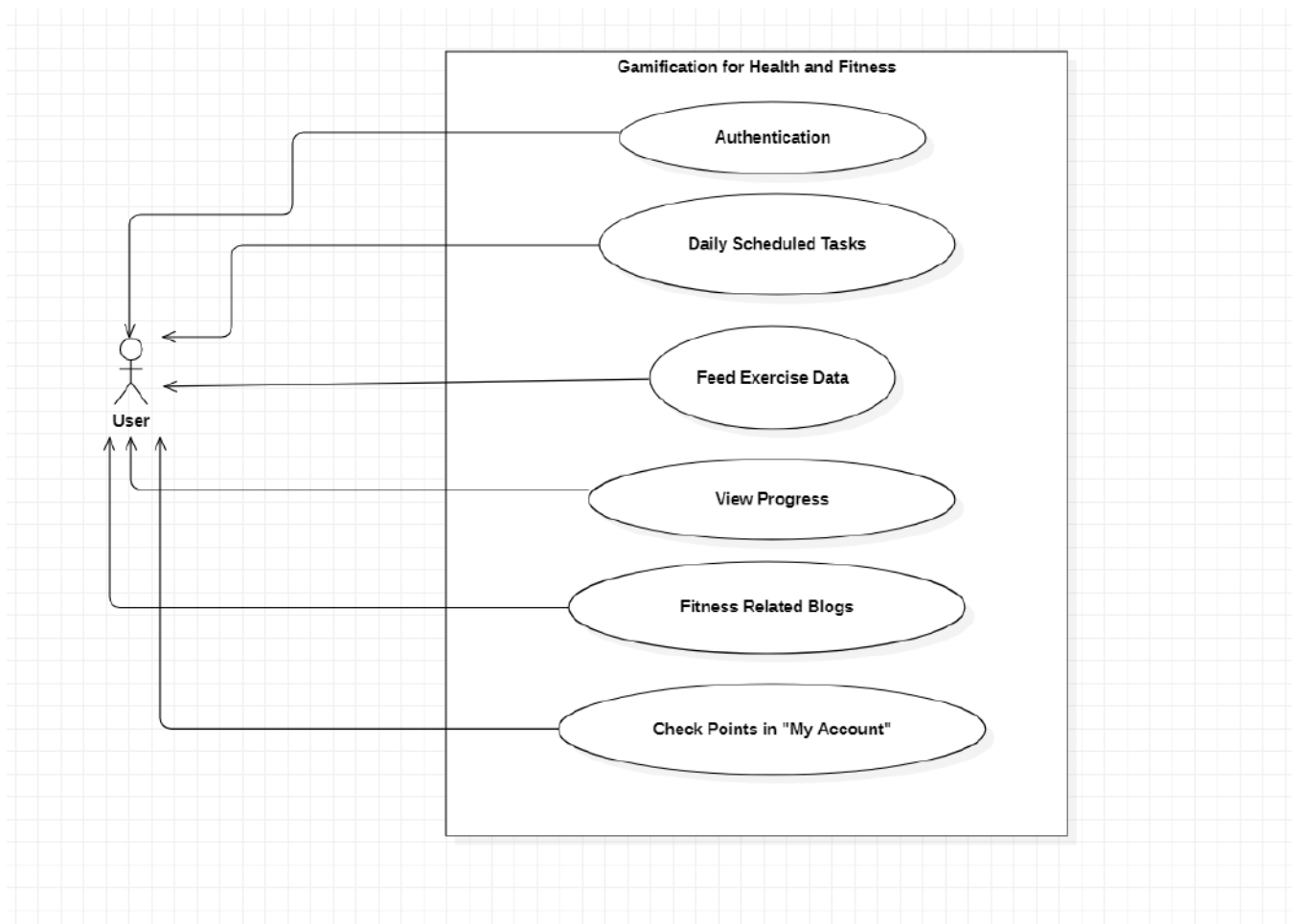
Figure 8: Use Case Diagram

4.3.4 Sequence Diagram
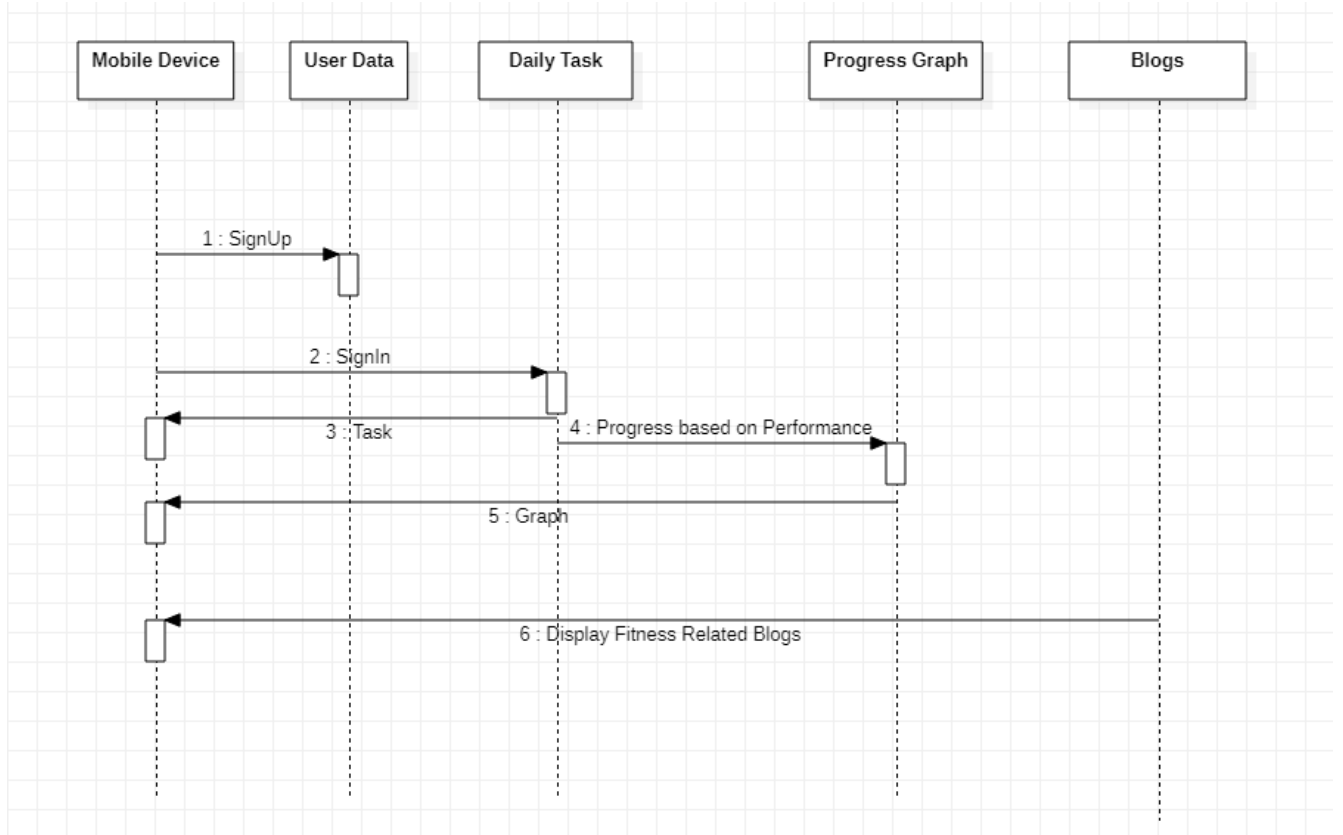
Figure 9: Sequence Diagram

4.3.5 Activity Diagram
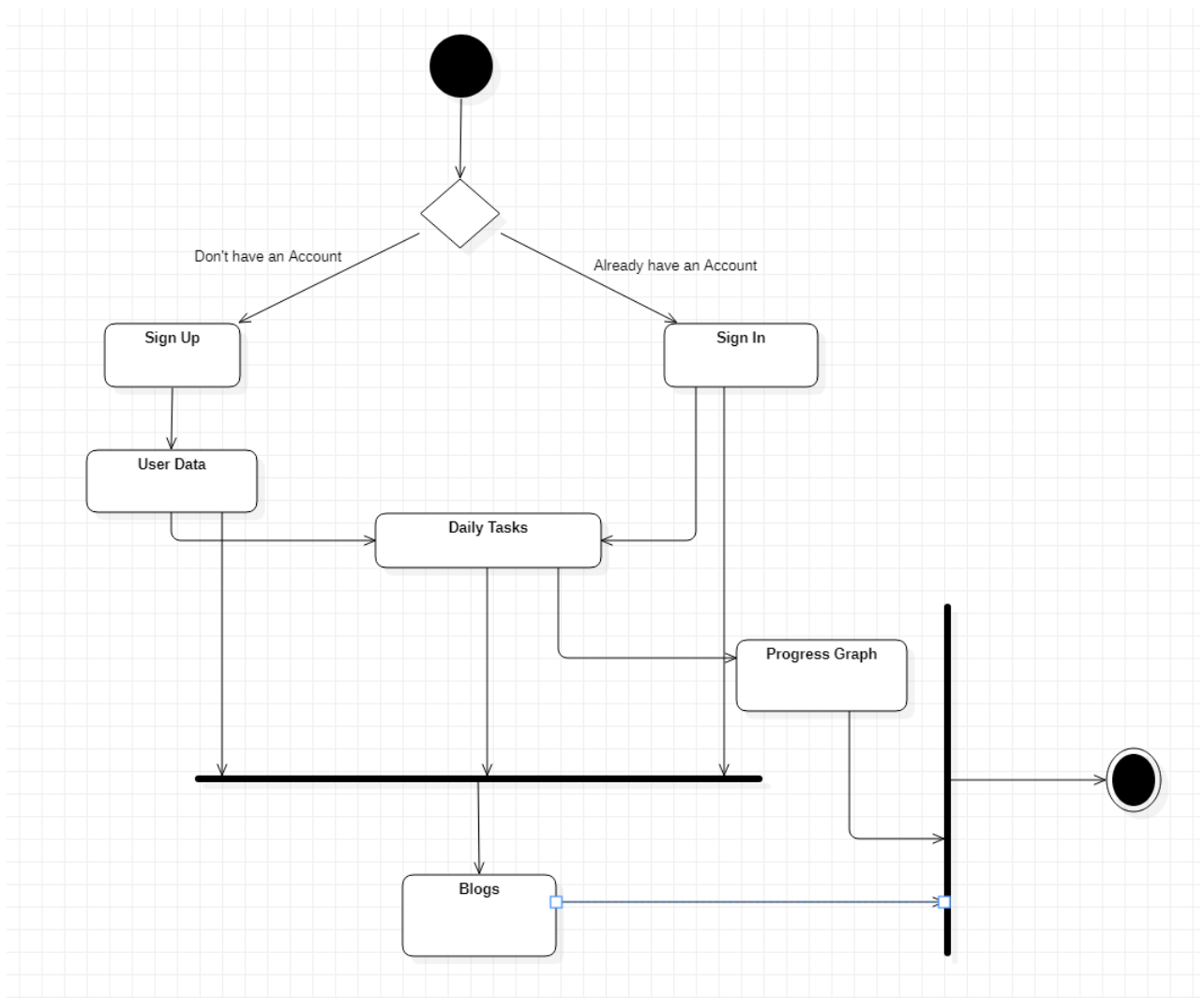
Figure 10: Activity Diagram

4.3.6 Component Diagram
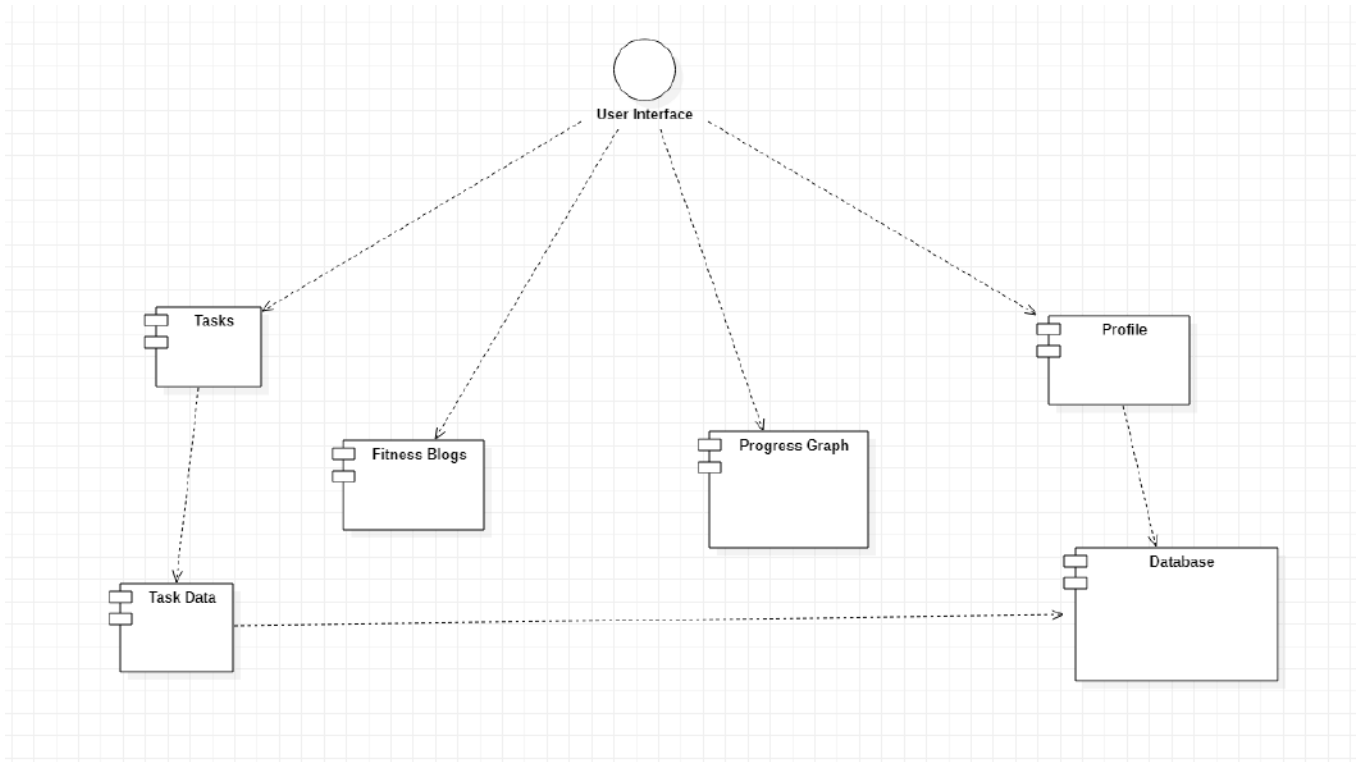
Figure 11: Component Diagram

4.3.7 Menu Tree / Circuit Diagram
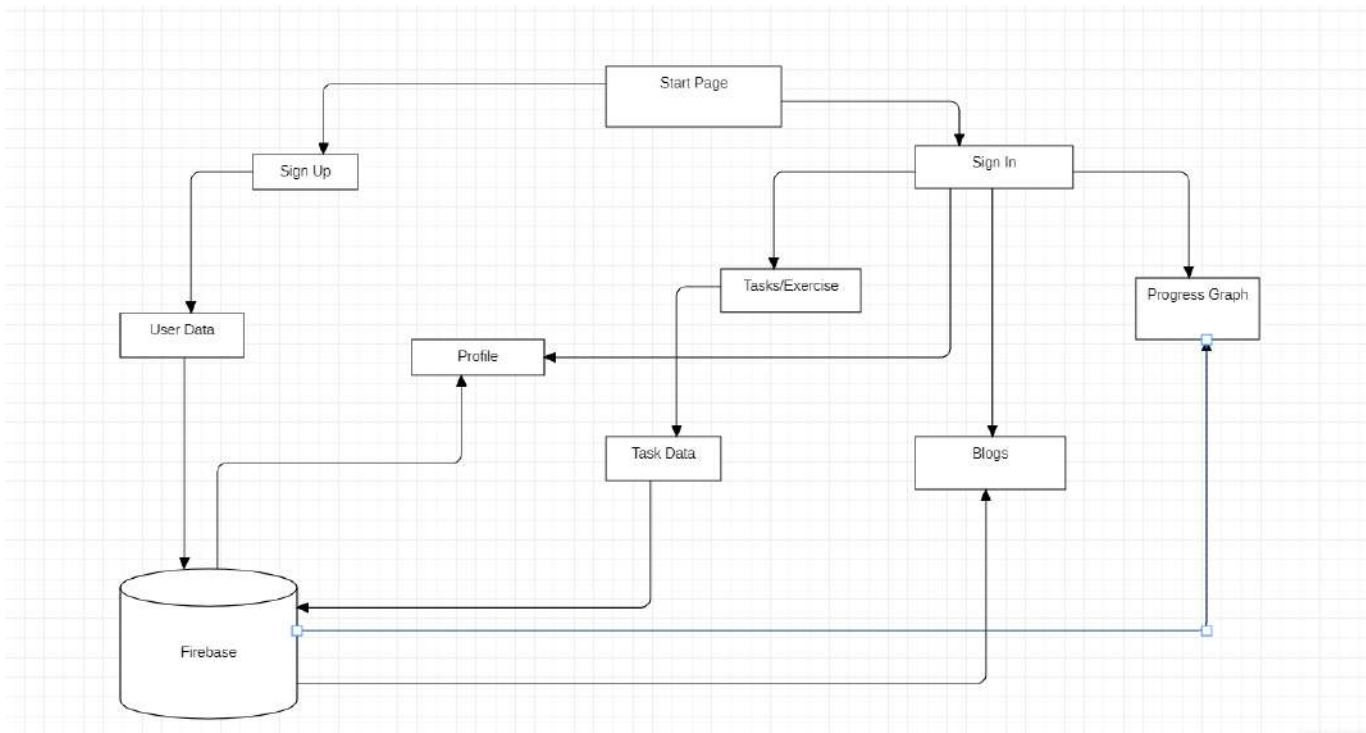
Figure 12: Menu Tree
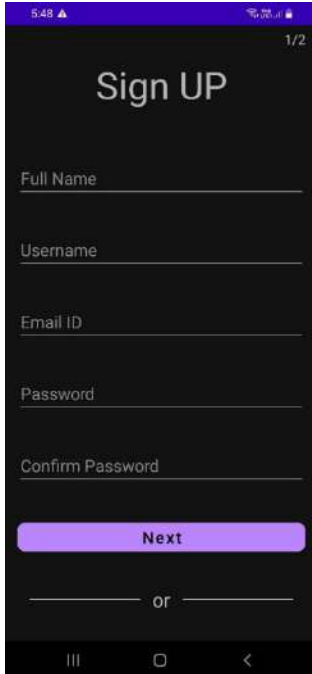
4.3.8 Event Table

Events	Trigger	Source	Activity	Response	Destination
User wants to Sign Up	Sign Up	New User	Create new User Account.	Database Server	-
User wants to Sign In	Sign In	User	Authenticates User	Database Server	Land on Main Page
User selects Daily Tasks	Particular Task / Exercise	User	Starts the timer and perform the task.	Daily tasks	Store Value of Repetition in exercise
User wants to check Progress Report	Progress Data	User	Daily Progress Report of user	Progress Report	-
User wants to read Health Blogs	Blogs	User	Display list of Health Blogs	Health Blogs displayed	-

Table 2: Event Table

4.3.9 User Interface Design

Sign Up:

Figure 13: Sign Up 1

Figure 14: Sign UP2

Sign In:
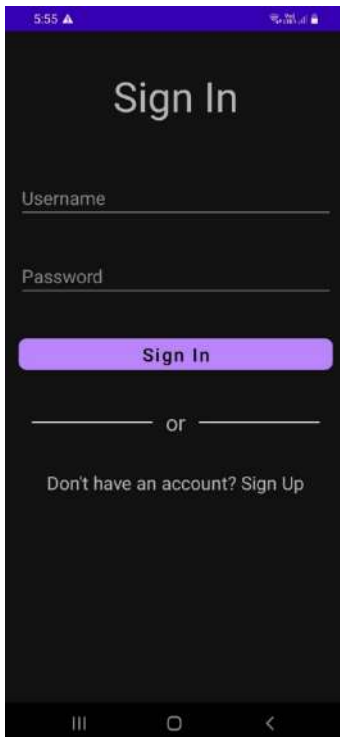
Figure 15: Sign In

Task:
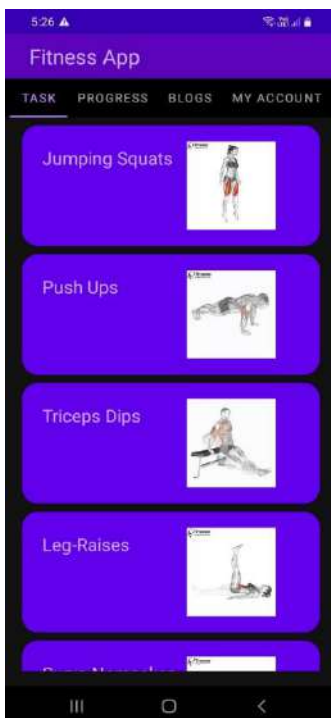
Figure 16: Task

Exercise Module:
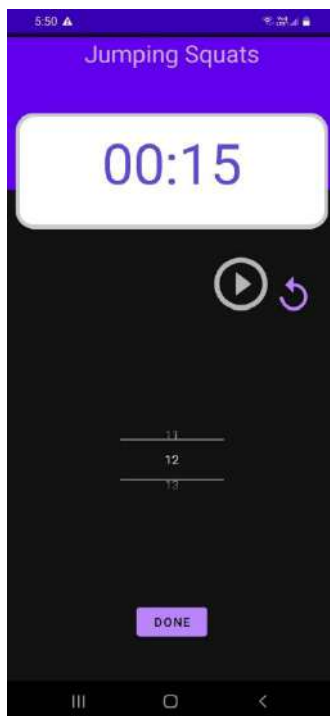
Figure 17:Exercise Module

Progress:
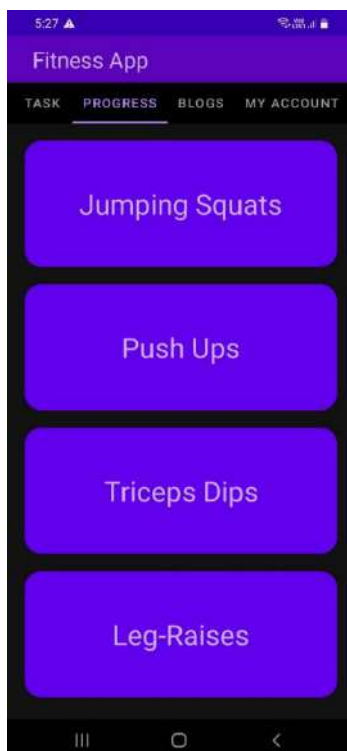
Figure 18: Progress

Graph:

Figure 19: Graph

Blogs:

Figure 20: Blogs

My Account:
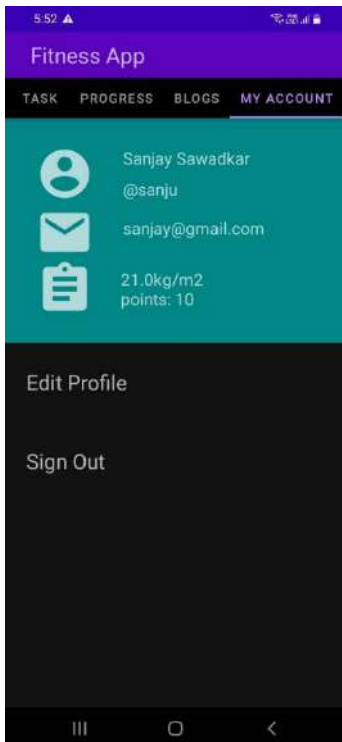
Figure 21: My Accounts

Edit Details:

Figure 22: Edit Details

4.3.10 Security Issues

Today Security is the real concern in android devices. As most of the task which were able to do on computers only can be done on smartphones.

Which mean more sensitive data gets stored on the device. Also, what permissions are given to the application is important.

So, as a developer every permission will be asked for the access of the components needed from the devices. No unwanted permissions will be asked by application. There will be no unnecessary background process running which can be insecure and will only connect to any services after validating them.

4.3.11 Test Cases Design

Inspection Check	Pre-Condition	Test Data	Priority
SignUp / SignIn Module	When user Launches the app for first time it should ask for SignIn. And SignUp if new user.	SignIn should succeed if the credentials are Authenticated, or else user should SignUp successfully if it is a new user	Medium
Task / Exercise Module	User must start the timer and perform the task and then submit the repetitions.	If a user select's a particular task, it keeps a record in the database.	High
Progress Module	Progress Graph	Should display Progress Record of the user.	High
Blog Module	User must have Logged In	List of Health-Related Blogs should show-up.	Low

Table 3: Test Case Design

Chapter 5 Implementation and Testing

5.1 Implementation Approaches

Sr. No.	Implementation Plan	Action
1.	Module	Task Module Graph Module Blogs Module Profile Module
2.	Percentage Completed	Task Module: 100% Graph Module: 100% Blogs Module: 95% Profile Module:95%
3.	Status	Task Module: Completed Graph Module: Completed Blogs Module: Completed Profile Module: Completed
4.	Day Started	Task Module: 12/01/2022 Graph Module: 9/02/2022 Blogs Module: 24/12/2021 Profile Module: 1/03/2022
5.	Day to be Completed	Task Module: 12/02/2022 Graph Module: 25/02/2022 Blogs Module: 01/01/2022 Profile Module: 05/03/2022
6.	Actual Completion Date	Task Module: 23/02/2022 Graph Module: 15/03/2022 Blogs Module: 01/01/2022 Profile Module: 05/03/2022
7.	Module Assignment	Task Module: Soham

		Patil/Aavishkar Baraskar
		Graph Module: Soham Patil/Aavishkar Baraskar
		Blogs Module: Soham Patil/Aavishkar Baraskar
		Profile Module: Soham Patil/Aavishkar Baraskar
8.	Importance of Module	Task Module: High Graph Module: High Blogs Module: Medium Profile Module: Medium

Table 4: Implementation Approach

5.2 Coding Details and Code Efficiency:

TaskFragment.java

```java
import static android.content.ContentValues.TAG;
import android.content.Context;
import android.content.SharedPreferences;
import android.os.Bundle;
import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import androidx.fragment.app.Fragment;
import androidx.recyclerview.widget.LinearLayoutManager;
import androidx.recyclerview.widget.RecyclerView;
import com.example.fitnessapp.Adapter.TaskAdapter;
import com.example.fitnessapp.Model.TaskModel;
import com.example.fitnessapp.R;
import com.example.fitnessapp.SignInFragment;
import com.firebase.ui.database.FirebaseRecyclerOptions;
import com.google.firebase.database.FirebaseDatabase;
import java.util.List;

public class TaskFragment extends Fragment {

  RecyclerView recyclerView;
  TaskAdapter taskAdapter;
  List<TaskModel> taskModelList;

  public TaskFragment() {
    // Required empty public constructor
  }

  @Override
```

```java
public View onCreateView(LayoutInflater inflater, ViewGroup container,
                Bundle savedInstanceState) {
    // Inflate the layout for this fragment
    View view =  inflater.inflate(R.layout.fragment_task, container, false);


    //Setting Up RecyclerView
    recyclerView = (RecyclerView)view.findViewById(R.id.TaskrecyclerView);
    LinearLayoutManager layoutManager = new LinearLayoutManager(this.getContext());
    layoutManager.setStackFromEnd(true);
    layoutManager.setReverseLayout(true);
    recyclerView.setLayoutManager(layoutManager);


    //Fetching BMI
    SharedPreferences sharedpreferences =
getContext().getSharedPreferences(SignInFragment.MyPREFERENCES,
Context.MODE_PRIVATE);
    Float bmi = Float.parseFloat(sharedpreferences.getString("bmi",""));


    //Setting up level
    String Level;
    if(bmi < 18.5){
        Level ="LEVEL1";
        Log.d(TAG, "onCreateView: "+ bmi + "level1");
    }
    else if( 18.5 < bmi && bmi < 24.5){Level ="LEVEL2";
        Log.d(TAG, "onCreateView: "+ bmi + "level2");
    }
    else{Level ="LEVEL3";
        Log.d(TAG, "onCreateView: "+ bmi + "level3");
    }


    //Fetching tasks from TIER node
    FirebaseRecyclerOptions<TaskModel> options =
            new FirebaseRecyclerOptions.Builder<TaskModel>()
```

```java
                .setQuery(FirebaseDatabase.getInstance().getReference().child("TIER").child(Level),
TaskModel.class)
                .build();

        taskAdapter = new TaskAdapter(options);
        recyclerView.setAdapter(taskAdapter);

        return view;
    }

    @Override
    public void onStart() {
        super.onStart();
        taskAdapter.startListening();
    }

    @Override
    public void onStop() {
        super.onStop();
        taskAdapter.stopListening();
    }
}
```

TaskAdapter.java

```java
package com.example.fitnessapp.Adapter;

import android.content.Intent;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ImageView;
```

```java
import android.widget.TextView;

import androidx.annotation.NonNull;

import androidx.recyclerview.widget.RecyclerView;

import com.bumptech.glide.Glide;

import com.example.fitnessapp.Model.TaskModel;

import com.example.fitnessapp.R;

import com.example.fitnessapp.TrainingActivity;

import com.firebase.ui.database.FirebaseRecyclerAdapter;

import com.firebase.ui.database.FirebaseRecyclerOptions;


import org.jetbrains.annotations.NotNull;


public class TaskAdapter extends
FirebaseRecyclerAdapter<TaskModel,TaskAdapter.MyHolder> {

    public TaskAdapter(@NonNull FirebaseRecyclerOptions<TaskModel> options) {
        super(options);
    }



    @Override
    protected void onBindViewHolder(@NonNull MyHolder holder, int position, @NonNull
TaskModel model) {

        //Setting up values fetched up from database
        holder.Tasktitle.setText(model.getTtitle());
        String avg = String.valueOf(model.getavg()) ;
        Glide.with(holder.Gif.getContext()).load(model.getgif()).into(holder.Gif);

        //Passing value from task fragment to TrainingActivity
        holder.Tasktitle.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(v.getContext(), TrainingActivity.class);
```

```java
            intent.putExtra("Label", model.getTtitle());

            intent.putExtra("avg", avg);

            v.getContext().startActivity(intent);


        }

      });

    }


    @NonNull
    @Override
    public MyHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {
        View view =
LayoutInflater.from(parent.getContext()).inflate(R.layout.tasks,parent,false);
        return new TaskAdapter.MyHolder(view);
    }



    //It holds layout components in variables
    class MyHolder extends RecyclerView.ViewHolder{

        TextView Tasktitle;
        ImageView Gif;

        public MyHolder(@NotNull View itemView){
            super(itemView);
            Gif=itemView.findViewById(R.id.gif);
            Tasktitle = itemView.findViewById(R.id.tasktitle);
        }
    }
}
```

TaskModel.java

```java
package com.example.fitnessapp.Model;

public class TaskModel {
    String Ttitle,gif;
    int Id,avg;
    public TaskModel(){

    }
    public TaskModel(String Ttitle,String gif, int Id,int avg){
        this.Ttitle = Ttitle;
        this.gif = gif;
        this.Id = Id;
        this.avg = avg;
    }

    //Getter and Setter Method for each data
    public String getTtitle() {
        return Ttitle;
    }

    public void setTtitle(String Ttitle) {
        this.Ttitle = Ttitle;
    }

    public String getgif() {
        return gif;
    }

    public void setgif(String gif) { this.gif = gif; }

    public int getId() {
        return Id;
    }
```

```java
    public void setId(int Id) {
        this.Id = Id;
    }


    public int getavg() {
        return avg;
    }


    public void setavg(int avg) {
        this.avg = avg;
    }
}
```

ProgressAdapter:

```java
package com.example.fitnessapp.Adapter;


import android.content.Context;
import android.content.Intent;
import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.Button;
import android.widget.TextView;
import android.widget.Toast;
import androidx.annotation.NonNull;
import androidx.recyclerview.widget.RecyclerView;
import com.example.fitnessapp.GraphActivity;
import com.example.fitnessapp.Model.TaskModel;
import com.example.fitnessapp.R;
import com.firebase.ui.database.FirebaseRecyclerAdapter;
```

```java
import com.firebase.ui.database.FirebaseRecyclerOptions;
import com.google.firebase.database.DataSnapshot;
import com.google.firebase.database.DatabaseError;
import com.google.firebase.database.DatabaseReference;
import com.google.firebase.database.FirebaseDatabase;
import com.google.firebase.database.ValueEventListener;

import org.jetbrains.annotations.NotNull;

import java.util.ArrayList;

public class ProgressAdapter extends
FirebaseRecyclerAdapter<TaskModel,ProgressAdapter.MyHolder> {

    private static final String TAG = null;
    public static int counter = 0;
    public static int click = 1;
    private static Context context;
    private final String Name;
    DatabaseReference Ref =
FirebaseDatabase.getInstance().getReferenceFromUrl("https://fitness-app-7b62f-default-
rtdb.firebaseio.com/Training");

    public static ArrayList Datee = new ArrayList<String>();
    public static ArrayList Dataa = new ArrayList<String>();

    public ProgressAdapter(@NonNull FirebaseRecyclerOptions<TaskModel> options, String
name) {
        super(options);
        Name = name;
    }


    @Override
```

```java
    protected void onBindViewHolder(@NonNull ProgressAdapter.MyHolder holder, int
position, @NonNull TaskModel model) {
        holder.Tasktitle.setText(model.getTtitle());

        //Fetching user data of a particular task module
        holder.Tasktitle.setOnClickListener(new View.OnClickListener() {

            @Override
            public void onClick(View v) {

                Intent intent = new Intent(v.getContext(), GraphActivity.class);
                click=click+1;
                Ref.addValueEventListener(new ValueEventListener() {

                    @Override
                    public void onDataChange(@NonNull DataSnapshot datasnapshot) {

                        if(datasnapshot.hasChildren()){
                            for(DataSnapshot myDataSnapshot : datasnapshot.getChildren()){
                                try {
                                    String data =
myDataSnapshot.child(Name).child(model.getTtitle()).getValue().toString();
                                    if (data.isEmpty() == false && click == 2) {
                                        String date = myDataSnapshot.getKey().toString();
                                        Datee.add(date);
                                        Dataa.add(data);
                                        counter = counter + 1;

                                    }
                                    intent.putExtra("Length" , String.valueOf(Datee.size()));
                                }
                                catch(Exception e){
                                    continue;
                                }
```

```java
                    }
                }
            }

            @Override
            public void onCancelled(@NonNull DatabaseError error) {
            }
        });

        intent.putExtra("Label", model.getTtitle());
        v.getContext().startActivity(intent);
    }

    });
}


@NonNull
@Override
public ProgressAdapter.MyHolder onCreateViewHolder(@NonNull ViewGroup parent,
int viewType) {
    View view =
LayoutInflater.from(parent.getContext()).inflate(R.layout.progress,parent,false);
    return new ProgressAdapter.MyHolder(view);
}

class MyHolder extends RecyclerView.ViewHolder{
    TextView Tasktitle;
    public MyHolder(@NotNull View itemView){
        super(itemView);
        Tasktitle = itemView.findViewById(R.id.graphtitle);
    }
}
}
```

GraphActivity.java

package com.example.fitnessapp;

import static com.example.fitnessapp.Adapter.ProgressAdapter.*Dataa*;

import static com.example.fitnessapp.Adapter.ProgressAdapter.*Datee*;

import static com.example.fitnessapp.Adapter.ProgressAdapter.*click*;

import android.graphics.Color;

import android.os.Bundle;

import androidx.appcompat.app.AppCompatActivity;

import com.github.mikephil.charting.charts.BarChart;

import com.github.mikephil.charting.components.XAxis;

import com.github.mikephil.charting.components.YAxis;

import com.github.mikephil.charting.data.BarData;

import com.github.mikephil.charting.data.BarDataSet;

import com.github.mikephil.charting.data.BarEntry;

import com.github.mikephil.charting.formatter.IndexAxisValueFormatter;

import com.github.mikephil.charting.utils.ColorTemplate;

import java.util.ArrayList;

public class GraphActivity extends AppCompatActivity {

    // variable for our bar data.

    BarData barData;

    // variable for our bar chart

    BarChart barChart;

    // variable for our bar data set.

    BarDataSet barDataSet;

    ArrayList barEntriesArrayList=new ArrayList<>();

    @Override

    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);

```java
setContentView(R.layout.activity_graph);

String label = getIntent().getStringExtra("Label");
barChart = findViewById(R.id.idBarChart);

for (int i = 0; i < Datee.size(); i++) {

    // accessing each element of array
    String x = (String) Datee.get(i);
    String y = (String) Dataa.get(i);
    int b= Integer.parseInt(y);

    //Setting up x and y values
    barEntriesArrayList.add(new BarEntry(i+0, b+0));

}

if(!Datee.isEmpty()){
barDataSet = new BarDataSet(barEntriesArrayList, label);
barData = new BarData(barDataSet);
barChart.setData(barData);
barDataSet.setColors(ColorTemplate.MATERIAL_COLORS);
barDataSet.setValueTextColor(Color.WHITE);
barChart.animateY(1000);
barDataSet.setValueTextSize(16f);
    YAxis axisLeft = barChart.getAxisLeft();
    axisLeft.setGranularity(2f);
    axisLeft.setAxisMinimum(0);

    YAxis axisRight = barChart.getAxisRight();
    axisRight.setGranularity(2f);
    axisRight.setAxisMinimum(0);
    XAxis xaxis = barChart.getXAxis();
    xaxis.setDrawGridLines(false);
```

```java
        xaxis.setPosition(XAxis.XAxisPosition.BOTTOM);
        xaxis.setGranularity(1f);
        xaxis.setDrawLabels(true);
        xaxis.setDrawAxisLine(false);
        xaxis.setTextColor(Color.WHITE);
        xaxis.setValueFormatter(new IndexAxisValueFormatter(Datee));


        YAxis yaxix = barChart.getAxisLeft();
        yaxix.setTextColor(Color.WHITE);


    barChart.getDescription().setEnabled(false);}
    else{
        finish();
    }
}


@Override
protected void onDestroy() {
    super.onDestroy();
    if(click==2){
    click = 1;
    Datee.clear();
    Dataa.clear();
    }
}
}
```

Code Efficiency:

1. It works on Realtime changes and user interface is interactive.
2. Firebase (No-SQL database) is used for reflecting the data in real time changes and dynamic for more interaction.
3. The project contains many import packages such as
   a. **Firebase.database**: It is used to store data on firebase database.
   b. **MPAndroidChart**: It is used to plot the graph when user data is provided.
   c. **Bumptech.glide**: It is the library which we have used to show gif and blog images which are stored on other servers.

5.3 Testing approaches

The practise of reviewing and validating that a software product or application accomplishes what it is designed to do is known as software testing. Preventing bugs, lowering development costs, and boosting performance are all advantages of testing.

Before a piece of software is published for commercial use, it goes through extensive testing. Unit testing, integration testing, system testing, and acceptance testing are the four main layers of software testing. These four levels of software testing are intended to detect faults, assess correct behaviour, and evaluate the software application's performance.

Test approach has two techniques:

Proactive - An approach in which the test design process is initiated as early as possible to find and fix the defects before the build is created.

Reactive - An approach in which the testing is not started until after design and coding are completed.

5.3.1 Unit Testing

Unit testing is a testing technique in which individual modules are checked by the developer to see if there are any flaws. It is concerned with the standalone modules' functional correctness.

The basic goal is to isolate each component of the system in order to detect, analyse, and correct any flaws.

Unit Testing Lifecycle:
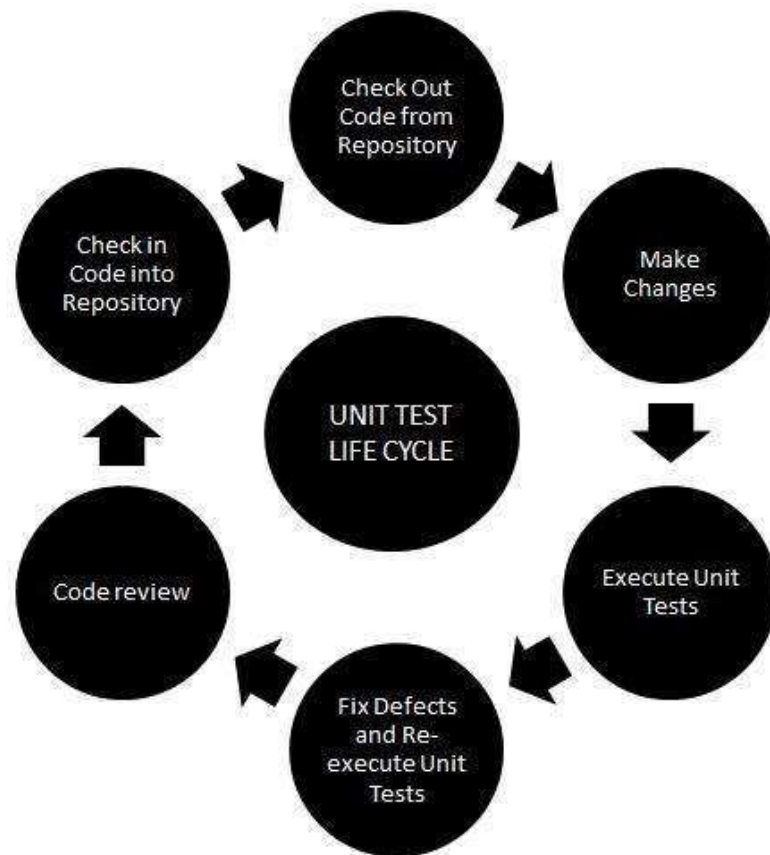
Figure 23: Unit Testing

Here we have four models:

1. **Task Module:** In this module, the user will get the task/exercise based on the height, weight, and age that he will be providing during the Sign Up. Daily task will be updated from the Firebase database which makes it dynamic. The main goal of this module is to provide exercise related to a person's BMI.

2. **Progress Module:** In this module, the user will get his performance report in the form of graph. The graph is generated once the user completes the exercise and submits the counts.

3. **Blogs Module:** In this module, the user will get all the information, tips and tricks, diet plans, etc related to fitness.

4. **Profile Module:** In this module, user will be able to edit his details according to his requirements.

5.3.2 Integration Testing

Integration testing is a type of software testing in which individual modules are merged and examined to see if they function properly when combined. The primary goal of this exercise is to evaluate the interface between the components.

Approaches of Integration Testing:

- Big Bang Integration
- Top-Down Integration
- Bottom-Up Integration
- Hybrid Integration

Bottom-Up Approach:

The bottom-up technique begins with the application's simplest units and works its way up one by one. Testing is carried out from the bottom of the control flow to the top. It is likely that by the time the lower modules are tested, the higher-level modules will not have been constructed. In such circumstances, we use drivers to emulate the functionality of missing components. These drivers are responsible for a variety of functions, including launching the module under test, passing test data, and receiving output data.

5.4 Modification and Improvements

After unit testing and integration testing application faces some bugs and errors which needs to be modified and fixes all the bugs and error makes the application more user friendly.

Modifications done in the application:

1. Some modules were showing some glitches in design on different devices, so we changed the layouts to constraint layout, so it shows same interfaces on different devices.
2. When coming back to home activity from Edit activity application used to exit. So, we configured onDestroy() method.
3. There were design glitches when devices were in light mode. So, we limited our application to dark mode. Now even if the devices are on light mode, it will show application with dark theme.
4. Application was asking log in credentials every time user wanted to enter application after quitting it on device. We used session for user so that application will not ask login credentials every time.
5. In Progress Panel Data was not plotted properly.

Chapter 6 Results and Discussion

6.1 Test Reports

Sr. no	Test Cases	Description	Expected Output	Final Result
1	Sign In	User should provide his credentials to Sign In	Should Authenticate and allow access to the application	Successful
2	Sign Up	User should create his profile to access the application	User data should be stored in the Firebase Database	Successful
3	Task Module	User will be shown number of Exercises / Task	It should show daily tasks/exercises according to users BMI	Successful
4	Progress Module	User will be provided with the progress graph according to his performance	It should show users progress in graph format	Successful
5	Blog Module	User will be shown blogs to enhance their health related knowledge	It should Blogs on the panel	Successful
6	Profile Module	User will be	It should show	Successful
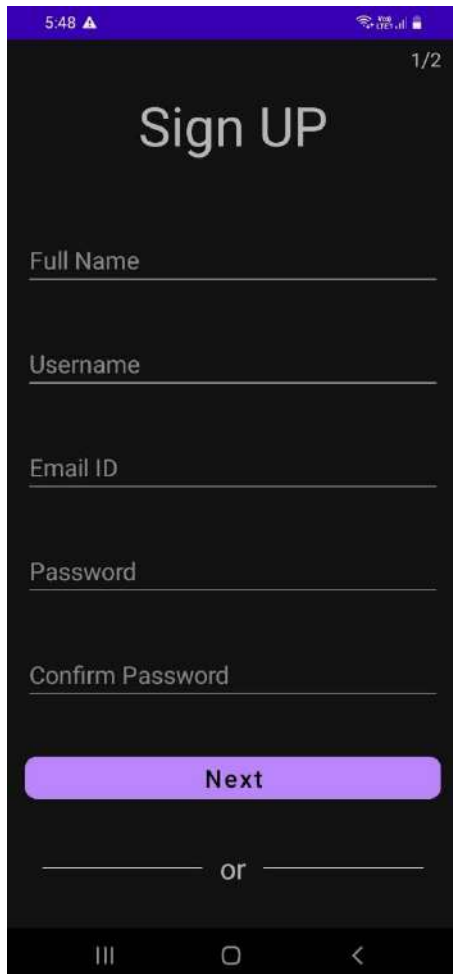
		shown his details in this module.	user data on the panel	
7	Points	Based on users performance points will be credited to their account.	If users performance is up to the mark his/her account should be credited with marks	Successful
8	Edit Details	User will be able to edit his/her details.	User details should get updated when edited	Successful
9	Sign Out	User can Sign Out	User should Sign Out from the current session and exit from the application	Successful

Table 5: Test Report

6.2 User Documentation

Sign Up:

Firstly, Sign Up page which will ask user to create their account and enter their physical details such as weight, height, and age.

Sign In:

We have sign in page where user can log in to application. Once user log in to application, we will create session so that user is not needed to login again until they sign-out.

Task:

When user logs in the first landing page is of tasks. So, user can select any exercise he/she want to perform by clicking on that block. This Exercises will change on daily basis giving users the feel of daily task.
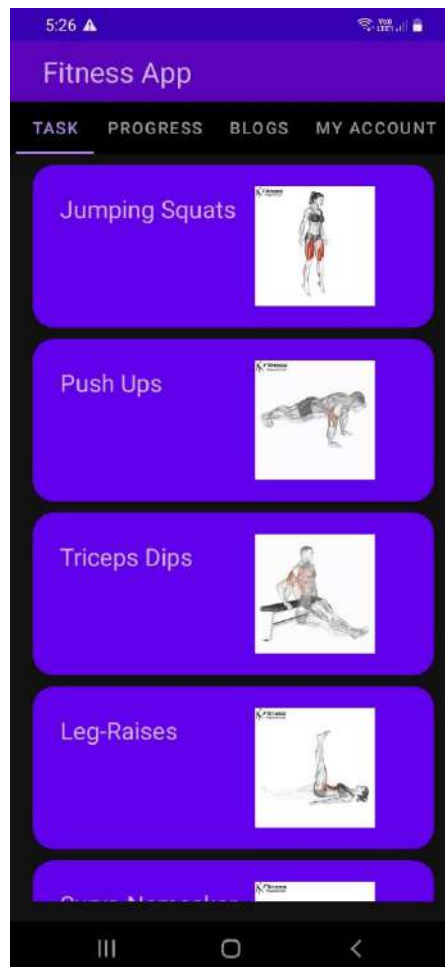
Timer and Done Button.:

When user enters any exercise module, he/she will need to start the timer in order to start their task. When the task is over user will have to pause the timer and enter the count of repetition they have performed in that exercise.
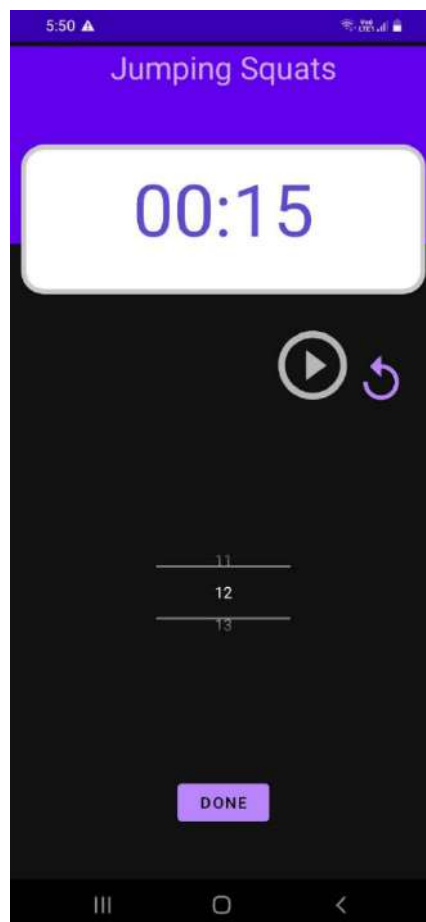
Points Collection:

Points will get added to their account if the user has touched the certain performance mark.

Progress:

We have a Progress Panel where user can see their previous data related to the exercises they have to perform today.
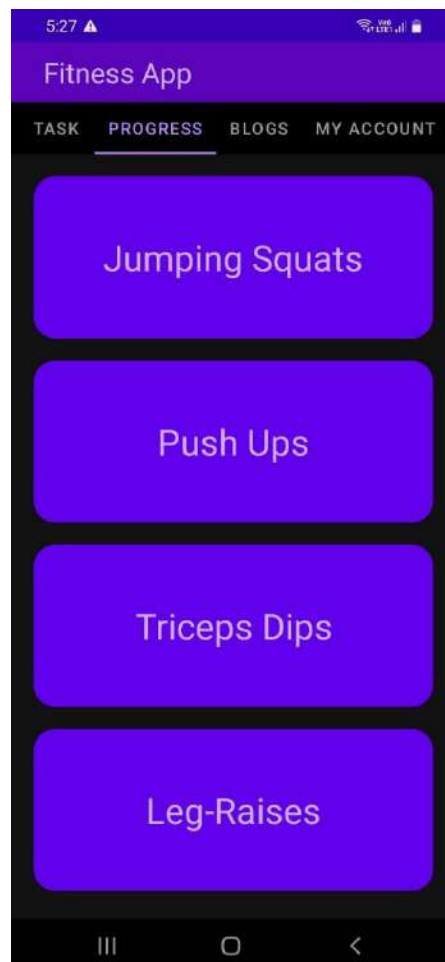
Graph:

User will be shown their exercise data in bar graph format where they can see the date and the repetition count, they have performed on that date.
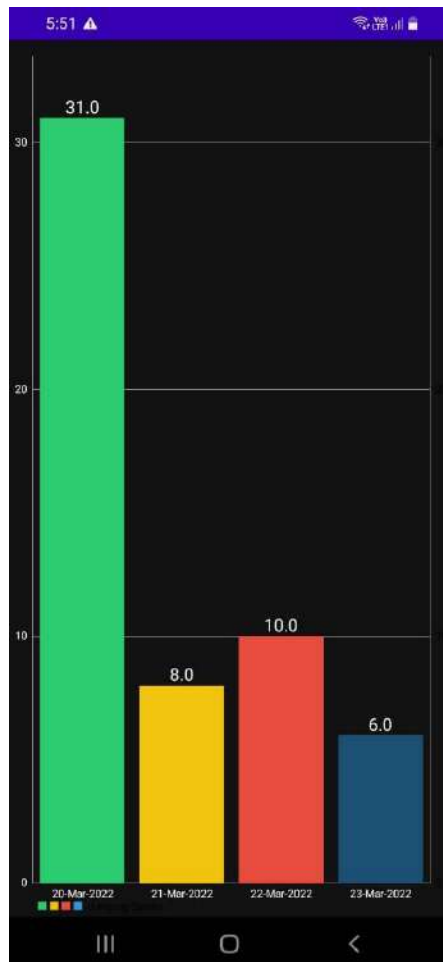
Blogs:

Everyday Users will get to see Blogs in blogs panel which will help them get healthy.
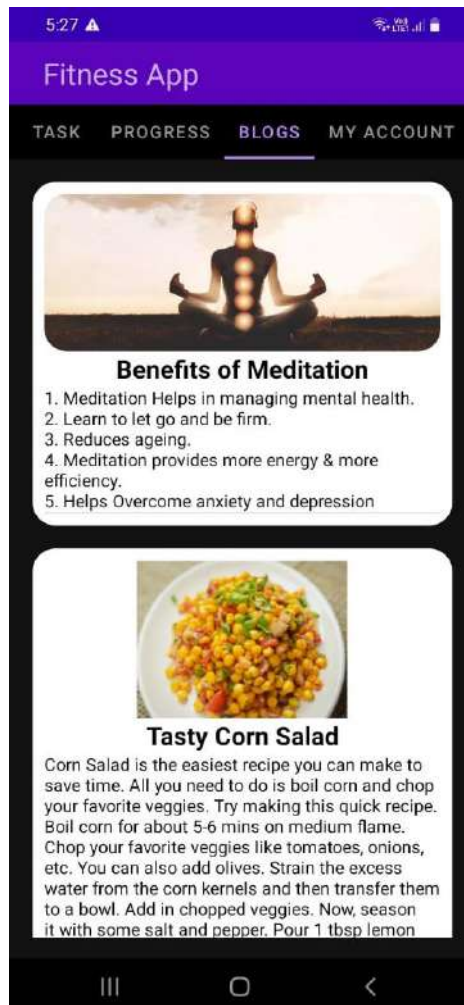
My Account:

User can see their details here and they can also see their points which they have scored.
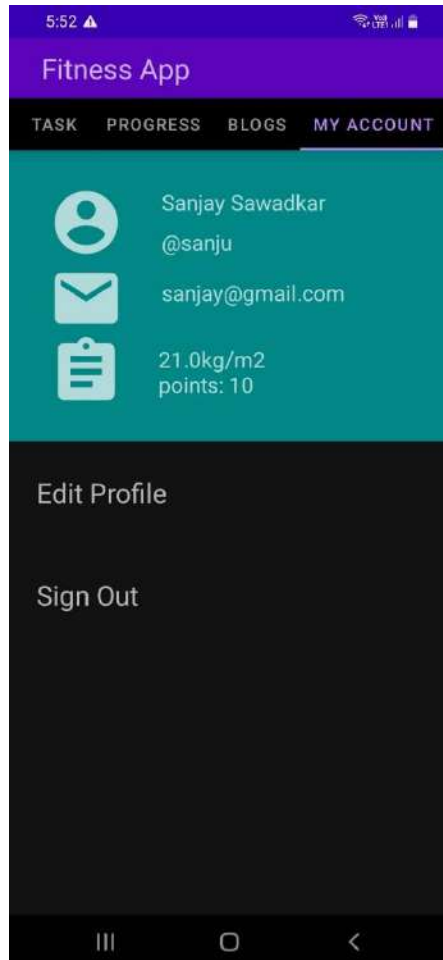
Edit Details:

In edit details user can change their weight and height.

Chapter 7 Conclusion

7.1 Conclusion

The project is based on two major modules which is Task and Progress Module. The Task module is used to show the Daily Exercises to be performed based on the BMI. The second module is used to show the progress of the particular exercise they have performed. There are also other modules such as Blogs and Profile Module which used for better interaction.

The primary goal of this project is to make daily fitness session more interesting and engaging so that user can enjoy it.

The User will be first asked to give their details such as height, weight, BMI. He then will be allowed to do the exercise given the Task section. The user will also be given a progress report which will show him his daily progress and will give higher targets based on previous achievements. This will make the user improve his fitness and push his capabilities. The app will also include all fitness related tips and tricks in the Blog section.

Therefore, the basic purpose of the project is to provide a platform where user will get daily task related to his BMI.

7.2 Limitation of the system.

As exercises are shown in the Tasks Panel, there is no way to check user is doing the exact exercise and doing it right. If we could check the user performing exercises, application can become more enhanced. Api can be used for Blogs so that articles update automatically, and more dynamic news could be showed.

Points added to the Account cannot be valued right now because it cannot be used anywhere. The Plan is to make those point valuable by giving user some benefits in transactions to those points.

7.3 Future Scope of the Project

Pose Estimation can be used to verify the Users performing the exercises, there are models which can be used such as movenet.thunder, movenet.lightning ,posenet, etc for detecting human body and pose which can be used to validate if user is doing the exercises right.

During the making of project, we had come across media pipe library which helped us create Exercise Repetition counter which worked fine on our local systems. We encountered problems while scaling up and using our coded python script to work with android camera.

References

https://developer.android.com/about

https://www.javatpoint.com/android-tutorial

https://www.javatpoint.com/firebase

https://en.wikipedia.org/wiki/Firebase

Summary

The primary goal of this project is to make daily fitness session more interesting and engaging so that user can enjoy it.

The User will be first asked to give their details such as height, weight, BMI and then he will be taken to Questionnaire page where he will be asked health related questions. He then will be allowed to do the exercise given the Task section. The user will also be given a progress report which will show him his daily progress and will give higher targets based on previous achievements. This will make the user improve his fitness and push his capabilities. The app will also include all fitness related tips and tricks in the Blog section.

Plagiarism Report

RESULTS

100% — Completed: 100% Checked   0% Plagiarism   100% Unique

Sentence Wise Result   Document View   Matched Sources

RESULTS

100% — Completed: 100% Checked   4% Plagiarism   96% Unique

Sentence Wise Result   Document View   Matched Sources

Go Pro   Deep Search   AD No Ads   Reports   User Seats   Click here

RESULTS

100% — Completed: 100% Checked   6% Plagiarism   94% Unique

RESULTS

100% — Completed: 100% Checked   0% Plagiarism   100% Unique

Sentence Wise Result   Document View   Matched Sources

GOVERNMENT SCHEME TRACKING

A Project Report
Submitted in partial fulfilment of the
Requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By
Riddesh Mansingh Galande
Seat Number: 19302B0028

Under the esteemed guidance of

Mr./Mrs.Aasha Chavan

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 – 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Government Scheme Tracking "**, is bonafied work of **Riddesh Mansingh Galande** bearing Seat No: <u>19302B0028</u> submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

Date: **College Seal**   **Principal**

1. **COMPANY CERTIFICATE (for LIVE Project)**
2. **Avishkar/ Tantravihar/ Project Exhibition CERTIFICATE**
3. **Vsearch/ National/ International level Conference CERTIFICATE**
4. **RESEARCH PAPER**

Abstract

In the current coronavirus crisis and the ensuing lockdown, most migrants in India find themselves suddenly jobless as factories close, supply chains shut down and services freeze. The Narendra Modi government has responded to the crisis by announcing several social protection schemes, including direct benefit transfers for certain sections of the population and free LPG refills, grains and pulses for the poor.

But large sections of the population, including urban informal workers, are 'invisible' to the state. There is also no single view of 'whose getting what' and 'who should get what' to enable an efficient entitlement-based approach to social protection.

The objective of this project is to develop the software that covers all the aspects of management and operations of government schemes.

ACKNOWLEDGMENT

It gives immense pleasure in bringing out this synopsis of the project entitled **"Government Scheme Tracking"**.

Firstly, we would like to thank our teacher and guide Dr. Meghana Vyas who gave usher valuable suggestions and ideas when we needed them. She encouraged us to work on this project.

We are also grateful to our college for giving us the opportunity to work with them and providing us the necessary resources for the project. We would also thank to all of them who helped us to complete this project.

We are immensely grateful to all involved in this project as without their inspiration and valuable suggestion it would not have been possible to develop the project within the prescribed time.

Riddesh Mansingh Galande

With sincere thanks,

.

DECLARATION

I hereby declare that the project entitled, "**Government Scheme Tracking**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

Table of Contents

List of Table

Table of Figures

Chapter: 1

Introduction

Main aim of this project is to develop a common, unified platform and mobile app to facilitate a single point of access to all government services. It is envisaged to act as a master application, which will integrate major government services from various sectors such Agriculture, Education, Health, Housing among others. The application will enable users to access e-Government services from the central Government, the State Governments, local bodies and their agencies. Its primary aim is to abridge inconvenience faced by users in managing multiple mobile apps and facilitate a one-stop-solution to avail varied government services.

Background

This Project is developed for all the Individual across nation. The main purpose of this project is to help all the citizen to get maximum benefits of schemes undertaken by the government. Therefore, this application will help every individual to choose and apply for schemes according to their eligibility and get its benefit through this web application.

Objectives

The main objective is to develop the software that covers all the aspects of management and operations of government scheme.

The Main Objectives of the project:

To act as an enabler and facilitator in developing overall mobile based service delivery ecosystem in India.
Provide easy access for individuals to various services via single Mobile Application.
Provide easy discoverability of services, easy manageability and standardization of service delivery.
Provide for quick mobile enablement of e-Government applications/services of Government departments through easy and fast integration, on-boarding, mobile front-end roll-out by bringing their services on this mobile application platform

Purpose, Scope and Applicability

Purpose:

Every business and manufacturers have their own methods to sell their products in the market. Till now the most commonly used method of selling products is through going from shop to shop, place to place in search of the products. Since this product are available at shops the customers have to go to the shop for purchasing it but when the dealers start selling their products through the web applications the customers can sit at their home and purchase it by just using their finger tips and products will be deliveredat their home.

Therefore, nowadays the most commonly used is selling their products online i.e. through any e commerce web applications. By this means of selling online the business owner can sell their products to a large extent of area i.e. if the person was selling only at a particular shop the customers of that particular are would only come to buy but if he is selling it online, he can reach a large number of people.

The project will also maintain all records in the database which will help the users to view their order history and enable the admin to generate monthly bill reports thus reducing labor that has to be done manually.

Scope:

This system can make conventional systems old-fashioned as this system is faster and safer in every aspect and is all in separate Database so no worries about data storage and maintenance. With the ever-increasing amount of people owning a smartphone getting better and better it is conceivable that the system can really work without hesitations. System like this can revolutionize the way of taking and tracking the order and the user queries.

It can be tweaked for implementation not only in small retail shops but for manufacturing organizations as well. Limitations of this system is where the business is afraid to use this new technology. The main issues covered are

very important if there is a long-term view saving time, keeping data safe, and data representation can help business in a huge way. Saving time of visiting fromshop to shop for showing samples as well as for customers for buying it from shop can help the business man more on the manufacturing of new and fashionable products to sell.

Applicability:

This project can be used to automate any kind of business in the market irrespective of its size or structure. These businesses do not specifically need to be a part of a larger group and can be implemented for a small or single shop as well.

Using similar structure of modules, the theaters to reserve a seat, restaurants can be automated to provide users options such as reserve tables and also select dine in or take way option and place their orders without any human interactions which will helpto remove the case of miscommunication and save time as well.

The user of the web application will select the product from the website and complete payment for the respective order. The order is then reviewed by the admin who will pass the order to the shipping agency through their api and the user will receive a notification on their smartphone once the order is ready for delivery.

Chapter: 2

SURVEY OF TECHNOLOGY

Methodology:

Architecture:

FIGURE 1: ARCHITECTURE DESIGN

XAMP is acronym for Windows, Apache, MySQL and PHP, Perl, Python. XAMP software is one click installer which creates an environment for developing PHP, MySQL web application. By installing this software you will be installing **Apache**, **MySQL** and **PHP**..

1. Understanding and maintenances is easier
2. Separated from client
3. Easy to switch to a different database.

Disadvantages:

1. Heavy load on server
2. Potential congestion on network
3. Presentation still tied to business logic

Working of the System:

For Admin Use: -

Admin can access the backend of the website by entering the correct user id and password given. After logging in to the backend of the website the admin is redirected to a dashboard which has following different controls that are

- In this module Admin have all the right of assign work and managing the workerrecord themselves
- They can view the details of work history
- Admin can read and write the data
- Admin can verify the progress and users
- Admin can update or delete schemes

For Customer Use: -

Government Scheme Tracking works by providing a web application where it will take you to the login/register page where user has to firstly register him/herself through a form provided. The register form consists of following fields a) user name, b) user email address, c) user mobile number & d) password :

a) User name: In this field user has to give their name.
 b) User email address : In this field user have to give their email id which is authenticated by sending a otp to user at their email id if the otp entered is correct the alert will appear email id verified.
 c) User mobile number : Here user have to give their mobile number.
 d) Password : Here user can set any password he wants.

Once the user has register themselves their data is successfully stored into the database again an alert will appear registered successfully. Now user has to logging to the website using a login form provided which consists of two fields wiz. Username and password. Here user has to enter the username and password by which entering correctly user will be redirect to the home page of the

website.

Flow of the System:

For Admin Use: -

- Admin longings to backend of the website through a specific id and password..
- Add, Update, Delete Schemes.
- Check if there are any queries/message from any user.

For User Use: -

- User can register their account in the website by giving proper user details and proper authentication.
- Apply for Schemes
- Know Status

Selection of Technology:

JAVA:

HTML5 is a markup language used for structuring and presenting content on the World Wide Web. It is the fifth and last major HTML versionthat is a World Wide Web Consortium recommendation. The current specification is known as the HTML Living Standard.

CSS 3:

CSS3 is the latest version of the CSS specification. CSS3 adds several new styling features and improvements to enhance the web presentation capabilities. Cascading Style Sheets is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

JavaScript (ES6):

CoffeeScript **and** ClojureScript could also be used for any authentication on websites as well as any other platform.

Over the past few years, CoffeeScript has taken the world of web development by storm. It is just JavaScript, but with the power of an elegant and friendly language package. It enables front-end developers to write faster and cleaner JavaScript by using abbreviations.

Clojure Script is a version of Clojure language and it can be compiled into JavaScript. The major feature of Clojure, which takes our attention quickly, is its support in using existing Java libraries through Java Interop syntax. With Clojure, you can leverage existing JavaScript and Clojure libraries.

But my preference is JavaScript because JavaScript is a lightweight, programming language which is an interpreted language. JavaScript is commonly used for creating web pages. It allows us to add dynamic behavior to the webpage and add special effects to the webpage. On websites, it is mainly used for validation purposes. JavaScript helps us to execute complex actions and also enables the interaction of websites with visitors.

MySQL 5.7:

MS SQL Server 2017 and Google Cloud SQL could also be used for open-source relational database management system websites as well as any other platform

MS SQL Server 2017 brings the power of SQL Server to Windows, Linux andDocker containers for the first time ever, enabling developers to build intelligent applications using their preferred language and environment. Experience industry- leading performance, rest assured with innovative security features, transform yourbusiness with AI built-in, and deliver insights wherever your users are with mobile BI.

Google Cloud SQL is a fully-managed database service, designed to make it easy to set up, maintain, manage, and administer a relational PostgreSQLBETA and MySQL databases in the cloud.

This is a database driven web application. MySQL is the most popular open source database in the world. Use MySQL with PHP and Apache web server can implement highly interactive webs application with user customization, searchable databases. MySQL is free. The web server used to host the web site only support MySQL 4.0, so my system will use MySQL 4.0 as database.

PHP 7:

Node.js **and** C# are scripting language geared towards web development. Node.js is a server-side JavaScript execution environment, it allows you to use JavaScript for server-side development. This is not the most popular technology in web development at the moment, and even though Node.js is pretty behind compared to PHP, it is growing in popularity. This is mainly because it runs asynchronous code on the server, which in turn increases the performance of the server.

C# is a logical language and is considered well-designed. C# is closely related to the Microsoft .NET Framework, which provides many useful libraries that make C# the best solution for writing Windows programs and applications.

It follows industry standards and therefore covers all elements of the language used. It does not require any external libraries, and with the base Win application and embedded code, it can be easily assembled and used to program and build various web applications. C# can also be used for any non-Windows programming on platforms such as Linux and OS X.

But my preference is PHP because PHP is very popular general-purpose server-side scripting language. Combining it with HTML makes it very powerful. PHP currently will load into Apache, and work with MySQL. According to NetCraft surveys, PHP is now the most popular module for the Apache server and in total running on something like two million Web sites. Apache web server, MySQL, and PHP work together can produce dynamic; data driven web application.

XAMPP (I've initially used for testing my websitebeforehosting it.):

XAMPP is an easy to install Apache Distribution for Windows. The package includes the Apache web server, MySQL, PHP. XAMPP will only use for developing the application, and not.

Chapter: 3

REQUIREMENTS AND ANALYSIS

Problem Definition:

In the current coronavirus crisis and the ensuing lockdown, most migrants in India find themselves suddenly jobless as factories close, supply chains shut down and services freeze. The government has responded to the crisis by announcing several socialprotection schemes, including direct benefit transfers for certain sections of the population and free LPG refills, grains and pulses for the poor. But large sections of the population, including urban informal workers, are 'invisible' to the state. There is also no single view of 'whois getting what' and 'who should get what' to enable an efficient entitlement-based approach to social protection. The objective of this project is to develop the software that covers all the aspects of management and operations of government schemes. Teams or Organizations which maintain multiple copies of databases almost always have the cumbersome task of maintaining schema consistency between them. History of worker job and test prescription is very tedious. No proper management of work done and proper working days

Requirements Specification:

It is quite difficult and time-consuming task to find the information as well as maintaining information manually. If all this information is to be kept ata single placeit is also not possible in the manual system. Computerized system will upgrade and manage information very easily.

As it is a web-based application so it uses Internet technologies and its hardware/software requirement will also be more comprehensive than Desktop application system. Some Network devices will be required like Internet connection.

Software required for the system is also different from a normal desktop system. First of all, a server software will be mandatory. A browser is also needed as a client process on the user side.

Software Development Life Cycle:

For developing a software there are various models which one can follow. To make the development process or we can say development life cycle much more efficient and easier to manage.

The software development life cycle (SDLC) is a framework defining task performed at every step in the software development process. SDLC could be a structure followed by a development team within the software organization.

It consists of a detailed set up plan describing a way to develop, maintain and replace specific software. The life cycle defines a strategy for improving the quality of software and therefore the overall development process.

Waterfall Model:

The waterfall Model was the primary software development model to be introduced. It is very simple to understand and use. In a waterfall model, each and every phase must be completed before the next phase can begin and there should be no overlapping in the phases. Waterfall model is the earliest SDLC approach that was used for software development process.
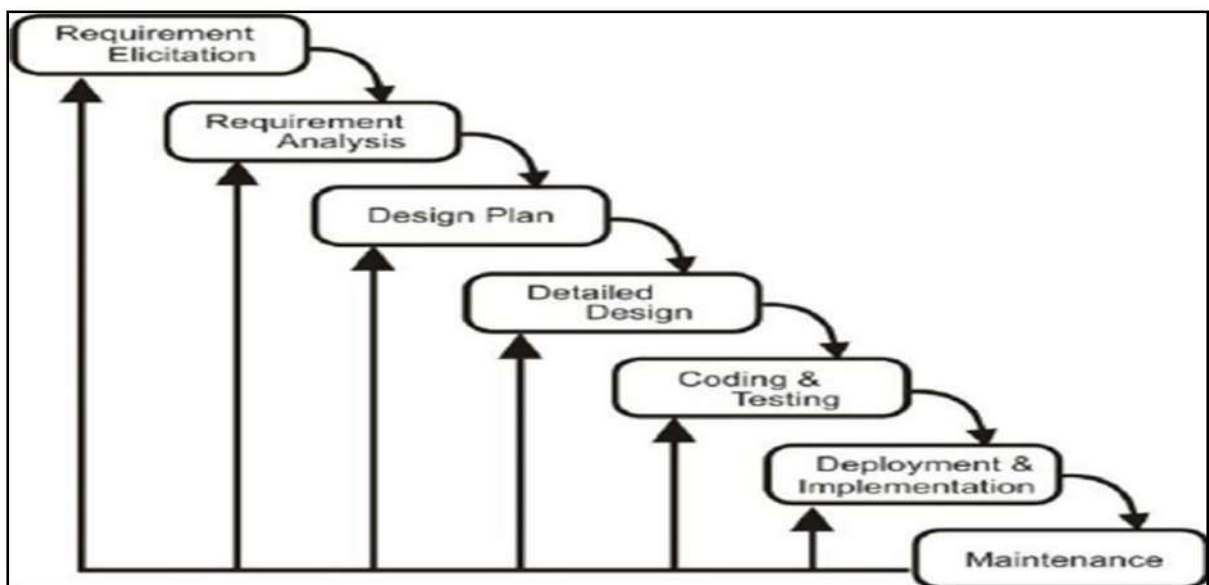
FIGURE 2: WATERFALL DIAGRAM

In "Waterfall" approach the whole methodology of software development is split into separate phases. The outcome of one phase act as the input for the next phase consecutively. This means that any phase in the development process begins given that the previous phase is complete. The waterfall model is a sequential design process duringwhich progress is seen as flowing steadily downwards (like a waterfall) through the phases of conception, initiation, analysis, design, construction, testing, production/implementation and Maintenance.

As the waterfall model illustrate the software development process isvery linear sequential flow, hence it is also referred to as a Linear sequential Life CycleModel.Requirement elicitation is the process of collecting the requirements of a systemor requirement gathering from user, customers and stakeholders by conductingmeetings, interviews, questionnaires, brainstorming sessions, prototyping etc. Thepurpose of the Requirements Analysis Phase is to transform the needs and high-levelrequirements specified in earlier phases into unambiguous (measurable and testable),traceable, complete, consistent, and stakeholder-approved requirements.

The system design phase helps in specifying hardware, system requirements and also helps in defining overall system architecture of developing software project. The source code is developed using the models, logic and requirements designated in the prior stages. Waterfall Testing is a type of software testing in which testing is a different phase and there are steps and steps classified and testing is performed only in that order. Only after the completion of the one phase or one level next level testing is carried out. Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market. Once the functional and non-functional testing is done; the product is deployed in the customer environment or released into the market. This is the phase in which the completed software product is handed over to the client.

Planning and Scheduling:

Gantt Chart

ACTIVITY	PLAN START	PLAN DURATION	ACTUAL START	ACTUAL DURATION	PERCENT COMPLETE
Abstract	1	4	1	4	100%
Introduction	1	4	1	1	100%
Background	1	4	2	2	100%
Objectives	1	4	3	2	100%
Purpose, Scope and Applicability	1	4	3	3	100%
Survey of Technology	5	4	5	4	100%
Methodology	5	4	5	1	100%
Working of the System	5	4	6	2	100%
Flow of the System	5	4	6	3	100%
Selection of Technology	5	4	7	2	100%
Requirements and Analysis	9	4	9	4	100%
Problem Definition	9	4	9	1	100%
Requirement Specifications	9	4	9	2	100%
Planning and Scheduling	9	4	10	2	100%
Software And Hardware Requirem	9	4	10	3	100%
Conceptual Models	10	5	10	3	100%

FIGURE 3: GANTT CHART

Gantt chart is a horizontal bar chart developed as a production control tool in 1917 by Henry L. Gantt, an American engineer and social scientist. Frequently used in project management, a Gantt chart provides a graphical illustration of a schedule that helps to plan, coordinate, and track specific tasks in a project. A Gantt chart is a project management tool assisting in the planning and scheduling of projects of all sizes, although they are particularly useful for simplifying complex projects. Project management timelines and tasks are converted into a horizontal bar chart, showing start and end dates, as well as dependencies, scheduling and deadlines, including how much of the task is completed per stage and who is the task owner. This is useful to keep tasks on track when there is a large team and multiple stakeholders when the scope changes.

A Gantt chart can vary in complexity and depth, but will always have

three key components: activities or tasks that are to be done, running along the y-axis; milestones or progress stages indicated along the x-axis (either on the topor bottom of the chart); and progress bars, denoted as horizontal bars, denoting how far along each task is at any given point. In the above chart Horizontal bars of different lengths represent the project timeline, which can include task sequences, duration, and the start and end dates for each task. The horizontal bar also shows how much of a task requires completion.

Software and Hardware Requirements:

Hardware Requirements:

RAM	4 GB or above
Graphics Card / GPU	2GB or above
Monitor	1024 x 768 Resolution or above
HDD	20GB or above
SSD	120GB or above
Processor	Intel Core i3 or above
Browser	Any of Mozilla, Opera. Chrome etc.

TABLE 1: HARDWARE REQUIREMENTS FOR DEVELOPMENT

RAM	4 GB or above
Graphics Card / GPU	2GB or above
Monitor	1024 x 768 Resolution or above
HDD	20GB or above
SSD	120GB or above
Processor	Intel Core i3 or above
Browser	Any of Mozilla, Opera. Chrome etc.

TABLE 2: HARDWARE REQUIREMENTS FOR CUSTOMER (USING DESKTOP / LAPTOP)

Device	Smartphone
RAM	2GB or above
Storage	8GB or above
Browser	Any of Mozilla, Opera. Chrome etc.

TABLE 3: HARDWARE REQUIREMENTS FOR CUSTOMER (USING MOBILE)

Device	Tablets
RAM	2GB or above
Storage	8GB or above
Display	1024 x 768 Resolution or above
Browser	Any of Mozilla, Opera. Chrome etc.

TABLE 4: HARDWARE REQUIREMENTS FOR CUSTOMER (USING TABS)

3.1.1 Software Requirements:

Operating System	Windows 8.1 or above
Code Editor	Notepad ++
Front-End	UI-XML, Business logic-Java, Database-Sql lite
Back-End	PHP, MySQL
Platform Cross Compiler	Xampp
Development Dependencies	jQuery
Browser	Any of Mozilla, Opera. Chrome etc.

TABLE 5: HARDWARE REQUIREMENTS FOR DEVELOPMENT

Chapter 4

4.1 Basic Model:

4.1.1 Admin module

- o In this module Admin have all the right of assign work and managing the workerrecord themselves
- o They can view the details of work history
- o Admin can verify the progress and users
- o Admin can update or delete schemes

- Beneficiary

  - o In this module beneficiary can view status of the progress in scheme applied

- Inspector

  - o In this module the inspector may carried the work allotted to him
  - o In this module the inspector will visit beneficiary place and verify.
  - o Inspector location will also be tracked.

- Vendor

  - o In this module the vendor will carry out work assigned.
  - o Inspector location will also be tracked

4.2 Data Design:

4.2.1 Schema Design:

Entity Relationship Diagram

An Entity Relationship (ER) Diagram is a type of flowchart that illustrates how "entities" such as people, objects or concepts relate to each other within a system. ER Diagrams are most often used to design or debug relational

databases in the fields of software engineering, business information systems, education and research. Also known as ERDs or ER Models, they use a defined set of symbols such as rectangles, diamonds, ovals and connecting lines to depict the interconnectedness of entities, relationships and their attributes. They mirror grammatical structure, with entities as nouns and relationships as verbs.

ER diagrams are related to data structure diagrams (DSDs), which focus on the relationships of elements within entities instead of relationships between entities themselves. ER diagrams also are often used in conjunction with data flow diagrams (DFDs), which map out the flow of information for processes or systems.
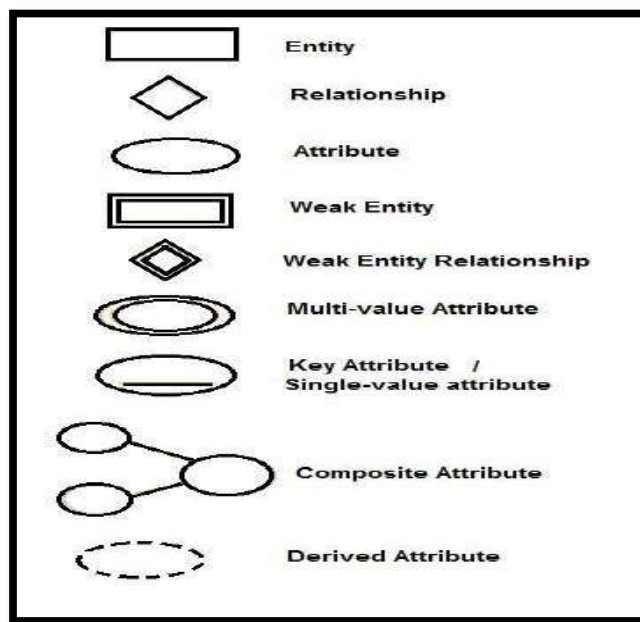
FIGURE 17: ENTITY RELATIONSHIP DIAGRAM NOTATIONS

Entity

A definable thing—such as a person, object, concept or event—that can havedata stored about it.

Relationship

How entities act upon each other or are associated with each other. Think of relationships as verbs. For example, the named student might register for a course. The two entities would be the student and the course, and the relationship depicted is the act of enrolling, connecting the two entities in that way. Relationships are typically shown as diamonds or labels directly on the connecting lines.

Attributes: Layer in more detail by adding key attributes of entities. Attributes are often shown as ovals.

Attribute categories: Attributes are categorized as simple, composite, derived, as well as single-value or multi-value.

Simple: Means the attribute value is atomic and can't be further divided, such as a phone number.

Composite: Sub-attributes spring from an attribute.

Derived: Attributed is calculated or otherwise derived from another attribute, such as age from a birth date.

Relationships: Determine how the entities are all related. Draw lines between them to signify the relationships and label them. Some entities may not be related, and that's fine. In different notation systems, the relationship could be labeled in a diamond, another rectangle or directly on top of the connecting line.

Cardinality: Show whether the relationship is 1-1, 1-many or many-to-many.
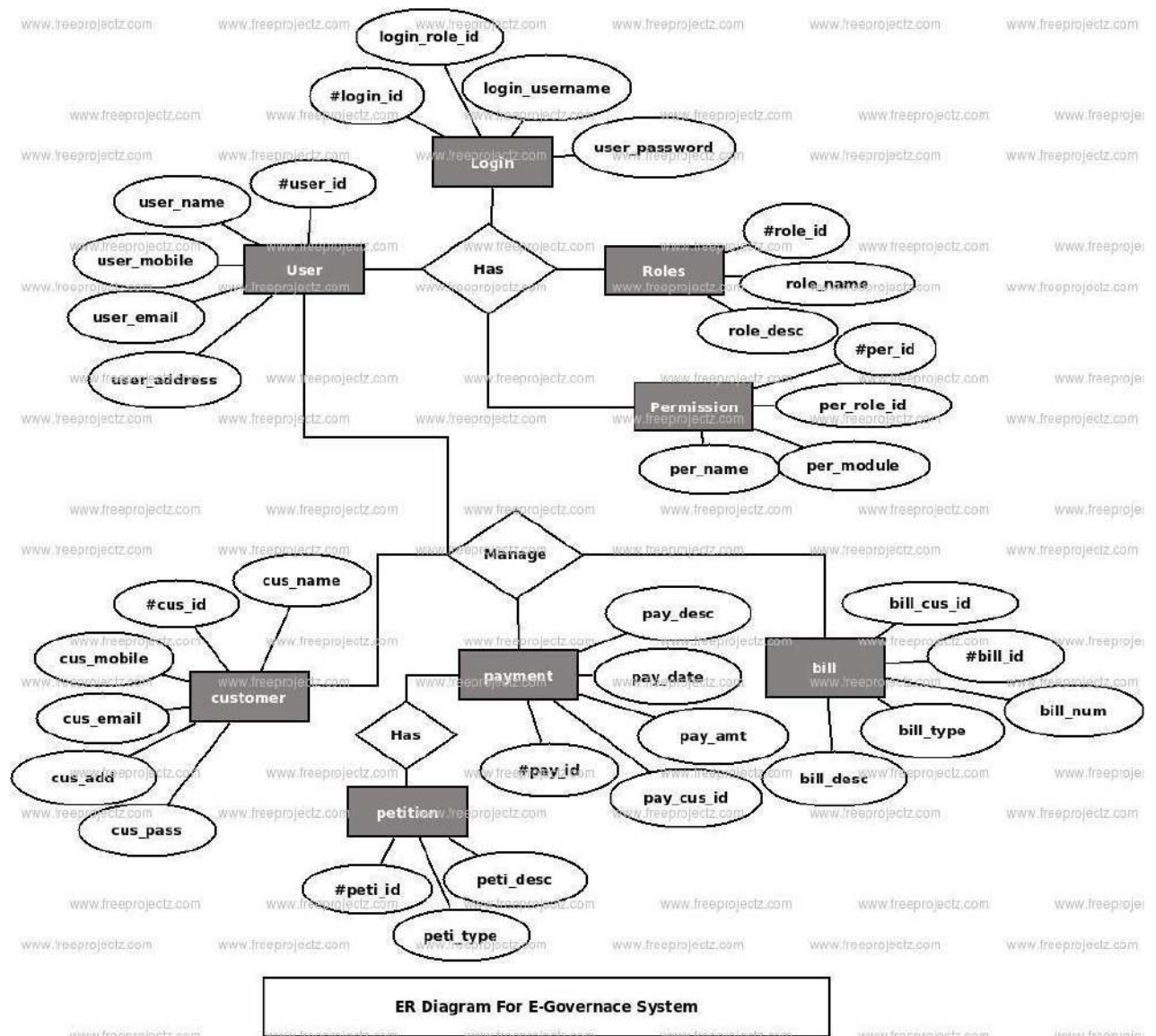
FIGURE 18: ENTITY RELATIONSHIP DIAGRAM

The customer entity has name, email, password, payment details as its attributes. The admin entity has time, id, password, offline orders, online orders, generate report as its attributes.

The relationships in the entity relationship are represented by a diamond which shows the relationship between two entities. The admin entity handles overall working of the website as well as the backend of the site where admin entity can add modify and delete categories entity and products entity and also can see the orders placed by customer entity.

Whereas Customer entity can register/login to the webpage and can view the categories entity and product entities from which they can place order review order make payment to the order.

Database Entity Relationship Diagram:

4.2.2 Data Integrity and Constraints:

Data Integrity:

Data integrity for schemes :

FIGURE 20: DATA INTEGRITY FOR SCHEMES

In the above diagram it shows the linkage between the categories and products table where when the admin enters the fields of the product table categories id is give reference to the product id. Therefore, every unique product id is linked to its unique categories id. Following attributes are also used for linking product id and category idto size_master table and color_master table.

Data Integrity for schemes applied :
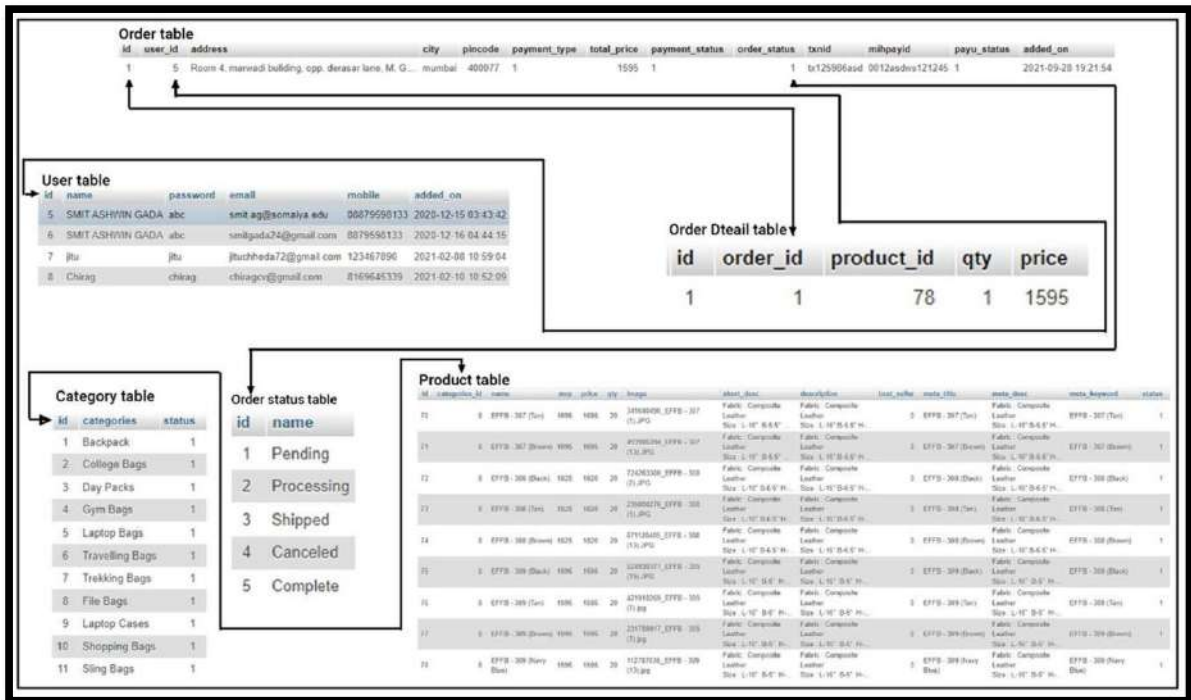
FIGURE 21: DATA INTEGRITY FOR SCHEMES APPLIED

In the above diagram it shows the linkage between the categories, products, user, order, order status and order details table. Whenever any user/customer registersto website his user id is generated and stored in data base.Also, when admin stores any categories or any product their respective id is also generated. Thus, when a order is placed by any user the data is stored in to the order table in the data base from which then send the order id and the user id to the order details table where the admin can see which user has placed order for which particular id and the admin can update the order status by updating status id.

4.3 Diagrams:

4.3.1 Data Design

Data Flow Diagram

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. Data flow diagrams show users how data moves from one process to another in a software system. Data flow diagrams are used by

information technology professionals and systems analysts to document andshow users how data moves between different processes in a system.
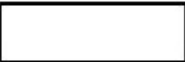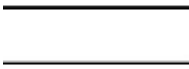
Symbol	Description
⟶	**Data Flow** – Data flow are pipelines through the packets of information flow.
◯	**Process:** A Process or task performed by the system.
▭	**Entity:** Entity are object of the system. A source or destination data of a system.
═══	**Data Store: A place where data to be stored.**

<div align="center">

TABLE 6: DATA FLOW DIAGRAM

</div>

4.3.2 Class diagram

<div align="center">
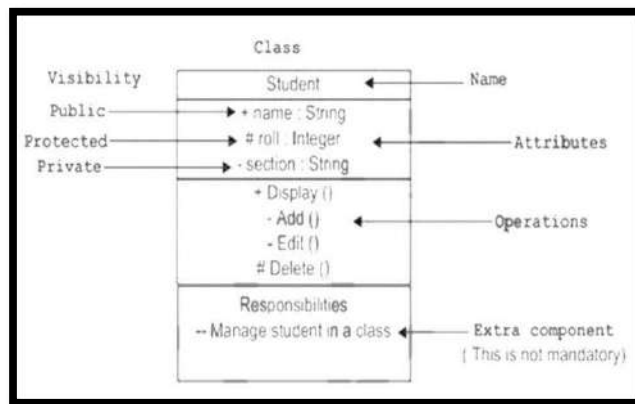
FIGURE 7: UML DIAGRAMS

</div>

The class diagram depicts a static view of an application. It represents the types of objects residing in the system and the relationships between them. A class consists of its objects, and also it may inherit from other classes. A class diagram is used to visualize, describe, document various different aspects of the system,

and also construct executable software code.

It shows the attributes, classes, functions, and relationships to give an overview of the software system. It constitutes class names, attributes, and functions in a separate compartment that helps in software development. Since it is a collection of classes, interfaces, associations, collaborations, and constraints, it is termed as a structural diagram.

The purpose of class diagram is to model the static view of an application. Class diagrams are the only diagrams which can be directly mapped with object-oriented languages and thus widely used at the time of construction.

UML diagrams like activity diagram, sequence diagram can only give the sequence flow of the application, however class diagram is a bit different. It is the most popular UML diagram in the coder community.

The purpose of the class diagram can be summarized as −

- Analysis and design of the static view of an application.
- Describe responsibilities of a system.
- Base for component and deployment diagrams.
- Forward and reverse engineering.
- A class is represented by a rectangle having three sections −
- the top section containing the name of the class
- the middle section containing class attributes

The visibility of the attributes and operations can be represented in the followingways −s

- Public − A public member is visible from anywhere in the system. In class diagram, it is prefixed by the symbol '+'.
- Private − A private member is visible only from within the class. It cannot be accessed from outside the class. A private member is prefixed by the symbol '−'.
- Protected − A protected member is visible from within the class and from the subclasses inherited from this class, but not from outside. It is prefixed by the symbol '#'

Class Diagram Relationship Type	Notation
Association	
Inheritance	
Realization/ Implementation	
Dependency	
Aggregation	
Composition	

TABLE 7: CLASS DIAGRAM RELATIONSHIP
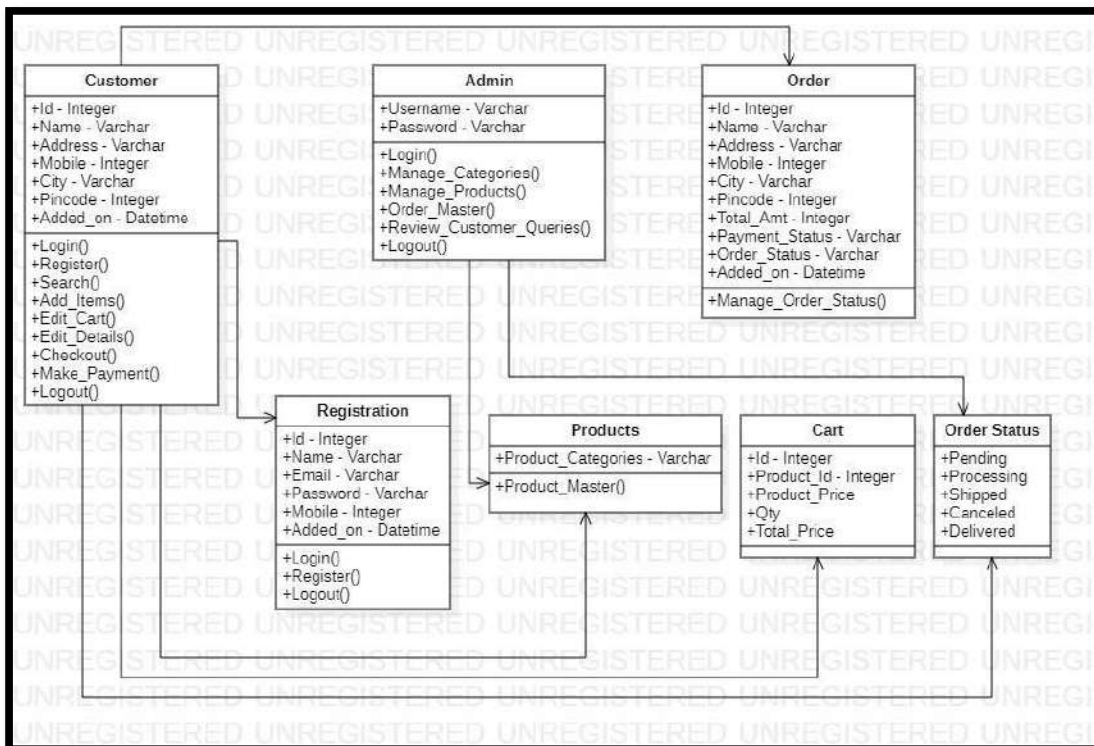
FIGURE 8: CLASS DIAGRAM

The classes present are Customer, Admin, Registration, Order, Products, Cart, Order Status respectively.

The class Customer has Id, Name, Email, Mobile No, Address, City, Pin code and added on as its class members. The Email and Password fields are required for the user to login. The type of the user will be stored so that it can be used during report generation.

The class Admin has Id, Username and Password as its class members. The admin will use the ID and Password to login. The admin has access to user information and canteen information. The admin can hence update the Categories and Products whenever required.

The class Order has Id, Name, Email, Mobile No, Address, City, Pin code, TotalAmt, Payment Status, Order Status and added on as its class member.

The class Registration has Id, Name, Email, Mobile No, Password and addedon as its class members. The Email and Password fields are required for the user tologin. The type of the user will be stored so that it can be used during report generation.The class Product has Id and different product categories as its class members.

Which helps the customer to browse different products.

The class Cart has Id, Product Id, Product Price, Qty and Total Price as its class members. Which helps the customer to review their product before proceeding tocheckout.

The class Order Status has Pending, Processing, Shipped, Canceled, Deliveredas its class members. It shows the status of the product while product is purchased.
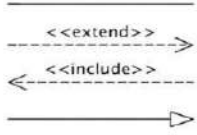
TABLE 8: USED CASE DIAGRAM

To model a system, the most important aspect is to capture the dynamic behavior. Dynamic behavior means the behavior of the system when it is running/operating.

Only static behavior is not sufficient to model a system rather dynamic behavior is more important than static behavior. In UML, there are five diagrams available to model the dynamic nature and use case diagram is one of them. Now as we have to discuss that the use case diagram is dynamic in nature, there should be some internal or external factors for making the interaction.

These internal and external agents are known as actors. Use case diagrams consists of actors, use cases and their relationships. The diagram is used to model the system/subsystem of an application. A single use case diagram captures a particular functionality of a system.

Hence to model the entire system, a number of use case diagrams are used.

Purpose of Use Case Diagrams

The purpose of use case diagram is to capture the dynamic aspect of a system. However, this definition is too generic to describe the purpose, as other four diagrams (activity, sequence, collaboration, and Statechart) also have the

same purpose. We will look into some specific purpose, which will distinguish it from other four diagrams. Use case diagrams are used to gather the requirements of a system including internal and external influences. These requirements are mostly design requirements. Hence, when a system is analyzed to gather its functionalities, use cases are prepared and actors are identified.

When the initial task is complete, use case diagrams are modelled to present the outside view.

In brief, the purposes of use case diagrams can be said to be as follows −

- Used to gather the requirements of a system.
- Used to get an outside view of a system.
- Identify the external and internal factors influencing the system.
- Show the interaction among the requirements are actors.
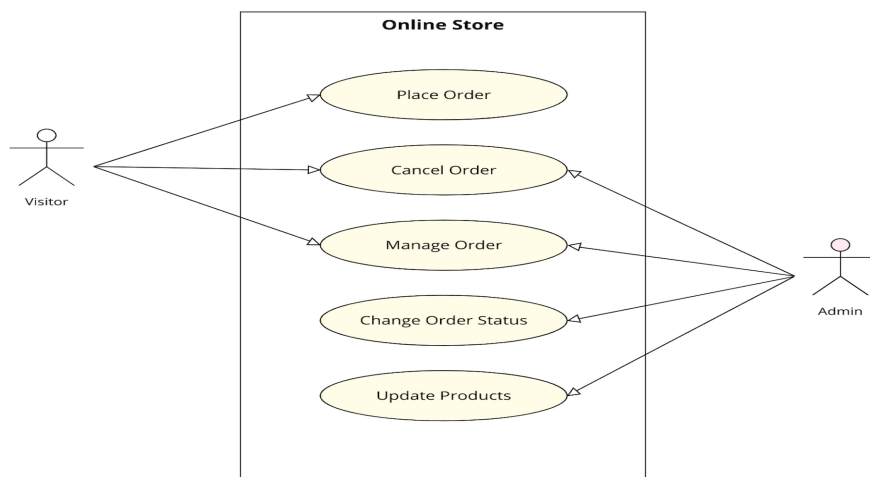
FIGURE 9: USED CASE DIAGRAM

The above figure shows use case diagram of the E-Commerce Website. The actors of the system are represented by using a stick figure. The customer and the adminare all the actors that are present in the system. The use cases are represented using

circles. The use cases present in the system are Login, Add Category, Add Product, Modify Products, Manage Orders, Registration, Browse Products,

Make Order, Make Payment and Update Profile.

The diagram shows all the interactions between the customer and the use cases.The customer can view the different products from the website using the website provided to them. The customer can also view their personal report which will include the order history of all the previous orders placed using the website.

The admin receives the order from the customer. The admin provides different categories and their products to the user. The admin delivers the order using a shipping api. The admin can view the complete report which includes the monthly reports with various filters like visitors only and purchase only, profit or loss.

4.3.4 Sequence Diagram:

A sequence diagram is a type of interaction diagram because it describes how— and in what order a group of objects works together. These diagrams are used by software developers and business professionals to understand requirements for a new system or to document an existing process. Sequence diagrams are sometimes known as event diagrams or event scenarios.
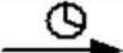
Arrow	Message type
→	Simple
→	Synchronous
→	Asynchronous
↰	Balking
⊙→	Time out

TABLE 9: SEQUENCE DIAGRAM

A sequence diagram shows the sequence of messages passed between objects. Sequence diagrams can also show the control structures between objects.

Benefits of sequence diagrams

- Represent the details of a UML use case.
- Model the logic of a sophisticated procedure, function, or operation.
- See how objects and components interact with each other to complete a process.
- Plan and understand the detailed functionality of an existing or future scenario.
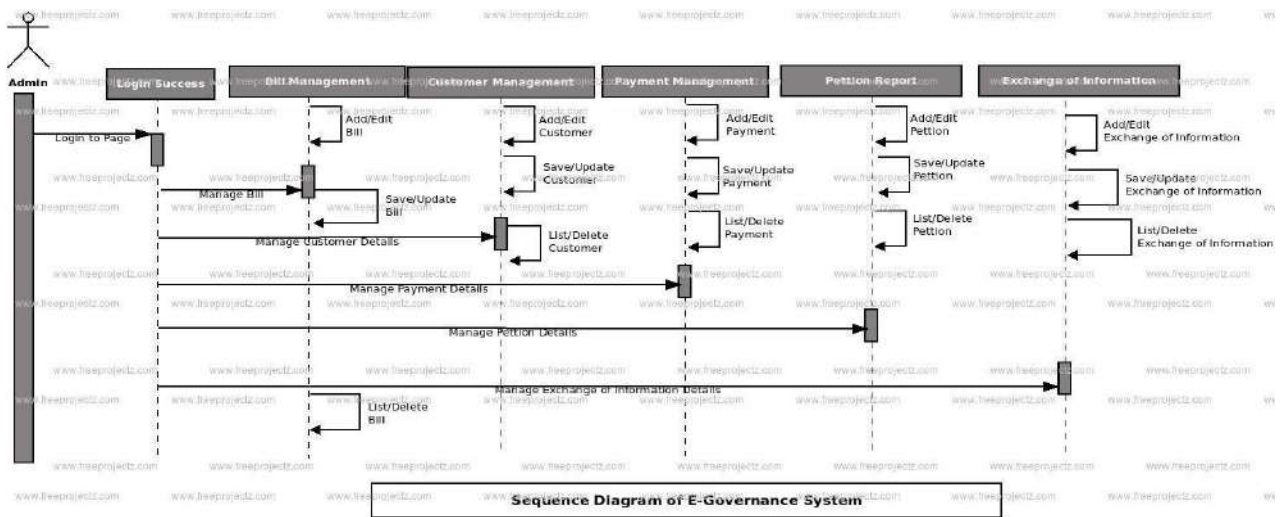
FIGURE 10: SEQUENCE DIAGRAM FOR GOVERNMENT SCHEME TRACKING

Above fig. Shows sequence diagram of E-Commerce Website. Whenever thereis a new customer visiting the website, they need to first register to the website or if the customer is already registered, they need to login. Once the customer is logged in customer then can browse any product of their choice and add to cart. For purchasing any product, the customer has to first register to the website else he wouldn't be able to purchase.
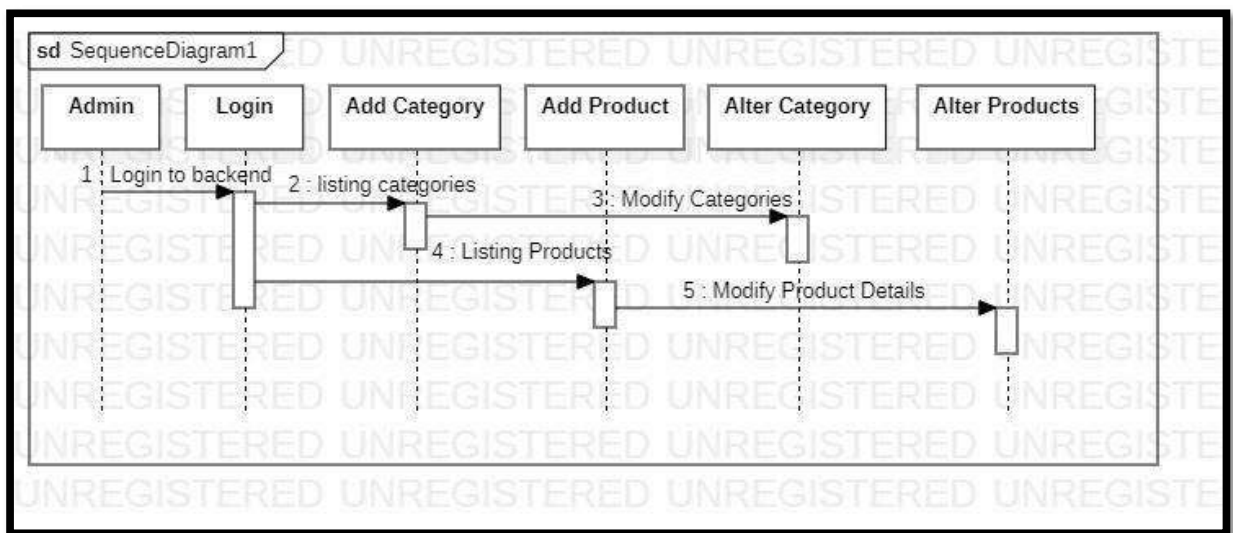
FIGURE 11: SEQUENCE DIAGRAM FOR ADMIN

Above fig. Shows sequence diagram for admin i.e. backend of website. First step is to login to the page for that admin have to enter their username and password. By entering in the backend admin can perform following activities such as add new categories, add new products, modify categories and products.
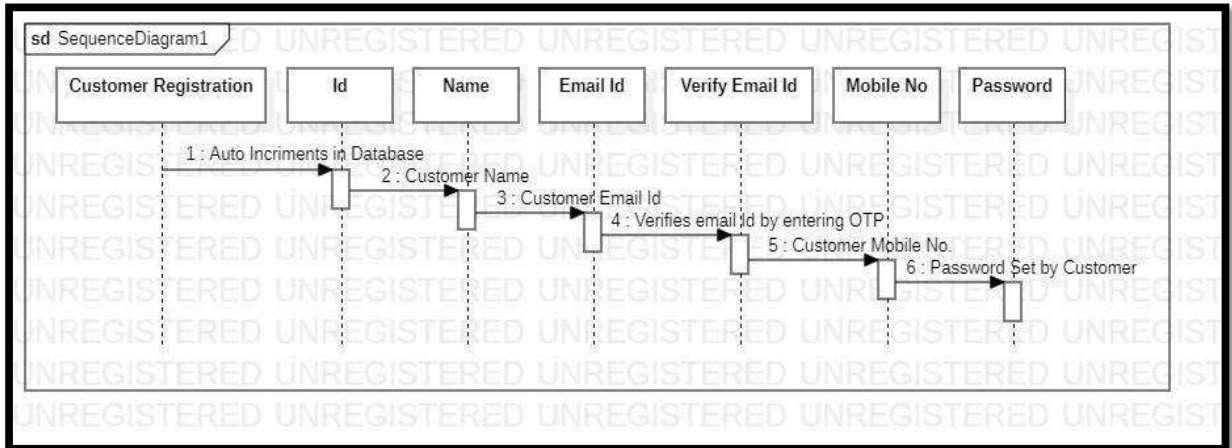
FIGURE 12: SEQUENCE DIAGRAM FOR USER REGISTRATION

Above fig. Shows sequence diagram for customer registration. First stepis to register to the page for that user have to enter their name, email Id, verify email id though entering valid otp sent to their email, phone number, password.
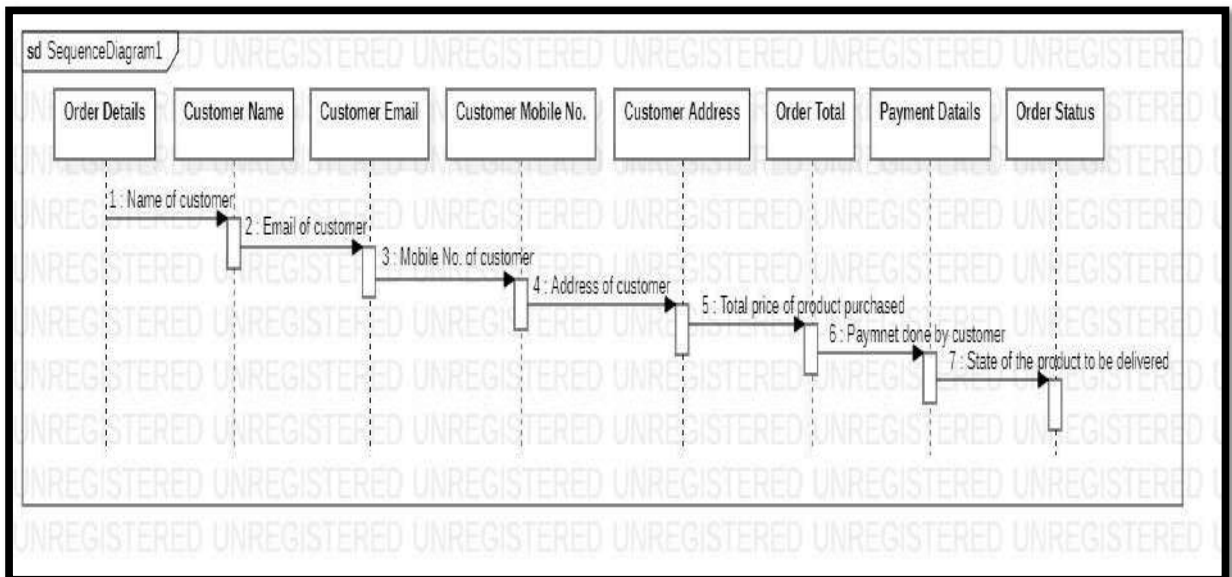
FIGURE 13: SEQUENCE DIAGRAM FOR SCHEME DETAILS

Above fig. Shows sequence diagram for Order Details. The order details are bifurcated in following steps firstly customer enters their name, email id, mobile no., address. After entering following details website calculates the order total and displays the customer then customer selects the payment method and finally order is placed. There after customer can check the order status.

State Chart Diagram:

A state diagram is used to represent the condition of the system or part of the system at finite instances of time. It's a behavioral diagram and it represents the behavior using finite state transitions. State diagrams are also referred to as **State machines** and **State-chart Diagrams**. These terms are often used interchangeably. So simply, a state diagram is used to model the dynamic behavior of a class in response to time and changing external stimuli.

Following are the notations of a state chart diagram enlisted below:
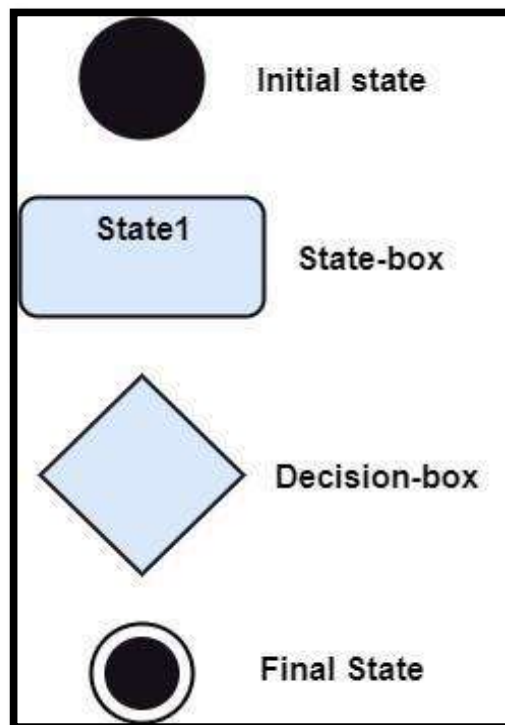
FIGURE 14: STATE CHART DIAGRAM NOTATIONS

Initial state: It defines the initial state (beginning) of a system, and it is represented by a black filled circle.

Final state: It represents the final state (end) of a system. It is denoted by afilled circle present within a circle.

Decision box: It is of diamond shape that represents the decisions to be madeon the basis of an evaluated guard.

Transition: A change of control from one state to another due to the occurrence of some event is termed as a transition. It is represented by an arrow labeled with an event due to which the change has ensued.

State box: It depicts the conditions or circumstances of a particular object of a class at a specific point of time. A rectangle with round corners is used to represent the state box.

State chart diagram is used for:

- For modeling the object states of a system.
- For modeling the reactive system as it consists of reactive objects.
- For pinpointing the events responsible for state transitions.
- For implementing forward and reverse engineering.
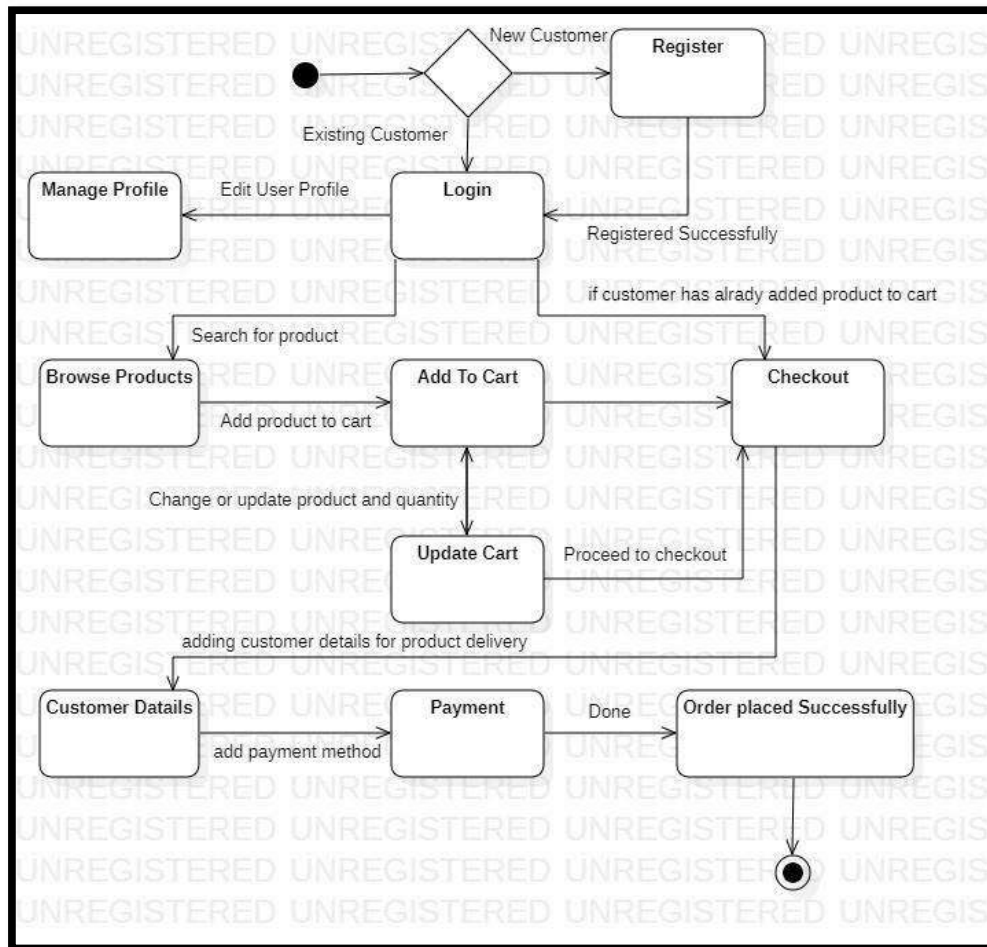
FIGURE 15: STATE CHART DIAGRAM FOR CUSTOMER

Above fig. Is a state chart diagram of user side. Initial state is represented by dark circle first step is to register to the page and login to it. If user has already register then they can directly login to it. after successfully login user can edit their profile or search for the item and view the item. then add the itemto the cart and place the order, make payment and check out.
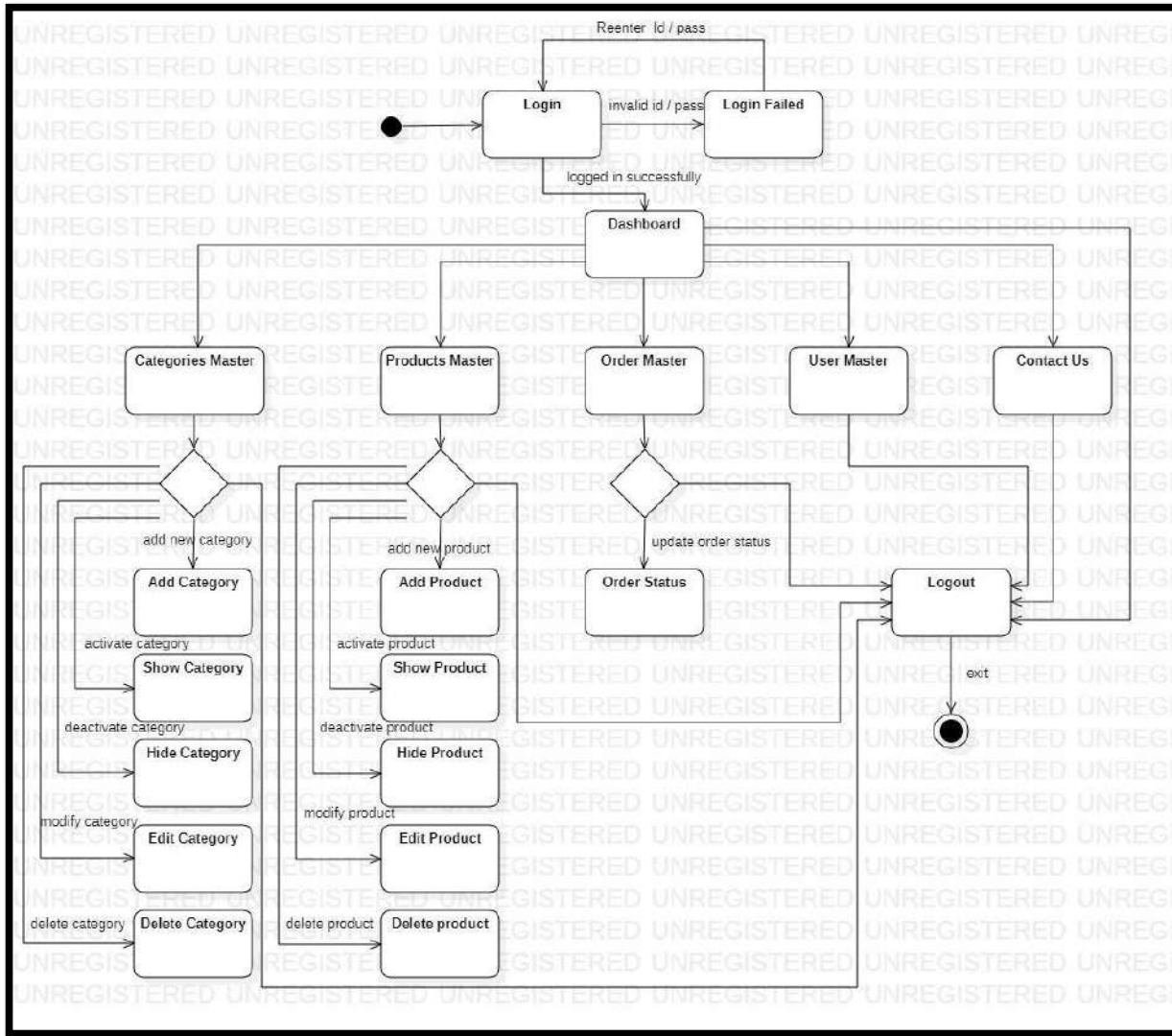
FIGURE 16: STATE CHAT DIAGRAM FOR ADMIN

Above fig. Shows state chart diagram for the admin side. Admin have to login to the page after successful login admin can view and edit the profile. Only admin can manage categories, manage items manage the orders and manage numbers of users and

read and reply all the customer queries. Admin can add, delete and remove the itemfrom the webpage if the item is not available.

4.3.5 Procedural Design:

Site Map:

Site Map: A site map is a model of a website's content designed to help both users and search engines navigate the site. A site map can be a hierarchical list of pages (with links) organized by topic, an organization chart, or an XML document that provides instructions to search engine crawl bots. Site map may also be spelled sitemap.

4.4.1.1 User side
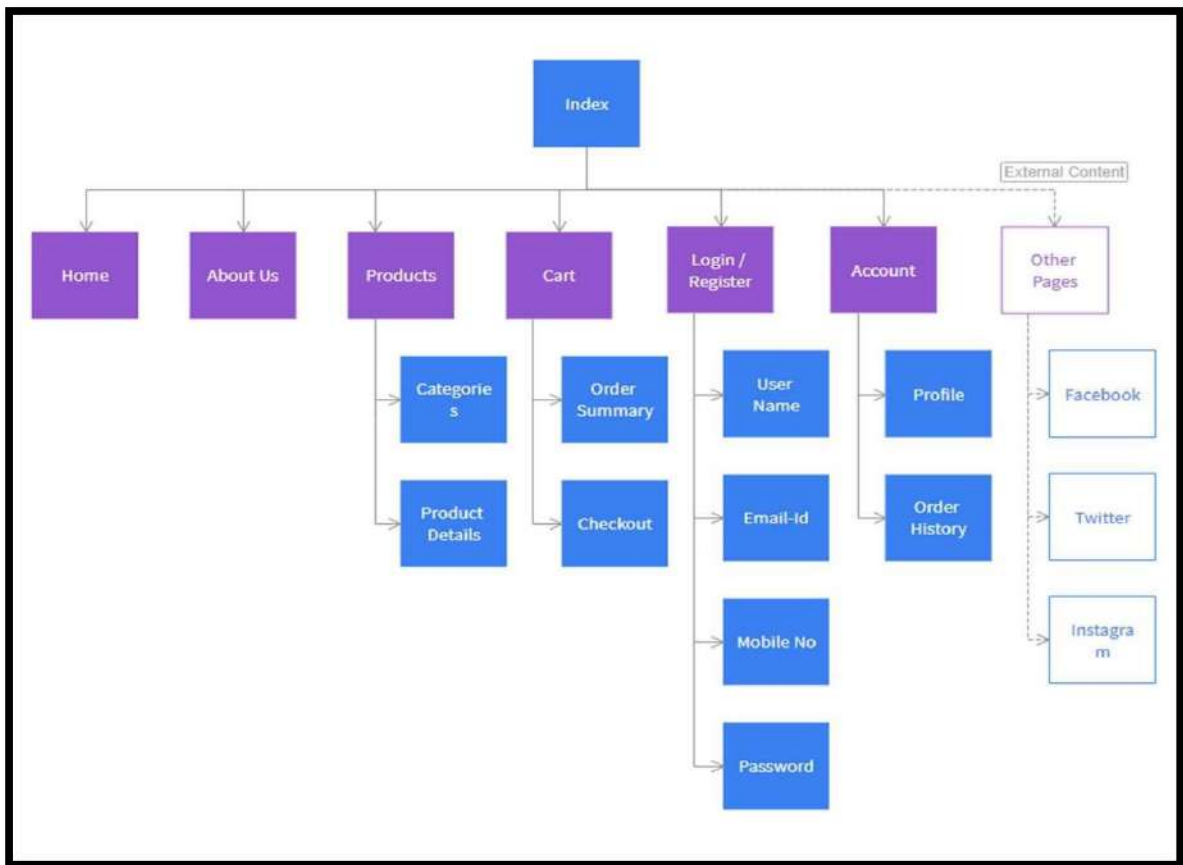
FIGURE 22: PROCEDURAL DIAGRAM FOR USER

Admin Side
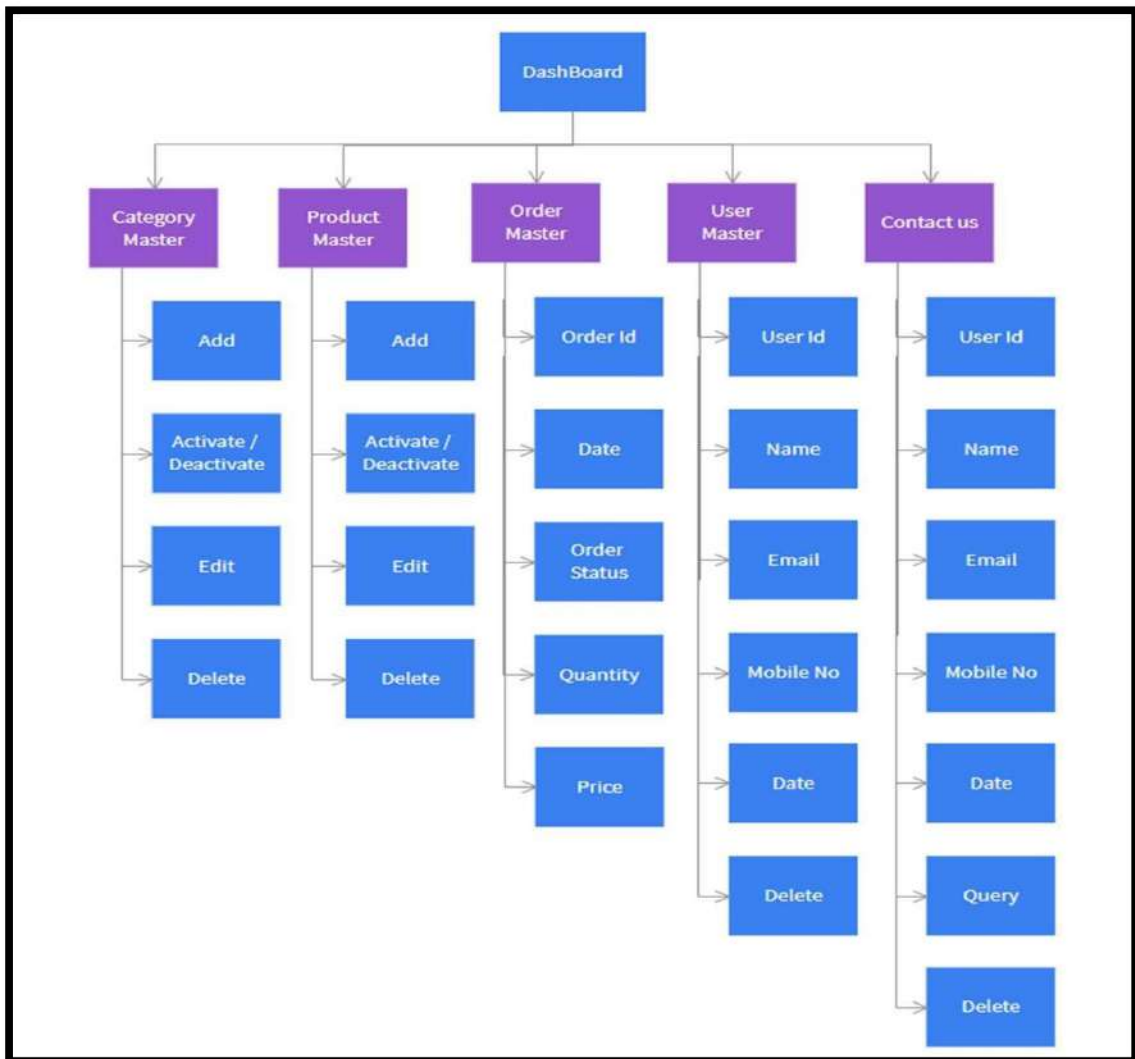
FIGURE 23: PROCEDURAL DIAGRAM FOR ADMIN

4.3.6 Scheme List:

4.6.1.2 Edit User:

Beneficiary List:

4.6.1.4 Sync Data:

Route Travelled:
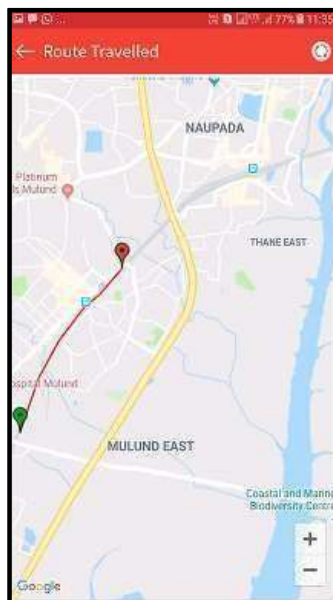
4.3.7 Security Issues:

- **Confidentiality** is roughly equivalent to Confidentiality measures are designed to prevent sensitive information from unauthorized access attempts. It is common for data to be categorized according to the amount and type of damage that could be done if it fell into the wrong hands. More or less stringent measures can then be implemented according to those categories.

- **Integrity** involves maintaining the consistency, accuracy and trustworthiness of data over its entire lifecycle. Data must not be changed in transit, and steps must be taken to ensure data cannot be altered by unauthorized people (for example, in a breach of confidentiality).

- **Availability** means information should be consistently and readily accessible for authorized parties. This involves properly maintaining hardware and technical infrastructure and systems that hold and display the information.

Securing a communication between the client and the server within the client/server and over the web; starts from securing the client side and its applications. Security issues in the client side can exist on the browser side in software such as

Microsoft Internet Explorer (IE) and on the server side in software such as Microsoft Internet Services (IIS).

Some of the application vulnerabilities can exist within the computer applications and how it's implemented. Internet Information Server (IIS) had many vulnerability issues in the past that affected a lot of organizations and small business, and some of these vulnerabilities are:

- An Elevation of privilege attacks – such attack is launched by creating crafted anonymous HTTP that can request to gain access to a location that usually requires authentication. Such attack can be mitigated by enforcing the file system-based ACL where the attacker will be restricted to the permissionsgranted to the anonymous user account within the system.

- Zero-day attacks – such attack exploit code that can be used to create Denial of Service (DoS) condition on Windows Server 2003 and Windows XP without requiring write access to the server file systems. To mitigate such attack, the NTFS file system need to be modified to disallow the directory creation by FTP users and also disallow FTP write access to anonymous users

In my web application there are password encryption where any customer or admin write the password in the password field is appears to be in encrypted form. Whenever any customer gives any details, tries to manipulate or write anything in form of html or any script format in any textbox the values are always checked by the function given in every field and only the text format is received. Also, whenever any user tries to manipulate the URL of the web page, he is automatically redirected to the home page so there can be any chance to leak any information present in the web page. And finally, the webpage has httpssecured and the SSL certificate which prevents any malware or viruses to affect the website and the secures the payment gateway.

4.3.8 Test Case Design:

User Register:

Sr. No.	Test Case ID	Test Case Name	Test Case Description	Steps	Expected Result	Actual Result	Test Case Status
1	TC035	Email	Correct email	Enter email in the email field	No error message	OTP received in email	Pass
2	TC036	Email	Incorrect email	Enter email in the email field	Error Message	Please enter correct email	Pass
3	TC037	Validate OTP	Correct otp	Enter otp in the otp field	No error message	Email id verified	Pass
4	TC038	Validate OTP	Incorrect otp	Enter otp in the otp field	Error Message	Incorrect Otp please try again.	Pass
5	TC039	Mobile number	10-digit number	Enter mobile number in the field	No error message	No error message	Pas

							s
6	TC040	Mobile number	Less than 10-digit number	Enter mobile number in the field	Error Message	Message: Number must be at least 10 digits	P a s s
7	TC041	Password < 8 characters	Less than 10-digit number	Enter password in field	Error Message	Message: Password must be at least 8 characters	P a s s

TABLE 11: USER REGISTRATION

4.3.9 Logical Design:

System Flow Chart:

The system flow diagram is a visual representation of all processed in sequential order.

The System flow chart diagram is a graphical representation of the relation between all the major parts or step of the system. Flow chart diagram cannot include minor parts of the system.

Flow Chart diagram symbols

Symbol	Description

	Start / End : Represents the start or end point of a flowchart.
	Data Flow : Data flow are pipelines through the packets of information flow.
	Process : A Process or task performed by the system.
	Decision : Decision decides the next step will be proceed or not. Yes/No, True/False
	Input / Output : Represents input and output data.

TABLE 10: SYSTEM FLOW CHART NOTATIONS
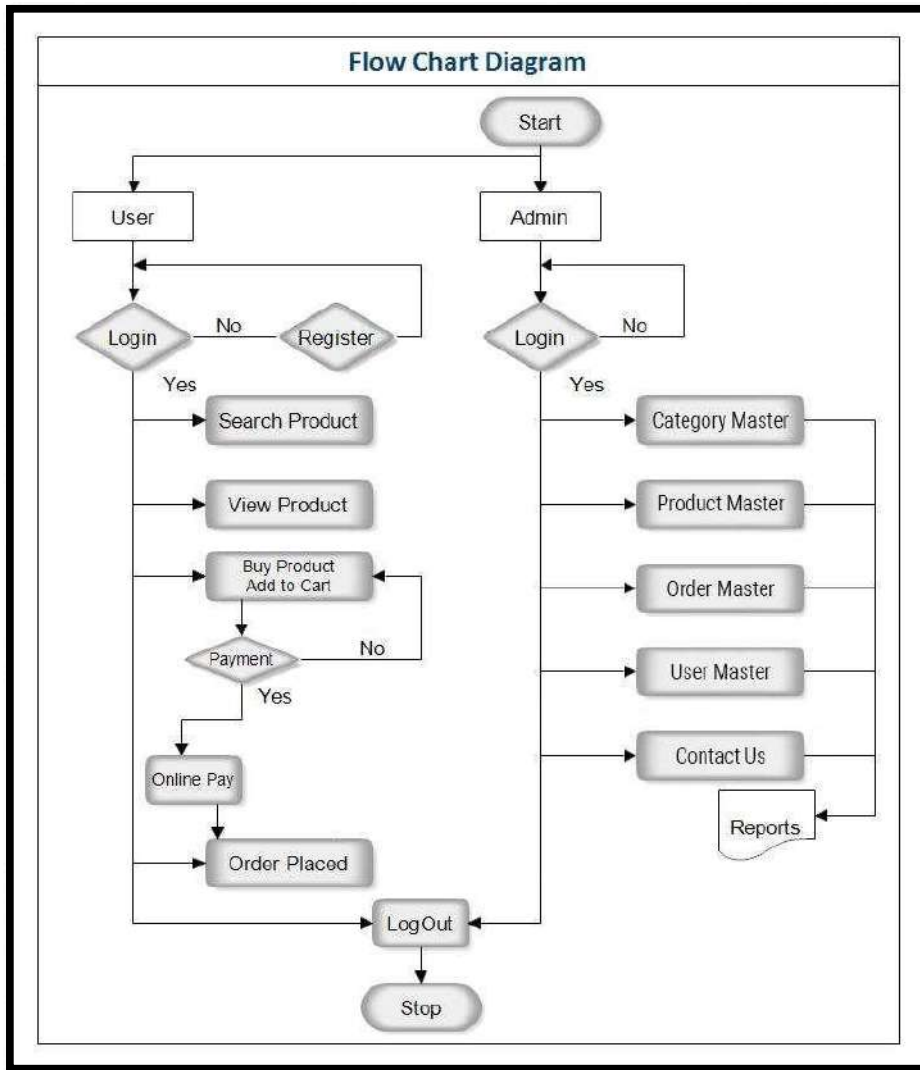
Flow Chart Diagram

FIGURE 24: SYSTEM FLOW CHART DIAGRAM

4.2   User Interface Design:

Admin Side:

Login Form:
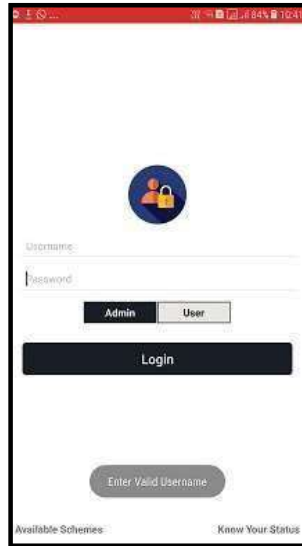
FIGURE 36: ADMIN LOGIN FORM DESIGN

In this Login Form Admin has to enter his Username and password by entering correct credentials admin can enter the dashboard successfully. But is there is invalid credentials admin would not be logged in and an error message will show up invalid username or password please try again.

Forget Password:

Sr. No.	Test Case ID	Test Case Name	Test Case Description	Steps	Expected Result	Actual Result	Test Case Status

1	TC047	Recover Password	Correct email	Enter the email and click submit button	Successful login	Password Sent to your Email Address	Pass

| 2 | TC048 | Recover Password | Correct email | Enter the email and click submit button | Error message | User not registered or please check your email and try again. | P a s s |

Chapter: 5

IMPLEMENTATION AND TESTING

Implementation Approaches

An implementation plan is a document that outlines the steps your team should take to accomplish a shared goal or initiative. Implementation planning is the counterpart to a strategic plan. If the strategic plan details what strategies you will use to hit a specific goal, the implementation plan is the step-by-step guide for how those goals will be achieved.

The purpose of an implementation plan is to ensure that your team can answer the who, what, when, how, and why of a project before moving into the execution phase. In simple terms, it's the action plan that turns your strategy into specific tasks.

TABLE 14: IMPLEMENTATION APPROACHES

Define Goals

The first step in the implementation process is defining my goals. Determine what I hope to accomplish when your project is complete, like whether I hope to win over a new marketing client or revamp my internal

content strategy. Starting with my project objectives in mind can help flesh out my project plan.

Conduct research

Once I have a broad idea of the project goals I want to achieve, I can hone in on these goals by conducting research such as interviews, surveys, focus groups, or observations. My research should come from key experts in my field. These experts may be team members or external stakeholders. My research outcomes should includea list of what my project timeline, budget, and personnel may look like.

Map out risks

I brainstormed risk scenarios in step one of your implementation strategies, and in step three, you'll map out all the potential risks you may face in your project. Risks can include anything from paid time off and holidays to budget constraints and loss of personnel.

A great way to map out your risks is by using a risk register. This tool will help you prioritize project risks and prepare for them accordingly. You can also conduct a SWOT analysis, which will identify any weaknesses or threats affecting your project.

Schedule milestones

Scheduling your project milestones is an important step in the planning process because these checkpoints help you track your progress during execution. Milestones serve as metrics—they are a way to measure how far you've come in your project and how far you have left to go.

To visualize project milestones and keep your entire team on track, use a Gantt chart. With a Gantt chart, you can visually lay out your implementation schedule and show how long you think each task will take.

Assign responsibilities and tasks

Every action plan must include a list of responsibilities with team

members assigned to each one. By assigning responsibilities, you can assess the performance of each team member and monitor progress more closely. Using a RACI chart can be an effective project management tool for clarifying roles and responsibilities.

Assigning responsibilities is different from assigning individual tasks. One team member may be responsible for overseeing the project review, while you may assign three other team members to handle the delivery and communication of the project to various teams for review. When you assign responsibilities and tasks, be sure to makeyour expectations clear.

Allocate resources

Resource allocation is one of the best ways to reduce risk. If you can plan out what resources you need for your project and ensure those resources will be available, you'll avoid the risk of running out of resources mid-project. If you notice that you don't have enough resources in this step of the implementation process, you can adjust your project accordingly before it kicks off.

Resources may include money, personnel, software, equipment, and other physical or technical materials. Time can also be a resource because the team members you need to complete the project may be working on other projects.

Coding Details and Code Efficiency

Code Efficiency

User & Admin login

```xml
6    <?xml version="1.0" encoding="utf-8"?>
     <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
         xmlns:app="http://schemas.android.com/apk/res-auto"
         xmlns:tools="http://schemas.android.com/tools"
         android:layout_width="match_parent"
         android:layout_height="match_parent"
         android:background="@color/background"
         android:orientation="vertical"
         tools:context=".activity.ActivityLogin">


         <LinearLayout
             android:layout_width="match_parent"
             android:layout_height="wrap_content"
             android:layout_weight="1"
             android:gravity="center"
             android:orientation="vertical">

             <ImageView
                 android:layout_width="80dp"
                 android:layout_height="80dp"
                 android:layout_gravity="center_horizontal"
                 android:scaleType="centerCrop"
                 android:src="@drawable/ic_login" />

             <android.support.v7.widget.AppCompatTextView
                 android:layout_width="wrap_content"
                 android:layout_height="wrap_content"
                 android:layout_marginLeft="20dp"
                 android:layout_marginRight="20dp"
                 android:gravity="center"
                 android:padding="5dp"
                 android:text="Sign In"
                 android:textColor="@color/colorAccent"
                 android:textSize="18sp"
                 android:textStyle="bold"
                 android:visibility="gone" />

             <android.support.v7.widget.AppCompatEditText
                 android:id="@+id/etUsername"
                 android:layout_width="match_parent"
                 android:layout_height="wrap_content"
                 android:layout_marginLeft="20dp"
                 android:layout_marginRight="20dp"
                 android:layout_marginTop="15dp"
                 android:background="@null"
                 android:gravity="center_vertical"
                 android:hint="Username"
                 android:inputType="text"
                 android:maxLength="100
```

```xml
            android:maxLines="1"
            android:padding="5dp"
            android:text=""
            android:textColor="@color/textColorPrimary"
            android:textColorHint="@color/hintText"
            android:textSize="14sp" />

        <View
            android:layout_width="match_parent"
            android:layout_height="0.3dp"
            android:layout_marginLeft="15dp"
            android:layout_marginRight="15dp"
            android:background="@color/lineSeparator" />

        <android.support.v7.widget.AppCompatEditText
            android:id="@+id/etPassword"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="20dp"
            android:layout_marginRight="20dp"
            android:layout_marginTop="15dp"
            android:background="@null"
            android:gravity="center_vertical"
            android:hint="Password"
            android:inputType="textPassword"
            android:maxLines="1"
            android:padding="5dp"
            android:text=""
            android:textColor="@color/textColorPrimary"
            android:textColorHint="@color/hintText"
            android:textSize="14sp" />

        <View
            android:layout_width="match_parent"
            android:layout_height="0.3dp"
            android:layout_marginLeft="15dp"
            android:layout_marginRight="15dp"
            android:background="@color/lineSeparator" />

        <LinearLayout
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginLeft="20dp"
            android:layout_marginRight="20dp"
            android:layout_marginTop="15dp"
            android:gravity="center"
            android:orientation="horizontal"
            android:padding="1dp">

            <RadioGroup
                android:id="@+id/rgUserType"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center"
                android:orientation="horizontal">

                <RadioButton
```

```xml
            android:id="@+id/rbAdmin"
            android:layout_width="100dp"
            android:layout_height="wrap_content"
            android:background="@drawable/customrdoback"
            android:button="@android:color/transparent"
            android:buttonTint="@color/colorAccent"
            android:checked="true"
            android:gravity="center"
            android:padding="5dp"
            android:text="Admin"
            android:textColor="@color/toggle_text"
            android:textStyle="bold" />

        <RadioButton
            android:id="@+id/rbUser"
            android:layout_width="100dp"
            android:layout_height="wrap_content"
            android:layout_marginLeft="1dp"
            android:layout_marginRight="1dp"
            android:background="@drawable/customrdoback"
            android:button="@android:color/transparent"
            android:buttonTint="@color/colorAccent"
            android:gravity="center"
            android:padding="5dp"
            android:text="User"
            android:textColor="@color/toggle_text"
            android:textStyle="bold" />

        <RadioButton
            android:id="@+id/rbBeneficiary"
            android:layout_width="100dp"
            android:layout_height="wrap_content"
            android:background="@drawable/customrdoback"
            android:button="@android:color/transparent"
            android:buttonTint="@color/colorAccent"
            android:gravity="center"
            android:padding="5dp"
            android:text="Beneficiary"
            android:textColor="@color/toggle_text"
            android:textStyle="bold"
            android:visibility="gone" />

    </RadioGroup>
</LinearLayout>

<FrameLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="25dp">

    <Button
        android:id="@+id/btnLogin"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:layout_marginLeft="20dp"
        android:layout_marginRight="20dp"
```

```xml
            android:background="@drawable/btn_rounded_login"

                android:gravity="center"
                android:minHeight="0dp"
                android:minWidth="0dp"
                android:paddingBottom="10dp"
                android:paddingLeft="20dp"
                android:paddingRight="20dp"
                android:paddingTop="10dp"
                android:text="Login"
                android:textAllCaps="false"
                android:textColor="@color/white"
                android:textSize="18sp" />

            <com.pnikosis.materialishprogress.ProgressWheel
                android:id="@+id/progressWheel"
                android:layout_width="40dp"
                android:layout_height="40dp"
                android:layout_gravity="center"
                android:visibility="invisible"
                app:matProg_barColor="@color/progressWheel"
                app:matProg_progressIndeterminate="true" />
        </FrameLayout>

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginBottom="5dp"
        android:paddingBottom="7dp"
        android:paddingTop="7dp">

        <android.support.v7.widget.AppCompatTextView
            android:id="@+id/tvSchemes"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="left"
            android:layout_weight="1"
            android:gravity="center_vertical|left"
            android:paddingLeft="10dp"
            android:text="Available Schemes"
            android:textColor="#747675"
            android:textSize="14sp"
            android:textStyle="bold" />

        <android.support.v7.widget.AppCompatTextView
            android:id="@+id/tvKnowYourStatus"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_vertical|right"
            android:layout_weight="1"
            android:gravity="right"
            android:paddingRight="10dp"
            android:text="Know Your Status"
            android:textColor="#747675"
            android:textSize="14sp"
```

```
                android:textStyle="bold" />
        </LinearLayout>



    </LinearLayout>
7   package in.rahultyagi.gst.activity;

    import android.app.Activity;
    import android.content.Intent;
    import android.os.Bundle;
    import android.support.v4.app.ActivityCompat;
    import android.support.v7.app.AppCompatActivity;
    import android.util.Log;
    import android.view.View;
    import android.widget.Button;
    import android.widget.EditText;
    import android.widget.RadioButton;
    import android.widget.RadioGroup;
    import android.widget.TextView;
    import android.widget.Toast;

    import com.android.volley.Request;

    import org.json.JSONObject;

    import java.util.ArrayList;
    import java.util.HashMap;
    import java.util.Map;

    import in.rahultyagi.gst.R;
    import in.rahultyagi.gst.api.JSONParser;
    import in.rahultyagi.gst.db.SQLiteFetcher;
    import in.rahultyagi.gst.entity.ELUser;
    import in.rahultyagi.gst.entity.ELUserType;
    import in.rahultyagi.gst.util.Connectivity;
    import in.rahultyagi.gst.util.Constants;
    import in.rahultyagi.gst.util.DialogUtils;
    import in.rahultyagi.gst.util.Logger;
    import in.rahultyagi.gst.util.PermissionUtils;
    import in.rahultyagi.gst.util.Utils;
    import in.rahultyagi.gst.util.VolleyRequestHelper;

    import static in.rahultyagi.gst.util.Constants.DATA;
    import static in.rahultyagi.gst.util.Constants.LOGIN;
    import static in.rahultyagi.gst.util.Constants.M_NO_INTERNET;
    import static in.rahultyagi.gst.util.Constants.PASSWORD;
    import static in.rahultyagi.gst.util.Constants.SERVICE_CALL;
    import static in.rahultyagi.gst.util.Constants.STATUS_CODE;
    import static in.rahultyagi.gst.util.Constants.STATUS_MESSAGE;
    import static in.rahultyagi.gst.util.Constants.TABLE_USER;
    import static in.rahultyagi.gst.util.Constants.USER_NAME;
    import static in.rahultyagi.gst.util.Constants.USER_TYPE_ID;
    import static in.rahultyagi.gst.util.Constants.USER_TYPE_ID_ADMIN;
    import static in.rahultyagi.gst.util.Constants.USER_TYPE_ID_BENEFICIARY;
    import static in.rahultyagi.gst.util.Constants.USER_TYPE_ID_USER;
```

```java
public class ActivityLogin extends AppCompatActivity {
    private static final String TAG = Logger.getTag(ActivityLogin.class);

    private Activity activity;
    private SQLiteFetcher fetcher;



    private EditText etUsername, etPassword;
    private RadioGroup rgUserType;
    private RadioButton rbAdmin, rbUser, rbBeneficiary;
    private Button btnLogin;
    private TextView tvSchemes, tvKnowYourStatus;
    private String Username, Password, UserTypeID;
    private VolleyRequestHelper volleyRequestHelper;
    private VolleyRequestHelper.OnRequestCompletedListener
requestCompletedListener;
    private ArrayList<ELUserType> listUserType = new ArrayList<>();

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_login);

        activity = this;
        volleyRequestHelper = new VolleyRequestHelper(activity);
        fetcher = new SQLiteFetcher(activity);
        listUserType = fetcher.getUserTypeList();

        etUsername = findViewById(R.id.etUsername);
        etPassword = findViewById(R.id.etPassword);
        btnLogin = findViewById(R.id.btnLogin);
        rgUserType = findViewById(R.id.rgUserType);
        rbAdmin = findViewById(R.id.rbAdmin);
        rbUser = findViewById(R.id.rbUser);
        rbBeneficiary = findViewById(R.id.rbBeneficiary);
        tvSchemes = findViewById(R.id.tvSchemes);
        tvKnowYourStatus = findViewById(R.id.tvKnowYourStatus);

        UserTypeID = Integer.toString(USER_TYPE_ID_ADMIN);

        etUsername.setText("inspector01");
        etPassword.setText("1");
        //etUsername.setText("vendor01");etPassword.setText("1");
        //etUsername.setText("admin");etPassword.setText("1");

        if (PermissionUtils.isMarshmallow()) {
            if (!PermissionUtils.hasPermissions(activity,
PermissionUtils.PERMISSIONS)) {
                ActivityCompat.requestPermissions(activity,
PermissionUtils.PERMISSIONS, PermissionUtils.MULTIPLE);
            }
        }

        rgUserType.setOnCheckedChangeListener(new
RadioGroup.OnCheckedChangeListener() {
            @Override
            public void onCheckedChanged(RadioGroup group, int checkedId) {
```

```java
                if (checkedId == R.id.rbAdmin) {
                    UserTypeID = Integer.toString(USER_TYPE_ID_ADMIN);
                }
                if (checkedId == R.id.rbBeneficiary) {
                    UserTypeID = Integer.toString(USER_TYPE_ID_BENEFICIARY);
                }
                if (checkedId == R.id.rbUser) {
                    UserTypeID = Integer.toString(USER_TYPE_ID_USER);



                }
            }
        });

        btnLogin.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                if (validate()) {
                    login();
                }
            }
        });
        tvSchemes.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(activity, ActivitySchemeList.class);
                startActivity(intent);
            }
        });

        tvKnowYourStatus.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                Intent intent = new Intent(activity,
ActivityBeneficiaryApplicationStatus.class);
                startActivity(intent);
            }
        });
    }

    private boolean validate() {
        Username = etUsername.getText().toString().trim();
        Password = etPassword.getText().toString().trim();

        if (Utils.isNullEmpty(Username)) {
            DialogUtils.toast(activity, "Enter Valid Username");
            return false;
        }

        if (Utils.isNullEmpty(Password)) {
            DialogUtils.toast(activity, "Enter Valid Password");
            return false;
        }
        return true;
    }

    private void login() {
        try {
```

```java
            if (Connectivity.isConnected(activity)) {

                requestCompletedListener = new
VolleyRequestHelper.OnRequestCompletedListener() {
                    @Override
                    public void onRequestCompleted(String requestName, boolean
status, String response, String errorMessage) {

                        if (status) {
                            try {

                                JSONObject jsonObject = new
JSONObject(response);
                                if (jsonObject.getInt(STATUS_CODE) == 1) {
                                    ELUser user =
JSONParser.parseUserDetails(jsonObject.getString(DATA));
                                    fetcher.truncate(TABLE_USER);
                                    fetcher.insertUser(user);
                                    Intent intent = new Intent(activity,
ActivityDashboard.class);

                                    startActivity(intent);
                                    finish();
                                } else {
                                    DialogUtils.toast(activity,
```

```java
                jsonObject.getString(STATUS_MESSAGE));
                            }
                        } catch (Exception ex) {
                            ex.printStackTrace();
                        }
                    }


                }
            };

            Map<String, String> requestParameters = new HashMap<>();
            requestParameters.put(SERVICE_CALL, LOGIN);
            requestParameters.put(USER_NAME, Username);
            requestParameters.put(PASSWORD, Password);
            requestParameters.put(USER_TYPE_ID, UserTypeID);
            Log.e("fndjnfdngnfinhgf", "login:
"+requestParameters.toString() );
            volleyRequestHelper.requestString(
                    LOGIN,
                    Constants.SERVICE,
                    Request.Method.POST,
                    requestParameters,
                    null,
                    false,
                    requestCompletedListener
            );

        } else {
            Toast.makeText(activity, M_NO_INTERNET,
Toast.LENGTH_LONG).show();
        }

    } catch (Exception ex) {
        ex.printStackTrace();
    }
}

}
```

Activity About

```xml
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"


    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/white"
    android:gravity="center"
    android:orientation="vertical"
    tools:context=".activity.ActivityAbout">

    <ImageView
        android:id="@+id/ivBack"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```xml
            android:layout_gravity="right"
            android:layout_margin="10dp"
            android:scaleType="fitXY"
            android:src="@drawable/ic_close"
            android:tint="@color/black" />


    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
        android:gravity="center"
        android:orientation="vertical">

        <ImageView
            android:layout_width="150dp"
            android:layout_height="150dp"
            android:layout_gravity="center_horizontal"
            android:adjustViewBounds="true"
            android:scaleType="fitCenter"
            android:src="@drawable/ic_launcher" />

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="15dp"
            android:gravity="center"
            android:paddingLeft="10dp"
            android:paddingRight="10dp"
            android:text="@string/app_name_full"
            android:textColor="@color/colorAccent"
            android:textSize="22sp" />

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:gravity="center"
            android:orientation="vertical">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="5dp"
                android:gravity="center"
                android:orientation="horizontal">


                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:text="Developed By "
                    android:textColor="@color/colorAccent"
                    android:textSize="18sp" />
```

```xml
            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:text="Vedant Ashok Jaiswar"
                android:textColor="@color/googleGreen"
                android:textSize="18sp" />
        </LinearLayout>

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center_vertical"
            android:text="© 2022 "
            android:textColor="@color/colorPrimary"
            android:textSize="18sp" />

    </LinearLayout>
</LinearLayout>

<in.rahultyagi.gst.ui.TVSourceSansProRegular
    android:id="@+id/tvVersionName"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:gravity="center"
    android:paddingLeft="10dp"
    android:paddingRight="10dp"
    android:paddingTop="5dp"
    android:text="Version - 0.0.0.0"
    android:textColor="@color/colorAccent"
    android:textSize="18sp" />

<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="5dp"
    android:gravity="center"
    android:orientation="horizontal">

    <in.rahultyagi.gst.ui.TVSourceSansProRegular
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:gravity="center_vertical"
        android:paddingBottom="5dp"
        android:paddingLeft="10dp"
        android:paddingTop="5dp"
        android:text="Made with"
        android:textColor="@color/colorAccent"
```

```
                        android:textSize="18sp" />

            <in.rahultyagi.gst.ui.TVSourceSansProRegular
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:paddingBottom="5dp"
                android:paddingLeft="2dp"
                android:paddingRight="2dp"
                android:paddingTop="5dp"
                android:text="♥"
                android:textColor="@color/colorPrimary"
                android:textSize="18sp" />

            <in.rahultyagi.gst.ui.TVSourceSansProRegular
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:paddingBottom="5dp"
                android:paddingRight="10dp"
                android:paddingTop="5dp"
                android:text="in India"
                android:textColor="@color/colorAccent"
                android:textSize="18sp" />

        </LinearLayout>


    </LinearLayout>
```

Activity Beneficiary Registration

```
• <?xml version="1.0" encoding="utf-8"?>
  <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
      xmlns:app="http://schemas.android.com/apk/res-auto"
      xmlns:tools="http://schemas.android.com/tools"
      android:layout_width="match_parent"
      android:layout_height="match_parent"
      android:layout_gravity="center"
      android:background="@color/background"
      android:orientation="vertical"
      tools:context=".activity.ActivityBeneficiaryRegistration">

      <android.support.v7.widget.Toolbar
          android:id="@+id/toolbar"
          android:layout_width="match_parent"
          android:layout_height="?attr/actionBarSize"
          android:background="?attr/colorPrimary"
          android:contentInsetEnd="0dp"
          android:contentInsetLeft="0dp"
          android:contentInsetRight="0dp"
          android:contentInsetStart="0dp"
          android:gravity="center_vertical"
          android:orientation="horizontal"
          app:contentInsetEnd="0dp"
          app:contentInsetLeft="0dp"
          app:contentInsetRight="0dp"
          app:contentInsetStart="0dp"
```

```xml
                    app:popupTheme="@style/ThemeOverlay.AppCompat.Light"
                    app:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">


            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:gravity="center_vertical">

                <ImageView
                    android:id="@+id/ivBack"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_margin="10dp"
                    android:scaleType="fitXY"
                    android:src="@drawable/ic_left_arrow"
                    android:tint="@color/white" />

                <in.rahultyagi.gst.ui.TVSourceSansProRegular
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:padding="5dp"
                    android:text="Beneficiary Registration"
                    android:textColor="@color/white"
                    android:textSize="22sp" />
            </LinearLayout>
        </android.support.v7.widget.Toolbar>

        <ScrollView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:fillViewport="true"
            android:fitsSystemWindows="true">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:orientation="vertical"
                android:paddingLeft="10dp"
                android:paddingRight="10dp">

                <android.support.v7.widget.CardView
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_marginLeft="1dp"
                    android:layout_marginRight="1dp"
                    android:layout_marginTop="5dp"
                    app:cardCornerRadius="5dp">

                    <LinearLayout
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_margin="5dp"
                        android:orientation="vertical">

                        <in.rahultyagi.gst.ui.TVSourceSansProBold
```

```
                                android:id="@+id/tvSchemeCode"

                                    android:layout_width="match_parent"
                                    android:layout_height="wrap_content"
                                    android:gravity="center_vertical"
                                    android:inputType="textMultiLine"
                                    android:maxLines="1"
                                    android:paddingBottom="5dp"
                                    android:paddingLeft="5dp"
                                    android:paddingRight="2dp"
                                    android:paddingTop="2dp"
                                    android:text="Scheme Code : "
                                    android:textColor="@color/colorAccent"
                                    android:textColorHint="@color/hintText" />

                            <in.rahultyagi.gst.ui.TVSourceSansProBold
                                    android:id="@+id/tvSchemeName"
                                    android:layout_width="match_parent"
                                    android:layout_height="wrap_content"
                                    android:gravity="center_vertical"
                                    android:inputType="textMultiLine"
                                    android:maxLines="5"
                                    android:paddingBottom="2dp"
                                    android:paddingLeft="5dp"
                                    android:paddingRight="2dp"
                                    android:paddingTop="5dp"
                                    android:text="Scheme Name : "
                                    android:textColor="@color/colorAccent"
                                    android:textColorHint="@color/hintText" />

                        </LinearLayout>
                    </android.support.v7.widget.CardView>


                    <LinearLayout
                            android:layout_width="match_parent"
                            android:layout_height="wrap_content"
                            android:layout_marginTop="5dp"
                            android:orientation="horizontal">

                            <android.support.v7.widget.CardView
                                android:layout_width="match_parent"
                                android:layout_height="wrap_content"
                                android:layout_marginRight="5dp"
                                android:layout_weight="1"
                                android:clickable="true"
                                android:focusable="true"

android:foreground="?android:attr/selectableItemBackground"
                                app:cardCornerRadius="5dp">

                                <in.rahultyagi.gst.ui.ETSourceSansProRegular
                                    android:id="@+id/etFirstName"
                                    android:layout_width="match_parent"
                                    android:layout_height="wrap_content"
                                    android:background="@drawable/edit_text_rounded"
                                    android:gravity="center_vertical"
                                    android:hint="First Name"
```

```
                android:inputType="textCapWords"
                android:maxLines="1"

                android:padding="10dp"
                android:textColor="@color/colorAccent"
                android:textColorHint="@color/hintText" />
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="5dp"
            android:layout_weight="1"
            android:clickable="true"
            android:focusable="true"

android:foreground="?android:attr/selectableItemBackground"
            app:cardCornerRadius="5dp">

            <in.rahultyagi.gst.ui.ETSourceSansProRegular
                android:id="@+id/etLastName"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:background="@drawable/edit_text_rounded"
                android:gravity="center_vertical"
                android:hint="Last Name"
                android:inputType="textCapWords"
                android:maxLines="1"
                android:padding="10dp"
                android:textColor="@color/colorAccent"
                android:textColorHint="@color/hintText" />

        </android.support.v7.widget.CardView>
    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:orientation="horizontal">

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginRight="5dp"
            android:layout_weight="1"
            android:clickable="true"
            android:focusable="true"

android:foreground="?android:attr/selectableItemBackground"
            app:cardCornerRadius="5dp">

            <in.rahultyagi.gst.ui.ETSourceSansProRegular
                android:id="@+id/etMobileNo"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:background="@drawable/edit_text_rounded"
                android:gravity="center_vertical"
```

```xml
                    android:hint="Mobile No"
                    android:inputType="number"
                    android:maxLength="10"


                    android:maxLines="1"
                    android:padding="10dp"
                    android:textColor="@color/colorAccent"
                    android:textColorHint="@color/hintText" />

            </android.support.v7.widget.CardView>

            <android.support.v7.widget.CardView
                android:id="@+id/cvDateOfBirth"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginLeft="5dp"
                android:layout_weight="1"
                android:clickable="true"
                android:focusable="true"

    android:foreground="?android:attr/selectableItemBackground"
                app:cardCornerRadius="5dp">

                <in.rahultyagi.gst.ui.TVSourceSansProRegular
                    android:id="@+id/tvDateOfBirth"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:background="@drawable/edit_text_rounded"
                    android:drawablePadding="10dp"
                    android:drawableRight="@drawable/ic_calendar"
                    android:gravity="center_vertical"
                    android:hint="Date of Birth"
                    android:inputType="text"
                    android:maxLines="1"
                    android:padding="12dp"
                    android:textColor="@color/colorAccent"
                    android:textColorHint="@color/hintText" />

            </android.support.v7.widget.CardView>

        </LinearLayout>

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:clickable="true"
            android:focusable="true"
            android:foreground="?android:attr/selectableItemBackground"
            app:cardCornerRadius="5dp">

            <in.rahultyagi.gst.ui.ETSourceSansProRegular
                android:id="@+id/etEmail"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:background="@drawable/edit_text_rounded"
                android:gravity="center_vertical"
                android:hint="Email"
```

```xml
            android:inputType="textEmailAddress"
            android:maxLength="100"
            android:maxLines="1"
            android:minLines="1"



            android:padding="10dp"
            android:textColor="@color/colorAccent"
            android:textColorHint="@color/hintText" />
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:clickable="true"
        android:focusable="true"
        android:foreground="?android:attr/selectableItemBackground"
        app:cardCornerRadius="5dp">

        <in.rahultyagi.gst.ui.ETSourceSansProRegular
            android:id="@+id/etAddress1"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/edit_text_rounded"
            android:gravity="center_vertical"
            android:hint="Address Line 1"
            android:inputType="text|textCapSentences"
            android:maxLines="7"
            android:minLines="7"
            android:padding="10dp"
            android:textColor="@color/colorAccent"
            android:textColorHint="@color/hintText" />
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:clickable="true"
        android:focusable="true"
        android:foreground="?android:attr/selectableItemBackground"
        app:cardCornerRadius="5dp">

        <in.rahultyagi.gst.ui.ETSourceSansProRegular
            android:id="@+id/etAddress2"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/edit_text_rounded"
            android:gravity="center_vertical"
            android:hint="Address Line 2"
            android:inputType="text|textCapSentences"
            android:maxLines="7"
            android:minLines="7"
            android:padding="10dp"
            android:textColor="@color/colorAccent"
            android:textColorHint="@color/hintText" />
```

```xml
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:clickable="true"




            android:focusable="true"
            android:foreground="?android:attr/selectableItemBackground"
            app:cardCornerRadius="5dp">

            <in.rahultyagi.gst.ui.ETSourceSansProRegular
                android:id="@+id/etPinCode"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:background="@drawable/edit_text_rounded"
                android:gravity="center_vertical"
                android:hint="Pin Code"
                android:inputType="number"
                android:maxLength="6"
                android:maxLines="1"
                android:padding="10dp"
                android:textColor="@color/colorAccent"
                android:textColorHint="@color/hintText" />

        </android.support.v7.widget.CardView>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:clickable="true"
            android:focusable="true"
            android:foreground="?android:attr/selectableItemBackground">

            <Spinner
                android:id="@+id/spnrState"
                style="@style/SpinnerStyle"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:background="@drawable/edit_text_rounded"
                android:dropDownVerticalOffset="45dp"
                android:popupBackground="@color/background"
                android:spinnerMode="dialog"
                tools:listitem="@layout/row_spinner_default" />
        </LinearLayout>

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginTop="10dp"
            android:clickable="true"
            android:focusable="true"
            android:foreground="?android:attr/selectableItemBackground">
```

```xml
        <Spinner
            android:id="@+id/spnrCity"
            style="@style/SpinnerStyle"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/edit_text_rounded"
            android:dropDownVerticalOffset="45dp"
            android:popupBackground="@color/background"
            android:spinnerMode="dialog"
            tools:listitem="@layout/row_spinner_default" />


    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:clickable="true"
        android:focusable="true"
        android:foreground="?android:attr/selectableItemBackground">

        <Spinner
            android:id="@+id/spnrBlock"
            style="@style/SpinnerStyle"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/edit_text_rounded"
            android:dropDownVerticalOffset="45dp"
            android:popupBackground="@color/background"
            android:spinnerMode="dialog"
            tools:listitem="@layout/row_spinner_default" />
    </LinearLayout>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginTop="10dp"
        android:clickable="true"
        android:focusable="true"
        android:foreground="?android:attr/selectableItemBackground"
        app:cardCornerRadius="5dp">

        <in.rahultyagi.gst.ui.ETSourceSansProRegular
            android:id="@+id/etAddressProof"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/edit_text_rounded"
            android:gravity="center_vertical"
            android:hint="Address Proof"
            android:inputType="text|textCapCharacters"
            android:maxLines="1"
            android:padding="10dp"
            android:textColor="@color/colorAccent"
            android:textColorHint="@color/hintText" />

    </android.support.v7.widget.CardView>
```

```xml
<in.rahultyagi.gst.ui.TVSourceSansProBold
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center_vertical"
    android:inputType="textMultiLine"
    android:maxLines="2"
    android:paddingBottom="2dp"
    android:paddingLeft="5dp"
    android:paddingRight="2dp"
    android:paddingTop="2dp"
    android:text="Unique ID of Adhaar, Passport, Driving License,
Telephone/Electricity Bill, Ration Card."
    android:textColor="@color/colorAccent"
    android:textColorHint="@color/hintText"
    android:textSize="12sp" />

<android.support.v7.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="10dp"
    android:clickable="true"
    android:focusable="true"
    android:foreground="?android:attr/selectableItemBackground"
    app:cardCornerRadius="5dp">

    <in.rahultyagi.gst.ui.ETSourceSansProRegular
        android:id="@+id/etIdentityProof"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="@drawable/edit_text_rounded"
        android:gravity="center_vertical"
        android:hint="Identity Proof"
        android:inputType="number"
        android:maxLines="1"
        android:padding="10dp"
        android:textColor="@color/colorAccent"
        android:textColorHint="@color/hintText" />

</android.support.v7.widget.CardView>

<in.rahultyagi.gst.ui.TVSourceSansProBold
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:gravity="center_vertical"
    android:inputType="textMultiLine"
    android:maxLines="1"
    android:paddingBottom="2dp"
    android:paddingLeft="5dp"
    android:paddingRight="2dp"
    android:paddingTop="2dp"
    android:text="Unique ID of Adhaar."
    android:textColor="@color/colorAccent"
    android:textColorHint="@color/hintText"
    android:textSize="12sp" />
```

```xml
<LinearLayout
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginTop="5dp"
    android:orientation="horizontal">

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginRight="5dp"
        android:layout_weight="1"
        android:clickable="true"
        android:focusable="true"
android:foreground="?android:attr/selectableItemBackground">
```

```xml
                        <in.rahultyagi.gst.ui.SquareImageView
                            android:id="@+id/ivAddressProof"
                            android:layout_width="match_parent"
                            android:layout_height="match_parent"
                            android:scaleType="fitXY"
                            android:src="@drawable/bg_material" />

                        <in.rahultyagi.gst.ui.TVSourceSansProBold
                            android:layout_width="wrap_content"
                            android:layout_height="wrap_content"
                            android:layout_gravity="center_horizontal"

    android:background="@color/colorPrimaryTransparentLight"
                            android:gravity="center_vertical"
                            android:padding="5dp"
                            android:text="Address Proof"
                            android:textColor="@color/white" />

                </android.support.v7.widget.CardView>

                <android.support.v7.widget.CardView
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_marginRight="5dp"
                        android:layout_weight="1"
                        android:clickable="true"
                        android:focusable="true"

    android:foreground="?android:attr/selectableItemBackground">

                        <in.rahultyagi.gst.ui.SquareImageView
                            android:id="@+id/ivIdentityProof"
                            android:layout_width="match_parent"
                            android:layout_height="match_parent"
                            android:scaleType="fitXY"
                            android:src="@drawable/bg_material" />

                        <in.rahultyagi.gst.ui.TVSourceSansProBold
                            android:layout_width="wrap_content"
                            android:layout_height="wrap_content"
                            android:layout_gravity="center_horizontal"

    android:background="@color/colorPrimaryTransparentLight"
                            android:gravity="center_vertical"
                            android:padding="5dp"
                            android:text="Identity Proof"
                            android:textColor="@color/white" />

                </android.support.v7.widget.CardView>
            </LinearLayout>

        </LinearLayout>
    </ScrollView>

    <FrameLayout
        android:layout_width="wrap_content"
```

```xml
android:layout_height="wrap_content"

            android:layout_gravity="center_horizontal"
            android:paddingBottom="5dp"
            android:paddingTop="5dp">

            <Button
                android:id="@+id/btnAction"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:background="@drawable/btn_rounded_login"
                android:minHeight="0dp"
                android:minWidth="0dp"
                android:paddingBottom="10dp"
                android:paddingLeft="30dp"
                android:paddingRight="30dp"
                android:paddingTop="10dp"
                android:text="Register"
                android:textAllCaps="false"
                android:textColor="@color/white"
                android:textSize="14sp"
                android:textStyle="bold" />

            <com.pnikosis.materialishprogress.ProgressWheel
                android:id="@+id/progressWheel"
                android:layout_width="40dp"
                android:layout_height="40dp"
                android:layout_gravity="center"
                android:visibility="invisible"
                app:matProg_barColor="@color/progressWheel"
                app:matProg_progressIndeterminate="true" />
        </FrameLayout>


    </LinearLayout>
```

Activity Scheme List

```xml
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout
xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="@color/background"
    android:orientation="vertical"
    tools:context=".activity.ActivitySchemeList">


    <android.support.v7.widget.Toolbar
        android:id="@+id/toolbar"
        android:layout_width="match_parent"
        android:layout_height="?attr/actionBarSize"
        android:background="?attr/colorPrimary"
        android:contentInsetEnd="0dp"
        android:contentInsetLeft="0dp"
        android:contentInsetRight="0dp"
        android:contentInsetStart="0dp"
        android:gravity="center_vertical"
```

```xml
        android:orientation="horizontal"
        app:contentInsetEnd="0dp"
        app:contentInsetLeft="0dp"
        app:contentInsetRight="0dp"
        app:contentInsetStart="0dp"
        app:popupTheme="@style/ThemeOverlay.AppCompat.Light"
        app:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">


        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:gravity="center_vertical">

            <ImageView
                android:id="@+id/ivBack"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_margin="10dp"
                android:scaleType="fitXY"
                android:src="@drawable/ic_left_arrow"
                android:tint="@color/white" />

            <in.rahultyagi.gst.ui.TVSourceSansProRegular
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:padding="5dp"
                android:text="Available Schemes"
                android:textColor="@color/white"
                android:textSize="19sp" />
        </LinearLayout>
    </android.support.v7.widget.Toolbar>

    <android.support.v4.widget.SwipeRefreshLayout
        android:id="@+id/swipeRefreshLayout"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_marginTop="?attr/actionBarSize">

        <FrameLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent">

            <android.support.v7.widget.RecyclerView
                android:id="@+id/rvScheme"
                android:layout_width="match_parent"
                android:layout_height="match_parent"
                android:overScrollMode="never" />

            <com.pnikosis.materialishprogress.ProgressWheel
                android:id="@+id/progressWheel"
                android:layout_width="30dp"
                android:layout_height="30dp"
                android:layout_gravity="center"
                android:visibility="gone"
                app:matProg_barColor="@color/progressWheel"
                app:matProg_progressIndeterminate="true" />
```

```xml
                <TextView
                    android:id="@+id/tvMessage"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_gravity="center"
                    android:gravity="center"
                    android:paddingLeft="10dp"
                    android:paddingRight="10dp"
                    android:text="No Data Found"
                    android:textColor="@color/googleRed"
                    android:textSize="14sp"
                    android:visibility="invisible" />
        </FrameLayout>

    </android.support.v4.widget.SwipeRefreshLayout>

</android.support.design.widget.CoordinatorLayout>
```

```java
package in.rahultyagi.gst.activity;

import android.os.Bundle;
import android.support.v4.widget.SwipeRefreshLayout;
import android.support.v7.app.AppCompatActivity;
import android.support.v7.widget.DefaultItemAnimator;
import android.support.v7.widget.LinearLayoutManager;
import  android.support.v7.widget.RecyclerView;
import android.view.View;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

import com.android.volley.Request;
import com.pnikosis.materialishprogress.ProgressWheel;

import org.json.JSONObject;

import java.util.ArrayList;
import java.util.HashMap;
import java.util.Map;

import in.rahultyagi.gst.R;
import in.rahultyagi.gst.adapter.AdapterSchemeList;
import in.rahultyagi.gst.api.JSONParser;
import in.rahultyagi.gst.entity.ELScheme;
import in.rahultyagi.gst.util.Connectivity;
import in.rahultyagi.gst.util.Constants;
import in.rahultyagi.gst.util.DialogUtils;
import in.rahultyagi.gst.util.Logger;
import in.rahultyagi.gst.util.VerticalSpaceItemDecoration;
import in.rahultyagi.gst.util.VolleyRequestHelper;

import static in.rahultyagi.gst.util.Constants.ACTIVE_SCHEME_LIST;
import static in.rahultyagi.gst.util.Constants.DATA;
import static in.rahultyagi.gst.util.Constants.M_NO_INTERNET;
import static in.rahultyagi.gst.util.Constants.M_SERVER_ERROR;
import static in.rahultyagi.gst.util.Constants.SERVICE_CALL;
```

```java
import static in.rahultyagi.gst.util.Constants.STATUS_CODE;
import static in.rahultyagi.gst.util.Constants.STATUS_MESSAGE;


public class ActivitySchemeList extends AppCompatActivity {
    private static final String TAG = Logger.getTag(ActivitySchemeList.class);

    private AppCompatActivity activity;
    private RecyclerView rvScheme;
    private ProgressWheel progressWheel;
    private ArrayList<ELScheme> list = new ArrayList<>();

    private ImageView ivBack;
    private TextView tvMessage;
    private SwipeRefreshLayout swipeContainer;
    private AdapterSchemeList adapterSchemeList;
    private VolleyRequestHelper volleyRequestHelper;
    private VolleyRequestHelper.OnRequestCompletedListener
requestCompletedListener;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_scheme_list);

        activity = this;
        volleyRequestHelper = new VolleyRequestHelper(activity);

        ivBack = findViewById(R.id.ivBack);
        rvScheme = findViewById(R.id.rvScheme);
        progressWheel = findViewById(R.id.progressWheel);
        tvMessage = findViewById(R.id.tvMessage);
        swipeContainer = findViewById(R.id.swipeRefreshLayout);

        rvScheme.setItemAnimator(new DefaultItemAnimator());
        rvScheme.setHasFixedSize(true);
        rvScheme.addItemDecoration(new VerticalSpaceItemDecoration(0, 0, 0,
0));


getSchemeList();

ivBack.setOnClickListener(new View.OnClickListener() {@Override
    public void onClick(View v) {
        onBackPressed();
            }
        });

        swipeContainer.setOnRefreshListener(new
SwipeRefreshLayout.OnRefreshListener() {
            @Override
            public void onRefresh() {
                swipeContainer.setRefreshing(true);
                getSchemeList();
            }
```

```java
                });
        }

    private void getSchemeList() {
        try {
            if (Connectivity.isConnected(activity)) {




                progressWheel.setVisibility(View.VISIBLE);

                requestCompletedListener = new
VolleyRequestHelper.OnRequestCompletedListener() {
                    @Override
                    public void onRequestCompleted(String requestName, boolean
status, String response, String errorMessage) {

                        if (status) {
                            try {
                                JSONObject jsonObject = new

JSONObject(response);

if (jsonObject.getInt(STATUS_CODE) == 1) {list =

JSONParser.parseSchemeList(jsonObject.getString(DATA));
                                    rvScheme.setLayoutManager(new
LinearLayoutManager(activity));
                                    adapterSchemeList = new
AdapterSchemeList(activity, list, "");
                                    rvScheme.setAdapter(adapterSchemeList);

                                    if (list.size() == 0) {
                                        tvMessage.setVisibility(View.VISIBLE);
                                        tvMessage.setText("Data Not Found");
                                    } else {
                                        tvMessage.setVisibility(View.GONE);
                                    }

                                    progressWheel.setVisibility(View.GONE);
                                    swipeContainer.setRefreshing(false);
                                } else {
                                    DialogUtils.toast(activity,
jsonObject.getString(STATUS_MESSAGE));
                                }
                                    progressWheel.setVisibility(View.GONE);
                                    swipeContainer.setRefreshing(false);

tvMessage.setText(jsonObject.getString(STATUS_MESSAGE));
                            } catch (Exception ex) {
                                progressWheel.setVisibility(View.GONE);
                                swipeContainer.setRefreshing(false);
                                tvMessage.setText(M_SERVER_ERROR);
                            }
                        } else {
                            progressWheel.setVisibility(View.GONE);
```

```java
                        swipeContainer.setRefreshing(false);
                        tvMessage.setText(M_SERVER_ERROR);
                    }


                }
            };

            Map<String, String> requestParameters = new HashMap<>();
            requestParameters.put(SERVICE_CALL, ACTIVE_SCHEME_LIST);

            volleyRequestHelper.requestString(
                    Constants.ACTIVE_SCHEME_LIST,
```

```java
                    Constants.SERVICE,
                    Request.Method.POST,
                    requestParameters,
                    null,
                    false,
                    requestCompletedListener
            );

        } else {
            Toast.makeText(activity, M_NO_INTERNET,
Toast.LENGTH_LONG).show();
        }

    } catch (Exception ex) {
        ex.printStackTrace();
    }
  }

}
```

Activity Beneficiary Application Status

```xml
<?xml version="1.0" encoding="utf-8"?>
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_weight="1"
    android:background="@color/white"
    android:fillViewport="true"
    android:fitsSystemWindows="true"
    android:gravity="center"
    tools:context=".activity.ActivityBeneficiaryApplicationStatus">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center"
        android:orientation="vertical">

        <FrameLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```xml
            android:background="@color/colorPrimary"
            android:gravity="center"
            android:orientation="vertical">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_gravity="center|center_vertical"
                android:gravity="center"
                android:paddingLeft="10dp"
                android:paddingRight="10dp"
                android:text="Check Your Status"
                android:textColor="@color/white"
                android:textSize="22sp" />

        <ImageView
            android:id="@+id/ivBack"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="right|center_vertical"
            android:layout_margin="10dp"
            android:scaleType="fitXY"
            android:src="@drawable/ic_close"
            android:tint="@color/white" />
    </FrameLayout>

    <ImageView
        android:layout_width="100dp"
        android:layout_height="100dp"
        android:layout_gravity="center_horizontal"
        android:layout_marginTop="25dp"
        android:adjustViewBounds="true"
        android:scaleType="fitCenter"
        android:src="@drawable/ic_launcher" />

    <in.rahultyagi.gst.ui.TVSourceSansProBold
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="15dp"
        android:gravity="center"
        android:paddingLeft="10dp"
        android:paddingRight="10dp"
        android:text="@string/app_name_full"
        android:textColor="@color/colorAccent"
        android:textSize="22sp" />

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:layout_weight="1"
```

```xml
        android:gravity="center"
        android:orientation="vertical">


    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_margin="20dp"
        android:gravity="center"
        android:orientation="vertical">


        <in.rahultyagi.gst.ui.ETSourceSansProRegular
            android:id="@+id/etBeneficiaryCode"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:background="@drawable/edit_text_rounded"
            android:gravity="center_vertical"
            android:hint="Beneficiary Code"
            android:inputType="textCapCharacters"
            android:maxLength="15"
            android:maxLines="1"



            android:padding="10dp"
            android:textColor="@color/colorAccent"
            android:textColorHint="@color/hintText" />

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:id="@+id/tvApplicationStatus"
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_marginTop="15dp"
            android:background="@color/googleRed"
            android:gravity="center"
            android:paddingLeft="10dp"
            android:paddingRight="10dp"
            android:text=" -------"
            android:textColor="@color/white"
            android:textSize="18sp"
            android:visibility="gone" />

        <FrameLayout
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:layout_gravity="center_horizontal"
            android:layout_marginTop="15dp"
            android:paddingBottom="5dp"
            android:paddingTop="5dp">

            <Button
                android:id="@+id/btnAction"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:background="@drawable/btn_rounded_login"
                android:minHeight="0dp"
                android:minWidth="0dp"
```

```xml
                    android:paddingBottom="10dp"
                    android:paddingLeft="30dp"
                    android:paddingRight="30dp"
                    android:paddingTop="10dp"
                    android:text="Status"
                    android:textAllCaps="false"
                    android:textColor="@color/white"
                    android:textSize="14sp"
                    android:textStyle="bold" />

                <com.pnikosis.materialishprogress.ProgressWheel
                    android:id="@+id/progressWheel"
                    android:layout_width="40dp"
                    android:layout_height="40dp"
                    android:layout_gravity="center"
                    android:visibility="invisible"
                    app:matProg_barColor="@color/progressWheel"
                    app:matProg_progressIndeterminate="true" />
            </FrameLayout>
        </LinearLayout>

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"



        android:layout_height="match_parent"
        android:layout_weight="2" />
    </LinearLayout>
</ScrollView>
```
```java
package in.rahultyagi.gst.activity;

import android.app.Activity;
import android.os.Bundle;
import android.support.v4.content.ContextCompat;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ImageView;
import android.widget.TextView;
import android.widget.Toast;

import com.android.volley.Request;
import com.pnikosis.materialishprogress.ProgressWheel;

import org.json.JSONObject;

import java.util.HashMap;
import java.util.Map;

import in.rahultyagi.gst.R;
```

```java
import in.rahultyagi.gst.api.JSONParser;
import in.rahultyagi.gst.entity.ELBeneficiary;
import in.rahultyagi.gst.util.Connectivity;
import in.rahultyagi.gst.util.Constants;
import in.rahultyagi.gst.util.DialogUtils;
import in.rahultyagi.gst.util.Logger;
import in.rahultyagi.gst.util.Utils;
import in.rahultyagi.gst.util.VolleyRequestHelper;

import static in.rahultyagi.gst.util.Constants.BENEFICIARY_APPLICATION_STATUS;
import static in.rahultyagi.gst.util.Constants.BENEFICIARY_CODE;
import static in.rahultyagi.gst.util.Constants.DATA;
import static in.rahultyagi.gst.util.Constants.INSPECTION_STATUS_COMPLETED;
import static
in.rahultyagi.gst.util.Constants.INSPECTION_STATUS_INSPECTION_PENDING;
import static
in.rahultyagi.gst.util.Constants.INSPECTION_STATUS_INSTALLATION_PENDING;
import static in.rahultyagi.gst.util.Constants.INSPECTION_STATUS_REJECTED;
import static in.rahultyagi.gst.util.Constants.M_NO_INTERNET;
import static in.rahultyagi.gst.util.Constants.M_SERVER_ERROR;
import static in.rahultyagi.gst.util.Constants.SERVICE_CALL;
import static in.rahultyagi.gst.util.Constants.STATUS_CODE;
import static in.rahultyagi.gst.util.Constants.STATUS_MESSAGE;

public class ActivityBeneficiaryApplicationStatus extends BaseActivity {
    private static final String TAG =
Logger.getTag(ActivityBeneficiaryApplicationStatus.class);

    private Activity activity;
    private ImageView ivBack;
    private EditText etBeneficiaryCode;
    private TextView tvApplicationStatus;


    private Button btnAction;
    private ProgressWheel progressWheel;

    private VolleyRequestHelper volleyRequestHelper;
    private VolleyRequestHelper.OnRequestCompletedListener
requestCompletedListener;

    private String BeneficiaryCode = "";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_beneficiary_application_status);

        activity = this;
        volleyRequestHelper = new VolleyRequestHelper(activity);

        ivBack = findViewById(R.id.ivBack);
        etBeneficiaryCode = findViewById(R.id.etBeneficiaryCode);
        tvApplicationStatus = findViewById(R.id.tvApplicationStatus);
        btnAction = findViewById(R.id.btnAction);
        progressWheel = findViewById(R.id.progressWheel);

        btnAction.setOnClickListener(new View.OnClickListener() {
```

```java
            @Override
            public void onClick(View v) {
                if (validate()) {
                    getBeneficiaryApplicationStatus();
                }
            }
        });

        ivBack.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                onBackPressed();
            }
        });
    }

    private boolean validate() {

        BeneficiaryCode = etBeneficiaryCode.getText().toString().trim();

        if (Utils.isNullEmpty(BeneficiaryCode)) {
            DialogUtils.toast(activity, "Enter Beneficiary Code");
            return false;
        }
        return true;
    }

    private void getBeneficiaryApplicationStatus() {
        try {
            if (Connectivity.isConnected(activity)) {

                progressWheel.setVisibility(View.VISIBLE);
                tvApplicationStatus.setVisibility(View.GONE);
                btnAction.setVisibility(View.GONE);
```

```java
                requestCompletedListener = new
VolleyRequestHelper.OnRequestCompletedListener() {
                    @Override
                    public void onRequestCompleted(String requestName, boolean
status, String response, String errorMessage) {

                        if (status) {
                            try {
                                JSONObject jsonObject = new
JSONObject(response);
                                if (jsonObject.getInt(STATUS_CODE) == 1) {
                                    ELBeneficiary beneficiary =
JSONParser.parseBeneficiaryDetails(jsonObject.getString(DATA));
                                    String message = "";

                                    if (beneficiary.getInspectionStatus() ==
INSPECTION_STATUS_INSPECTION_PENDING) {

tvApplicationStatus.setBackgroundColor(ContextCompat.getColor(activity,
```

```java
                                        R.color.googleBlue));
                                                message = "Your application has not
been processed.\nIt will take some days to process.\nWe will send a team for
inspection.";
                                            }
                                            if (beneficiary.getInspectionStatus() ==
INSPECTION_STATUS_INSTALLATION_PENDING) {

tvApplicationStatus.setBackgroundColor(ContextCompat.getColor(activity,
R.color.yellow));
                                                message = "Your application has been
approved. We will send a team for final process to complete.";
                                            }
                                            if (beneficiary.getInspectionStatus() ==
INSPECTION_STATUS_COMPLETED) {

tvApplicationStatus.setBackgroundColor(ContextCompat.getColor(activity,
R.color.googleGreen));
                                                message = "Congratulations!!!\nAll
processes has been done.";
                                            }
                                            if (beneficiary.getInspectionStatus() ==
INSPECTION_STATUS_REJECTED) {

tvApplicationStatus.setBackgroundColor(ContextCompat.getColor(activity,
R.color.googleRed));
                                                message = "Sorry!!!\nYour application
has been rejected.";
                                            }
```

```java
                                        tvApplicationStatus.setText(message);
                                    } else {
                    tvApplicationStatus.setBackgroundColor(ContextCompat.getColor(activity,
                    R.color.googleRed));

                    tvApplicationStatus.setText(jsonObject.getString(STATUS_MESSAGE));
                                        DialogUtils.toast(activity,
                    jsonObject.getString(STATUS_MESSAGE));



                                        }
                                        progressWheel.setVisibility(View.GONE);

                    tvApplicationStatus.setVisibility(View.VISIBLE);
                                        btnAction.setVisibility(View.VISIBLE);
                                    } catch (Exception ex) {
                                        progressWheel.setVisibility(View.GONE);

                    tvApplicationStatus.setVisibility(View.VISIBLE);
                                        btnAction.setVisibility(View.VISIBLE);
                                        DialogUtils.toast(activity, M_SERVER_ERROR);
                                    }
                                } else {
                                    progressWheel.setVisibility(View.GONE);
                                    tvApplicationStatus.setVisibility(View.VISIBLE);
                                    btnAction.setVisibility(View.VISIBLE);
                                    DialogUtils.toast(activity, M_SERVER_ERROR);
                                }

                            }
                        };

                        Map<String, String> requestParameters = new HashMap<>();
                        requestParameters.put(SERVICE_CALL,
        BENEFICIARY_APPLICATION_STATUS);
                        requestParameters.put(BENEFICIARY_CODE, BeneficiaryCode);

                        volleyRequestHelper.requestString(
                                BENEFICIARY_APPLICATION_STATUS,
                                Constants.SERVICE,
                                Request.Method.POST,
                                requestParameters,
                                null,
                                false,
                                requestCompletedListener
                        );

                    } else {
                        Toast.makeText(activity, M_NO_INTERNET,
        Toast.LENGTH_LONG).show();
                    }

                } catch (Exception ex) {
                    ex.printStackTrace();
                }
            }
```

Beneficiary Inspection

```xml
    }

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:layout_gravity="center"



    android:background="@color/background"
    android:orientation="vertical"
    tools:context=".activity.ActivityBeneficiaryInspection">

    <android.support.v7.widget.Toolbar
        android:id="@+id/toolbar"
        android:layout_width="match_parent"
        android:layout_height="?attr/actionBarSize"
        android:background="?attr/colorPrimary"
        android:contentInsetEnd="0dp"
        android:contentInsetLeft="0dp"
        android:contentInsetRight="0dp"
        android:contentInsetStart="0dp"
        android:gravity="center_vertical"
        android:orientation="horizontal"
        app:contentInsetEnd="0dp"
        app:contentInsetLeft="0dp"
        app:contentInsetRight="0dp"
        app:contentInsetStart="0dp"
        app:popupTheme="@style/ThemeOverlay.AppCompat.Light"
        app:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">


        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:gravity="center_vertical">

            <ImageView
                android:id="@+id/ivBack"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:layout_margin="10dp"
                android:scaleType="fitXY"
                android:src="@drawable/ic_left_arrow"
                android:tint="@color/white" />

            <in.rahultyagi.gst.ui.TVSourceSansProRegular
                android:id="@+id/tvTitle"
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:padding="5dp"
                android:text="Beneficiary Inspection"
```

```xml
                    android:textColor="@color/white"
                    android:textSize="22sp" />
            </LinearLayout>
        </android.support.v7.widget.Toolbar>

        <ScrollView
            android:layout_width="match_parent"
            android:layout_height="match_parent"
            android:layout_weight="1"
            android:fillViewport="true"
            android:fitsSystemWindows="true">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="match_parent"
```

```xml
            android:orientation="vertical"
            android:paddingBottom="15dp"
            android:paddingLeft="5dp"
            android:paddingRight="5dp">

            <android.support.v7.widget.CardView
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginLeft="1dp"
                android:layout_marginRight="1dp"
                android:layout_marginTop="5dp"
                app:cardCornerRadius="5dp">

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:orientation="horizontal">

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_weight="1.5"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text="Scheme Code"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text=":"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:id="@+id/tvSchemeCode"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_weight="1"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
```

```xml
                android:paddingRight="2dp"

                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="Scheme Name"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text=":"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvSchemeName"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
```

```xml
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"


                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="---"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
            android:id="@+id/cvInspectionStatus"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="1dp"
            android:layout_marginRight="1dp"
            android:layout_marginTop="5dp"
            android:visibility="gone"
            app:cardCornerRadius="5dp">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="horizontal">

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1.5"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="Inspection Status"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text=":"
                    android:textColor="@color/black"
```

```xml
                        android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvInspectionStatus"
                android:layout_width="match_parent"

                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="Beneficiary Code"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
```

```xml
                    android:paddingTop="2dp"
                    android:text=":"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />


            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvBeneficiaryCode"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="Beneficiary Name"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
```

```xml
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text=":"



                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvBeneficiaryName"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="Address"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />
```

```xml
        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="10"
            android:paddingBottom="5dp"
            android:paddingLeft="5dp"
            android:paddingRight="2dp"
            android:paddingTop="2dp"
            android:text=":"
            android:textColor="@color/black"
            android:textColorHint="@color/hintText" />

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:id="@+id/tvAddress"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="10"
            android:paddingBottom="5dp"
            android:paddingLeft="5dp"
            android:paddingRight="2dp"
            android:paddingTop="2dp"
            android:text="---"
            android:textColor="@color/black"
            android:textColorHint="@color/hintText" />

    </LinearLayout>
</android.support.v7.widget.CardView>

<android.support.v7.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="1dp"
    android:layout_marginRight="1dp"
    android:layout_marginTop="5dp"
    app:cardCornerRadius="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1.5"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="10"
            android:paddingBottom="5dp"
            android:paddingLeft="5dp"
```

```xml
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="Block"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"

                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text=":"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:id="@+id/tvBlock"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="---"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="1dp"
            android:layout_marginRight="1dp"
            android:layout_marginTop="5dp"
            app:cardCornerRadius="5dp">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="horizontal">

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1.5"
```

```xml
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="City"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"

                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text=":"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:id="@+id/tvCity"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="---"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
```

```xml
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="State"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />


            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text=":"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvState"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
```

```xml
                    android:layout_marginTop="5dp"
                    app:cardCornerRadius="5dp">

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:orientation="horizontal">

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_weight="1.5"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"


                        android:text="PinCode"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text=":"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:id="@+id/tvPinCode"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_weight="1"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text="---"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                </LinearLayout>
            </android.support.v7.widget.CardView>
```

```xml
<android.support.v7.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="1dp"
    android:layout_marginRight="1dp"
    android:layout_marginTop="5dp"
    app:cardCornerRadius="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1.5"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="10"
            android:paddingBottom="5dp"

            android:paddingLeft="5dp"
            android:paddingRight="2dp"
            android:paddingTop="2dp"
            android:text="Mobile No"
            android:textColor="@color/black"
            android:textColorHint="@color/hintText" />

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="10"
            android:paddingBottom="5dp"
            android:paddingLeft="5dp"
            android:paddingRight="2dp"
            android:paddingTop="2dp"
            android:text=":"
            android:textColor="@color/black"
            android:textColorHint="@color/hintText" />

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:id="@+id/tvMobileNo"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="10"
            android:paddingBottom="5dp"
            android:paddingLeft="5dp"
            android:paddingRight="2dp"
            android:paddingTop="2dp"
```

```xml
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"


                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="Email"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text=":"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvEmail"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
```

```xml
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="---"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="1dp"
            android:layout_marginRight="1dp"
            android:layout_marginTop="5dp"
            app:cardCornerRadius="5dp">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="horizontal">

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="match_parent"

                    android:layout_height="wrap_content"
                    android:layout_weight="1.5"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="Date of Birth"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text=":"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />
```

```xml
                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:id="@+id/tvDateOfBirth"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_weight="1"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text="---"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="1dp"
            android:layout_marginRight="1dp"
            android:layout_marginTop="5dp"
            app:cardCornerRadius="5dp">

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="horizontal">


                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1.5"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="Address Proof"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="10"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
```

```xml
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text=":"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvAddressProof"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"
        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout

            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="10"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="Identity Proof"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
```

```xml
                        android:layout_height="wrap_content"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text=":"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:id="@+id/tvIdentityProof"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_weight="1"
                        android:gravity="center_vertical"
                        android:inputType="textMultiLine"
                        android:maxLines="10"
                        android:paddingBottom="5dp"
                        android:paddingLeft="5dp"
                        android:paddingRight="2dp"
                        android:paddingTop="2dp"
                        android:text="---"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                </LinearLayout>
            </android.support.v7.widget.CardView>

            <LinearLayout
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_marginTop="5dp"
                android:orientation="horizontal">

                <android.support.v7.widget.CardView
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_marginRight="5dp"
                    android:layout_weight="1"
                    android:clickable="true"
                    android:focusable="true"

android:foreground="?android:attr/selectableItemBackground">

                    <in.rahultyagi.gst.ui.SquareImageView
                        android:id="@+id/ivAddressProof"
                        android:layout_width="match_parent"
                        android:layout_height="match_parent"
                        android:scaleType="fitXY"
                        android:src="@drawable/bg_material" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_gravity="center_horizontal"
```

```xml
            android:background="@color/colorPrimaryTransparentLight"
                        android:gravity="center_vertical"
                        android:padding="5dp"
                        android:text="Address Proof"
                        android:textColor="@color/white" />

                </android.support.v7.widget.CardView>

                <android.support.v7.widget.CardView
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_marginRight="5dp"
                    android:layout_weight="1"
                    android:clickable="true"
                    android:focusable="true"

android:foreground="?android:attr/selectableItemBackground">

                    <in.rahultyagi.gst.ui.SquareImageView
                        android:id="@+id/ivIdentityProof"
                        android:layout_width="match_parent"
                        android:layout_height="match_parent"
                        android:scaleType="fitXY"
                        android:src="@drawable/bg_material" />

                    <in.rahultyagi.gst.ui.TVSourceSansProBold
                        android:layout_width="wrap_content"
                        android:layout_height="wrap_content"
                        android:layout_gravity="center_horizontal"

android:background="@color/colorPrimaryTransparentLight"
                        android:gravity="center_vertical"
                        android:padding="5dp"
                        android:text="Identity Proof"
                        android:textColor="@color/white" />

                </android.support.v7.widget.CardView>
            </LinearLayout>

            <LinearLayout
                android:id="@+id/llInspection"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:orientation="vertical">

                <RadioGroup
                    android:id="@+id/rgInspectionStatus"
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_gravity="center"
                    android:layout_marginBottom="5dp"
                    android:layout_marginLeft="1dp"
                    android:layout_marginRight="1dp"
                    android:layout_marginTop="10dp"
                    android:gravity="center"
                    android:orientation="horizontal">
```

```xml
<RadioButton
    android:id="@+id/rbApprove"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:background="@drawable/customrdoback"
    android:button="@android:color/transparent"
    android:buttonTint="@color/colorAccent"
    android:gravity="center"
    android:padding="5dp"
    android:text="Approve"
    android:textColor="@color/toggle_text"
    android:textStyle="bold" />

<RadioButton
    android:id="@+id/rbReject"
    android:layout_width="100dp"
    android:layout_height="wrap_content"
    android:layout_marginLeft="1dp"
    android:layout_marginRight="1dp"
    android:background="@drawable/customrdoback"
    android:button="@android:color/transparent"
    android:buttonTint="@color/colorAccent"
    android:gravity="center"
    android:padding="5dp"
    android:text="Reject"
    android:textColor="@color/toggle_text"
    android:textStyle="bold" />

</RadioGroup>

<android.support.v7.widget.CardView
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_marginLeft="1dp"
    android:layout_marginRight="1dp"
    android:layout_marginTop="5dp"
    app:cardCornerRadius="5dp">

    <LinearLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:orientation="horizontal">

        <in.rahultyagi.gst.ui.TVSourceSansProBold
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_weight="1.5"
            android:gravity="center_vertical"
            android:inputType="textMultiLine"
            android:maxLines="2"
            android:paddingBottom="5dp"
            android:paddingLeft="5dp"
            android:paddingRight="2dp"
            android:paddingTop="2dp"
            android:text="Inspection Date Time"
            android:textColor="@color/black"
            android:textColorHint="@color/hintText" />
```

```xml
            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="wrap_content"
                android:layout_height="wrap_content"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="2"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text=":"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:id="@+id/tvInspectionDateTime"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="2"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
                android:paddingTop="2dp"
                android:text="---"
                android:textColor="@color/black"
                android:textColorHint="@color/hintText" />

        </LinearLayout>
    </android.support.v7.widget.CardView>

    <android.support.v7.widget.CardView
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_marginLeft="1dp"


        android:layout_marginRight="1dp"
        android:layout_marginTop="5dp"
        app:cardCornerRadius="5dp">

        <LinearLayout
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:orientation="horizontal">

            <in.rahultyagi.gst.ui.TVSourceSansProBold
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:layout_weight="1.5"
                android:gravity="center_vertical"
                android:inputType="textMultiLine"
                android:maxLines="2"
                android:paddingBottom="5dp"
                android:paddingLeft="5dp"
                android:paddingRight="2dp"
```

```xml
                    android:paddingTop="2dp"
                    android:text="Inspection Code"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="2"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text=":"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:id="@+id/tvInspectionCode"
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_weight="1"
                    android:gravity="center_vertical"
                    android:inputType="textMultiLine"
                    android:maxLines="2"
                    android:paddingBottom="5dp"
                    android:paddingLeft="5dp"
                    android:paddingRight="2dp"
                    android:paddingTop="2dp"
                    android:text="---"
                    android:textColor="@color/black"
                    android:textColorHint="@color/hintText" />

            </LinearLayout>
        </android.support.v7.widget.CardView>

        <android.support.v7.widget.CardView

            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            android:layout_marginLeft="1dp"
            android:layout_marginRight="1dp"
            android:layout_marginTop="5dp"
            app:cardCornerRadius="5dp">

            <in.rahultyagi.gst.ui.ETSourceSansProRegular
                android:id="@+id/etRemarks"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                android:background="@drawable/edit_text_rounded"
                android:gravity="left|top"
                android:hint="Write Description"
                android:inputType="textMultiLine|textCapSentences"
                android:maxLines="7"
```

```xml
                        android:minLines="4"
                        android:padding="10dp"
                        android:textColor="@color/black"
                        android:textColorHint="@color/hintText" />

                </android.support.v7.widget.CardView>

                <LinearLayout
                    android:layout_width="match_parent"
                    android:layout_height="wrap_content"
                    android:layout_marginTop="5dp"
                    android:orientation="horizontal">

                    <android.support.v7.widget.CardView
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_marginRight="5dp"
                        android:layout_weight="1"
                        android:clickable="true"
                        android:focusable="true"

android:foreground="?android:attr/selectableItemBackground">

                        <in.rahultyagi.gst.ui.SquareImageView
                            android:id="@+id/ivImage1"
                            android:layout_width="match_parent"
                            android:layout_height="match_parent"
                            android:scaleType="fitXY"
                            android:src="@drawable/bg_material" />

                        <in.rahultyagi.gst.ui.TVSourceSansProBold
                            android:layout_width="wrap_content"
                            android:layout_height="wrap_content"
                            android:layout_gravity="center_horizontal"

android:background="@color/colorPrimaryTransparentLight"
                            android:gravity="center_vertical"
                            android:padding="5dp"
                            android:text="Image 1"
                            android:textColor="@color/white" />

                    </android.support.v7.widget.CardView>


                    <android.support.v7.widget.CardView
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:layout_marginRight="5dp"
                        android:layout_weight="1"
                        android:clickable="true"
                        android:focusable="true"

android:foreground="?android:attr/selectableItemBackground">

                        <in.rahultyagi.gst.ui.SquareImageView
                            android:id="@+id/ivImage2"
```

```xml
                    android:layout_width="match_parent"
                    android:layout_height="match_parent"
                    android:scaleType="fitXY"
                    android:src="@drawable/bg_material" />

                <in.rahultyagi.gst.ui.TVSourceSansProBold
                    android:layout_width="wrap_content"
                    android:layout_height="wrap_content"
                    android:layout_gravity="center_horizontal"

                    android:background="@color/colorPrimaryTransparentLight"
                    android:gravity="center_vertical"
                    android:padding="5dp"
                    android:text="Image 2"
                    android:textColor="@color/white" />

            </android.support.v7.widget.CardView>
        </LinearLayout>

        <android.support.v7.widget.CardView
            android:id="@+id/fragmentContainer"
            android:layout_width="match_parent"
            android:layout_height="250dp"
            android:layout_marginTop="5dp"
            android:clickable="true"
            android:focusable="true"

            android:foreground="?android:attr/selectableItemBackground"
            android:visibility="gone"
            app:cardCornerRadius="10dp" />
        </LinearLayout>
    </LinearLayout>
</ScrollView>

<FrameLayout
    android:id="@+id/flAction"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_gravity="center_horizontal"
    android:paddingBottom="5dp"
    android:paddingTop="5dp"
    android:visibility="gone">

    <Button
        android:id="@+id/btnAction"

        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:background="@drawable/btn_rounded_login"
        android:minHeight="0dp"
        android:minWidth="0dp"
        android:paddingBottom="10dp"
        android:paddingLeft="30dp"
        android:paddingRight="30dp"
        android:paddingTop="10dp"
        android:text="Save"
        android:textAllCaps="false"
        android:textColor="@color/white"
        android:textSize="14sp"
```

```xml
                android:textStyle="bold" />

        <com.pnikosis.materialishprogress.ProgressWheel
            android:id="@+id/progressWheel"
            android:layout_width="40dp"
            android:layout_height="40dp"
            android:layout_gravity="center"
            android:visibility="invisible"
            app:matProg_barColor="@color/progressWheel"
            app:matProg_progressIndeterminate="true" />
    </FrameLayout>


    </LinearLayout>
```

METHODOLOGY FOR SYSTEM TESTING
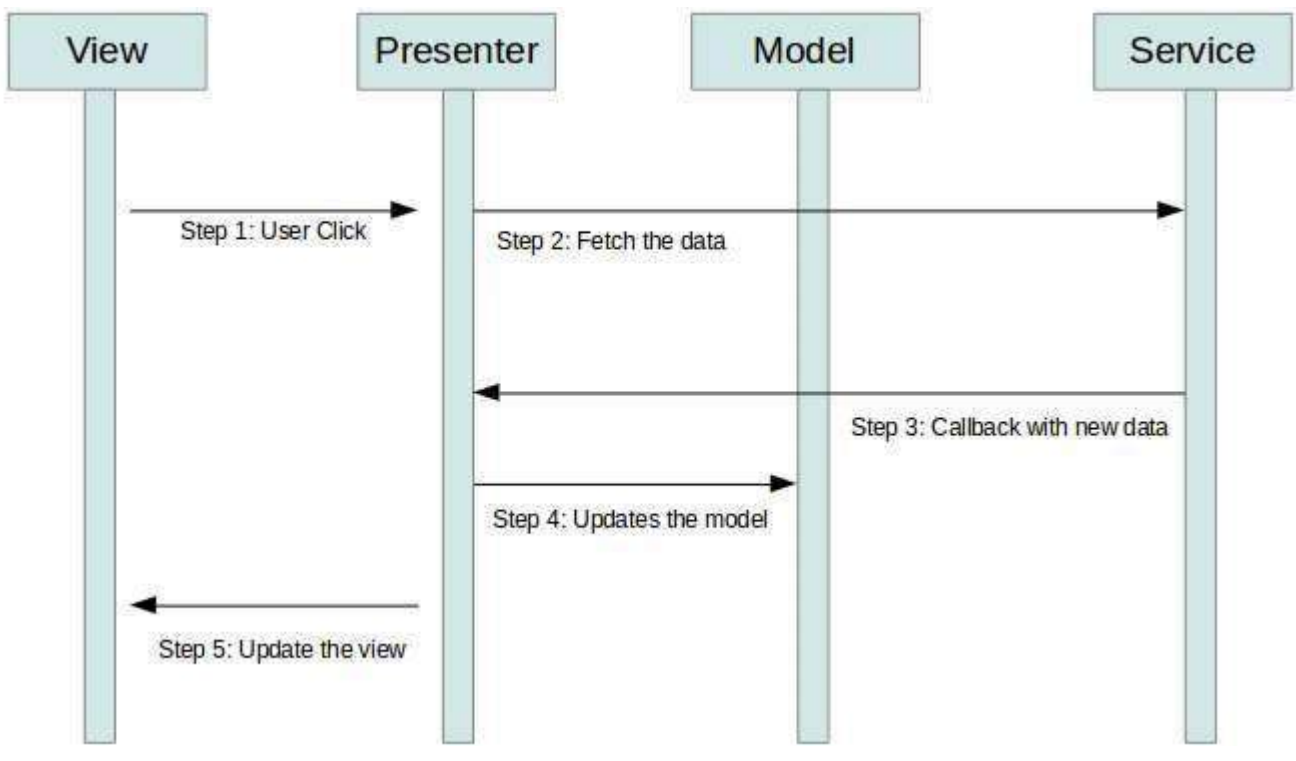
The methodology use for the application is android and cloud,android use use for the installation of the application of the mobile and the cloud will be use for the actual storage and hosting of the application on it.The application will use the aws-opswork for the deployment of the application and then cloud front for the short path access to the app,

Cloudfront use the logic of edge loction.the edge location is the actual iinstancs of the application .from were all the service will be access.the cloud will also be use for the storeing the data s3 simple storage service this will use the s3 service for storing the application data. Like audio and log call data and the location as a historical data

the android studio will be use for application development the different api will be use and the different a logo will be use like short path first,

the design path is not much important as the application is use as hidden app which is install without the shortcut on the display .the dialer will be ue for the accessing the application for change in application

7.1 Testing Approach

Software testing is a process which is used to check the standard of software developed. It is also a process of uncovering errors in a program and makes it a feasible task. It is useful process of running the program with the intention of finding errors.

Testing is a process of executing a program with the intent of finding a mistake. Testing is a crucial element of quality assurance of the software application and presents full review of specification, design and coding. System Testing is an important phase. Testing represents an interesting anomaly for the software. Thus, a series of testing are performed for the proposed system before the system is prepared for user acceptance testing. A good test suit is one that features a high probability of finding an undiscovered error. A successful test is one that discovers the hidden errors or bugs.

The primary objective for test suit design is to derive a group of tests that has the very best livelihood for uncovering defects in software.

In order to prove that a bit of software works, the software must be tested to work out if the needs of the user are met. There are several differing types of tests used throughout the testing process. The two main sorts of testing are white box and recorder testing

7.2.1 Critical success factors

❖ End-to-End business functionality
The objective of E2E is to look at the state of the system as well as its behavior. The End-to-End cases would be tested to ensure the business functionality is working as expected.

The steps to be carried out would be checking the functional check-point across all the modules and interfaces

❖ Navigation
Navigation testing is to test whether the availability levels of various options and features in the software are at the acceptable navigation depth levels or not. Test team to ensure that navigation across all should be based on access rights to users.

❖ Links
The Goal is to test each and every link that forms part of the design once the initial code is developed. All the link and re-direction links will be covered as part of this functionality.

❖ Performance
It is done to determine how a system performs in terms of responsiveness and stability under a particular workload. The overall performance of the website should be at acceptable level.

❖ Integration between modules
Individual software modules are combined and tested as a group. Test cases are constructed to test that all components within interfaces interact correctly.

❖ Data Integrity
Assuring that the accuracy and consistency of data within the application and throughout all the interfaces. The details of one particular user once entered in the system should be correct for the other modules. User rights will also be considered to access a particular link/Data/Web page

7.2.2 Types of Testing needs to be covered

- **System Integration Testing (End To End Testing)**
  Our Role: Tester
  As a tester, we would be involved in the overall testing cycle to cover the Business scenario cases and its functionality for across the modules.

- **SIT approach**
  ❖ Initially will understand the user stories and get an update from Business Analyst team about their priorities.
  ❖ Once all the inputs are finalized, we will try to understand the complete End-to-End

functionalities from Business process point of view. We will then come up with End-to-

this reviewed from Business Analyst. Once we have the signed off test scenario suit, we will start preparation of detailed Test Cases. While preparing the detailed Test Cases, the approach would be Top-Down approach.

❖ As mentioned above, initially we will prepare End-to-End business scenarios, which will then split into sub-scenarios and again into system/Application level Test Cases. After completion of Test Cases, will get them reviewed and signed off from Business Analyst.

❖ In Contrast, while executing these scenarios we will have a Bottom-Up approach along with Risk based approach. So as per the priority (Critical to Low) we will get a sprint for particular User Story. We will try to execute the test cases, then sub-scenarios and then End-to-End scenarios respectively.

❖ So we will be testing a sprint at a time which is High Priority, so conceptually we will be using Hybrid approach which is a combination of Time-boxed and Risk based testing approach.

- **Entry Criteria**
  Before Test Items are made available for the Test Team to test it's expected that:

  ❖ All test tools are available and test infrastructure are available for use during testing such as the User story list, Testing environment (Staging) and relevant documents.
  ❖ We will start SIT only when given module/User Story is completely developed and unit tested.
  And there are no Unit test defects.

  ❖ Access to Youtrack for Defect management is required.
  ❖ The correct versions of the code have been deployed to the correct test environments.
  ❖ Test Data should be provided before testing.

- **Exit Criteria**
  For the Test Items to exit testing the following conditions will have to be met:

  ❖ All the assigned high priority User stories will be tested.
  ❖ The Test Summary/Defect log Report will be completed.
  ❖ All planned testing activities have been completed to agreed levels.
  ❖ All high priority bugs have been fixed, retested and passed.
  ❖ Low priority bugs can be allowed max of 5-10% of the entire testing.
  ❖ Any outstanding defects or deviations must have been accepted by the Business, Operations and Technology organizations.
  ❖ Sign-off by Testing management

- **User Accepatance Testing**

    Our Role: Support (We are not repsonsible to carry the UAT testing)
    - ❖ Tester would provide support to the end user in terns of application navigation,walkthrough if required.
    - ❖ Support would be given if any Re-testing is required.

    Performance Testing
    - ❖ It is done to determine how a system performs in terms of responsiveness and stabilityunder a particular workload. The overall performance of the website should be at acceptable level.
    - ❖ We recommend performance testing should be done, However as discussed with allstakeholders, it is Out Of Scope.

- ❖ **Regression Testing.**
    - ❖ Regression testing is to determine whether a change in one part of the application affectsother parts of the software or not.
    - ❖ In this release, we will not be doing regression testing as it is 1st phase. However, we willbe doing it from next phase and we will use the current SIT test cases/Scenarios as a baseline for Regression suit.

- ❖ **Automation Testing.**
    - ❖ We would perform this testing using Regression suit in Phase 2 as a baseline and prior toit we would be doing proof-of concept to decide the exact tool for automation.

• <u>Unit Testing</u>

Unit Testing is also called as module testing. Unit testing is performed by developers. In unit testing the developer will test each module individually in the environment the code was developed in. The main goal of unit testing is to make sure that all the modules present are working as expected.

<u>Integrated Testing</u>

Integration refers to connectivity of all the different modules present in a project. After all the modules are tested under unit testing by the developers, they are sent for integration testing. Integration testing is also called as sting testing. The tester makes sure that all the modules are connected to each other. The transfer of data between all the unit tested modules is checked by the tester in integration testing. The integration testing process make use of Stubs and Drivers which help put data in the calling modules to test data transfer and communication.

Beta Testing

Beta testing is done just before the final application can be delivered to the end user or clients. A small number of end users test the final application. The users provide feedback to the developers of the application. Changes will be made based on feedback and request of the users involved in beta testing.

Test Cases

Admin Login:

Sr. No.	Test Case ID	Test Case Name	Test Case Description	Steps	Expected Result	Actual Result	Test Case Status
1	T C 00 1	Validate Admin	Correct username, correct password	Enter the username and password and click login button	Successful login	Successful login	P a s s
2	T C 00 2	Validate Admin	Correct username, incorrect password	Enter the username and password and click login button	Error message	Message: Invalid Username or Password.	P a s s
3	T C	Validate Admin	Incorrect username, correct password	Enter the username and password and click login button	Error message	Message: Invalid Username or Password.	P a s

Sr. No.	Test Case ID	Test Case Name	Test Case Description	Steps	Expected Result	Actual Result	Test Case Status
4	T C 00 4	Validate Admin	Incorrect username, incorrect password	Enter the username and password and click login button	Error message	Message: Invalid Username or Password.	P a s s

<p align="center">TABLE 15: ADMIN LOGIN</p>

User Login:

Sr. No.	Test Case ID	Test Case Name	Test Case Description	Steps	Expected Result	Actual Result	Test Case Status
1	T C 03 1	Validate User	Correct email, correct password	Enter the email and password and click login button	Successful login	Successful login	P a s s
2	T C 03 2	Validate User	Correct email,	Enter the email and	Error message	Message: Invalid	P a s s

			incorrect password	password and click login button		Username or Password.	
3	T C 03 3	Validate User	Incorrect email, correct password	Enter the email and password and click login button	Error message	Message: Invalid Username or Password.	P a s s
4	T C 03 4	Validate User	Incorrect email, incorrect password	Enter the email and password and click login button	Error message	Message: Invalid Username or Password.	P a s s

TABLE 18: CUSTOMER LOGIN
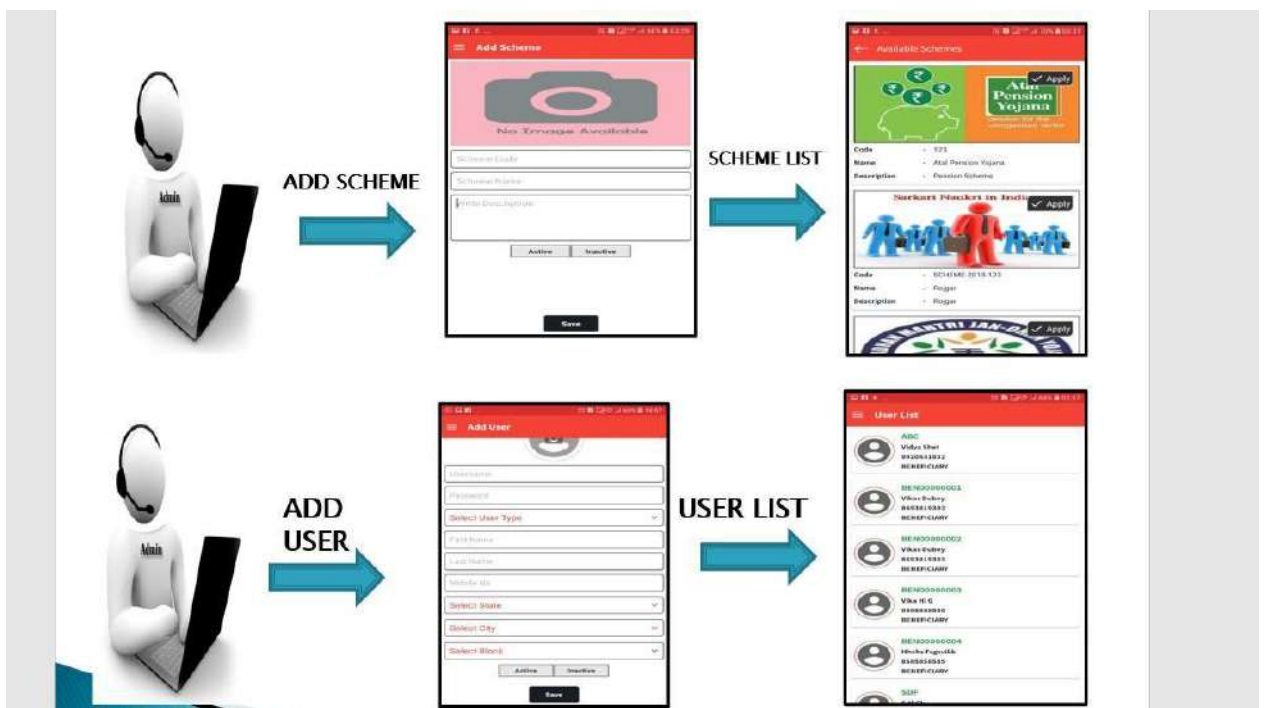
6.1 User Documentation

 ADMIN

- Inspector
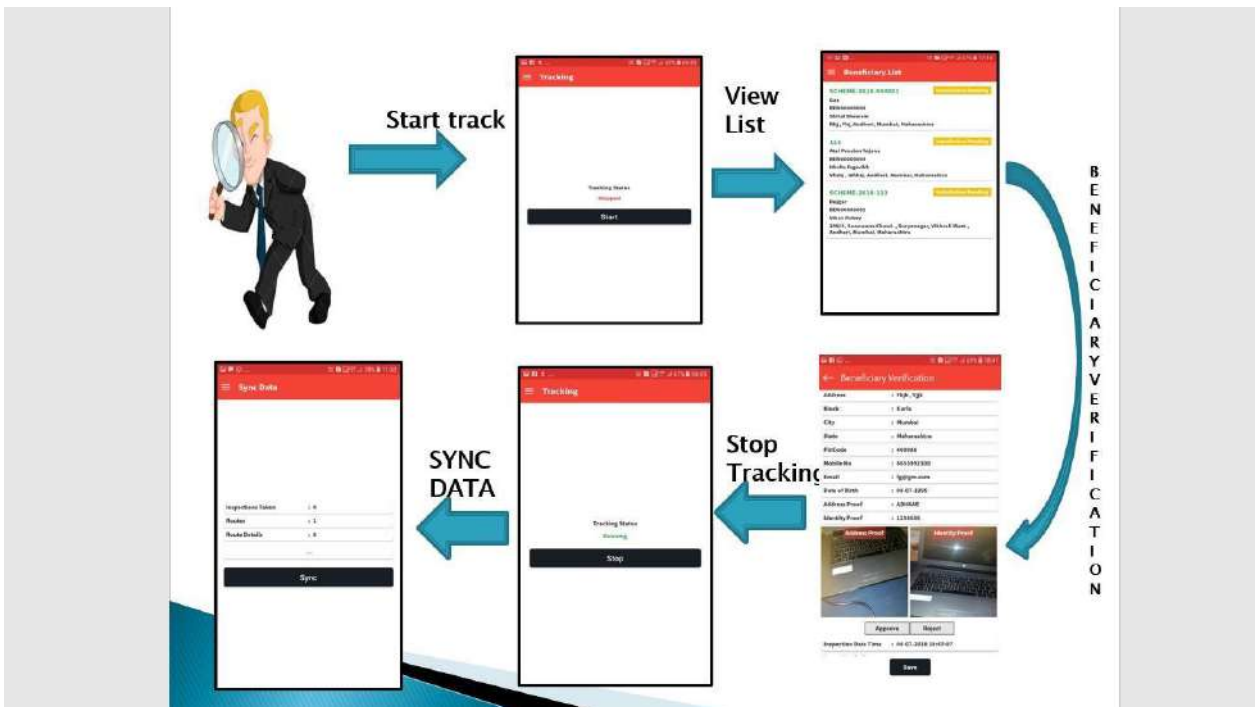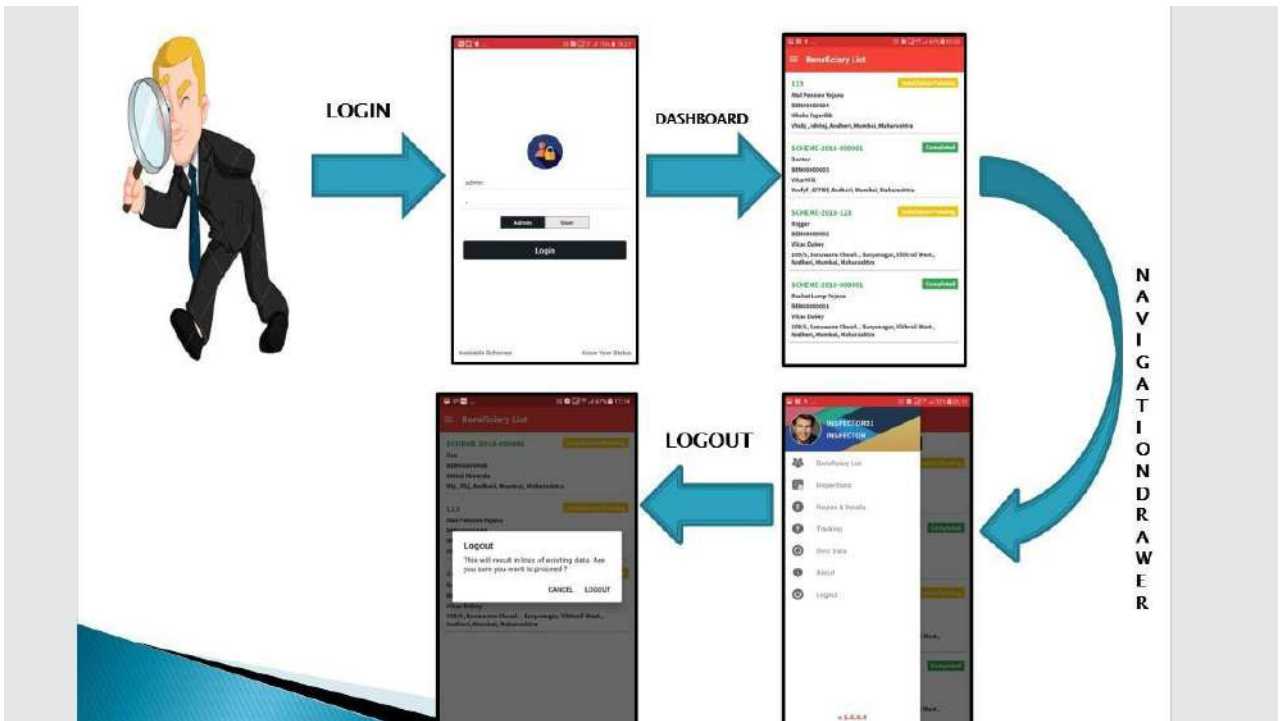
- Vendor
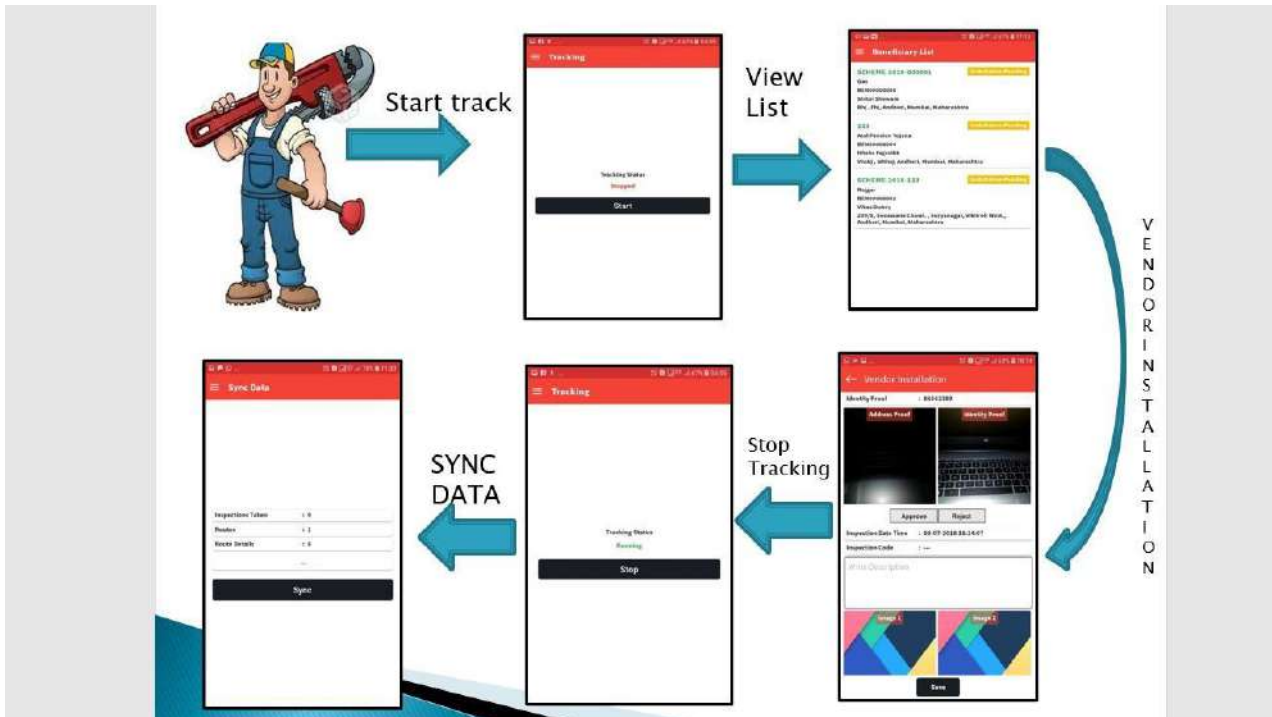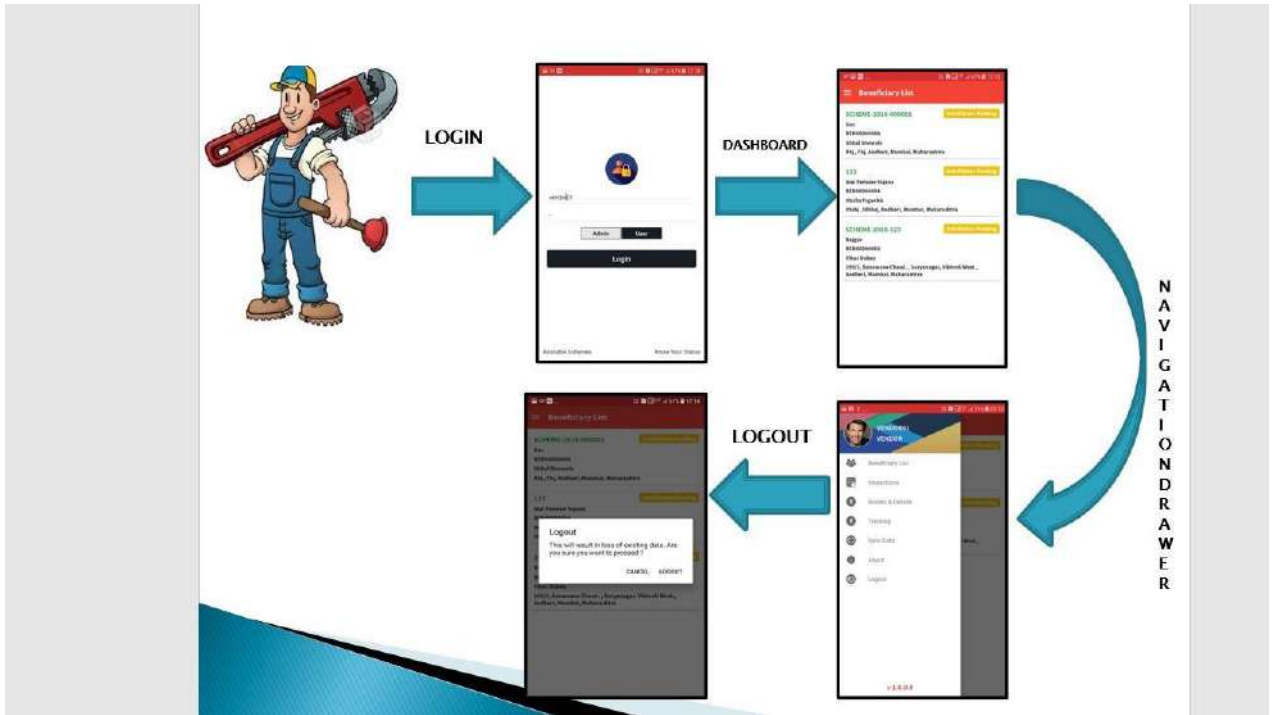
- **User**

Chapter 7

CONCLUSIONS

Conclusion

• **PROJECT BENEFITS**

- Access to all information through online

- Administrator can get all the information one place

- User can easily apply for schemes and check status online

- Very Simple and easy to use interface

- Solution generation

- Save Time & Money.

• **PROJECT COST/EXPENSES**

Project Costs track project-related material costs and revenue for items other than labor. These items may or may not be billed back to the customer. Often, it will depend on the billing contract applied to the project whether material items are billed separately. You may track hardware or software as a material cost with a project, or it could be incidentals such as delivery charges. Any Change Orders for project tasks will also appear as a project cost.

Project Expenses track reimbursable expenses generated by project resources while working on the project, for example, travel or entertainment expenses. Expenses may or may not be billed back to the customer account.

For developing project of such scale, cost is an important factor for consideration.

SELF-ANALYSIS OF PROJECT VIABILITIES

Cost-benefit analysis as well as function-point analysis was done. The cost benefit analysis was done taking into consideration the quantum of work & resources that would be required in an organization for undertaking such a project.

- **COST-BENEFIT ANALYSIS**

Cost benefit analysis (CBA), sometimes called benefit–cost analysis (BCA), is a systematic process for calculating and comparing benefits and costs of a project, decision or government policy (hereafter, "project"). CBA has two purposes:

To determine if it is a sound investment/decision (justification/feasibility),

To provide a basis for comparing projects. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much.

CBA is related to, but distinct from cost-effectiveness analysis. In CBA, benefits and costs are expressed in monetary terms, and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their "net present value."

Problem encounter & possible Solution

Problems were encountered while auto assignment of employee to Products service requests. For this problem a auto assignment algorithm may be deployed.

- **<u>SWOT ANALYSIS OF THE PROJECT</u>**

SWOT analysis (alternatively SWOT Matrix) is a structured planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats involved in a project or in a business venture. A SWOT analysis can be carried out for a product, place, industry or person. It involves specifying the objective of the business venture or project and identifying the internal and external factors that are favorable and unfavorable to achieving that objective. The technique

is credited to Albert Humphrey, who led a convention at the Stanford Research Institute (now SRI International) in the 1960s and 1970s using data from Fortune 500 companies. The degree to which the internal environment of the firm matches with the external environment is expressed by the concept of strategic fit.

Setting the objective should be done after the SWOT analysis has been performed. This would allow achievable goals or objectives to be set for the organization.

Strengths: characteristics of the business or project that give it an advantage over others

Weaknesses: are characteristics that place the team at a disadvantage relative to others

Opportunities: elements that the project could exploit to its advantage

Threats: elements in the environment that could cause trouble for the business or project

Identification of SWOTs is important because they can inform later steps in planning to achieve the objective.First, the decision makers should consider whether the objective is attainable, given the SWOTs. If the objective is not attainable a different objective must be selected and the process repeated.

Users of SWOT analysis need to ask and answer questions that generate meaningful information for each category (strengths, weaknesses, opportunities, and threats) to make the analysis useful and find their competitive advantage.
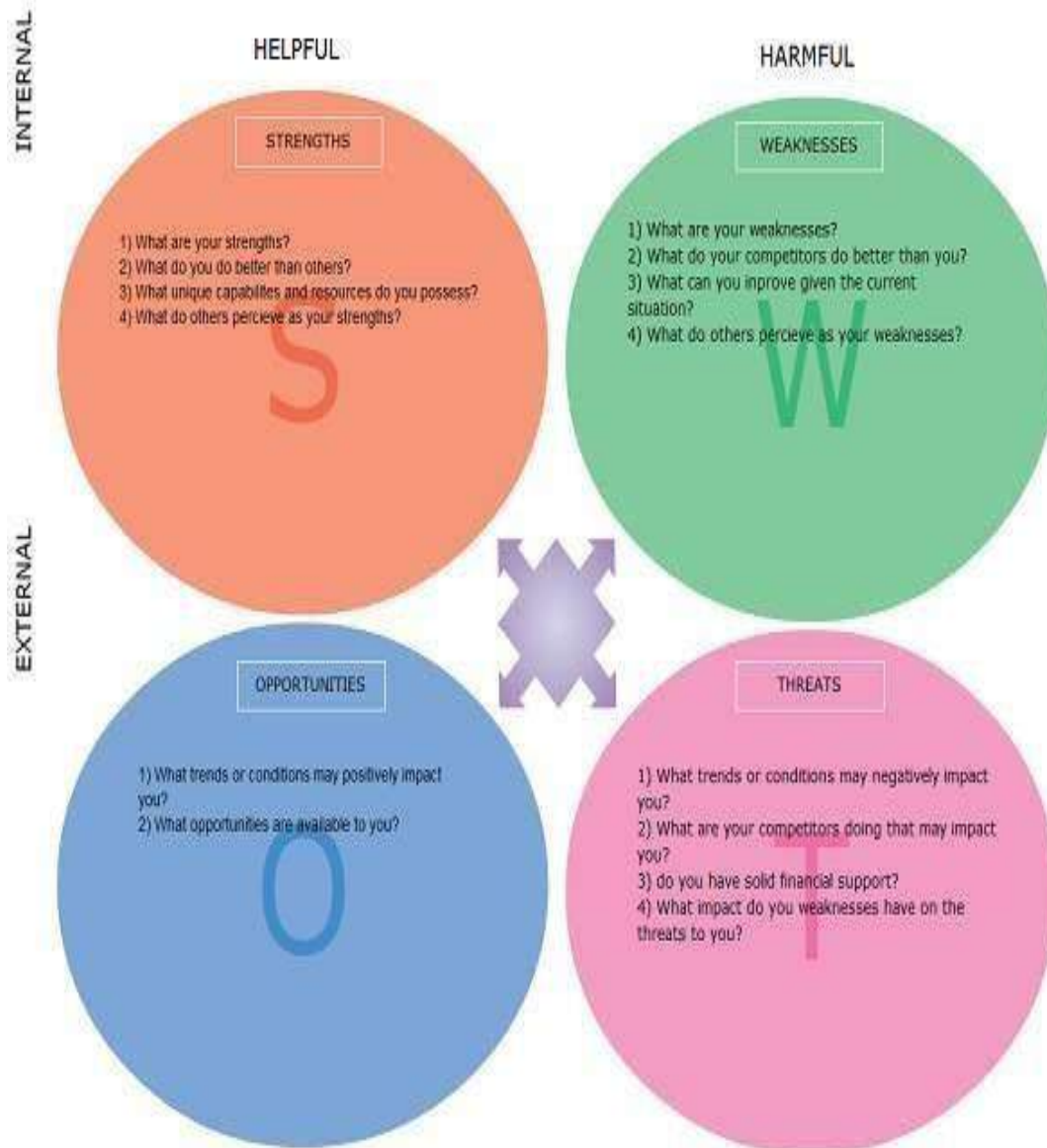
Strengths:

- Web-based, access anywhere, anytime

- Mobile client view

- Tracking of the work done

- Availability of information to all

- Availability of Government Scheme details

Limitations of the System

In the proposed system, there are some limitations, but it does not affect the
motive ofthe application.

Sometimes, the cell phone cannot get the accurate GPS location because of the
network problem, network fluctuation or weak signal strength in some dense area.
 During synchronization process if internet goes off, it will interrupt the process
in between and there might be possibility of losing data of Inspection. But this
scenario isvery rare.

Sending image over network is Costly

Process.High speed internet connection

is needed.

Future Scope of the Project

- GPS is not accurate sometimes. So GPS accuracy is on highest prioprity in future.
- Need to improve the Image Storage(More efficiency required)
- SMS notification

REFERENCES AND BIBLIOGRAPHY

References		
Sr. No.	**Title**	**URL**
1	**HTML Tutorial**	**HTML Tutorial (tutorialspoint.com)**
2	**CSS Tutorial**	**CSS Tutorial (tutorialspoint.com)**
3	**Javascript Tutorial**	**Javascript Tutorial (tutorialspoint.com)**
4	**MySQL**	**MySQL Tutorial (tutorialspoint.com)**
5	**PHP**	**PHP Tutorial (tutorialspoint.com)**
6	**Xampp**	**XAMPP Tutorial - javatpoint**
7	**Waterfall SDLC**	**SDLC - Waterfall Model (tutorialspoint.com)**

BIBLIOGRAPHY;-

Woogila.com

1. Javatpoint

Aws services

2. Youtube android video

Cloud Computing for Mobile World Chetan S(2018)

Gautam Kumar(2019)

Abhimanyu M.A., Department of Computer, Science Engineering,National Institute of Technology,Calicut,stackoverflow

Summary :-

All care has been taken to ensure smooth execution of project & to ensure that it meets the scope of the work.The system was verified by testing with valid as well as invalid data.

With its user-friendly & visually appealing screens, It will draw pull in anyone who uses it & will match the expectations of the user from the system.

To meet this objective, the project included basic type of activities as in research of currentdomain to identify current problem and to find solution to overcome

Plagiarism Report :-

RESULTS

100%

Completed: 100% Checked

33% **Plagiarism**

Unique 67%

YOUTUBE TRANSCRIPT SUMMARIZER

A Project Report

Submitted in partial fulfilment of the requirements
for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Saloni Maurya

Seat Number: _____

Under the esteemed guidance of

Mr. Shajil Kumar P A

Assistant Professor, Department of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2020 - 2021

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

NAAC ACCREDITED COLLEGE

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"YOUTUBE TRANSCRIPT SUMMARIZER "**,
is bonafied work of **Saloni Maurya** bearing Seat No: _____ submitted in
partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE
in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

Date: **College Seal**   **Principal**

ABSTRACT

Online video is one of the most popular digital activities in the world, with 27% of internet users watching more than 10 hours of online video per week. every minute, 500 hours of video are uploaded to YouTube all across the world (Tubefilter, 2019). Every hour, 30,000 hours of video are uploaded. Every day, 720,000 hours of video are posted to YouTube.

We spend a noticeable amount of our weekly time watching YouTube videos, be it for entertainment, education, or exploring our interests. In most cases, the overall intent is to obtain some form of information from the video. We were seeking a solution to increase the efficiency of this information extraction process as so we decided to develop "YouTube Transcript Summarizer". The main motivation for making this project is to save time by summarizing the captions or transcript of any given video, it is able to pull the most important information and condense it into a small paragraph, reading this paragraph would take a tiny fraction of the total length of the video, while still providing the most important points to the user.

Those who are deaf or hard of hearing benefit from video transcripts, which are essential for comprehending video information. Because they are in an atmosphere that is not conducive to audio, many viewers prefer to watch video content on silent. These viewers will benefit from audio transcription in order to get the full content of the YouTube video.

We present a method for generating video summaries for long videos automatically. Our video summarising method consists mostly of two steps: first scrapping the transcript of the videos and convert it into text format and second is generate summary from the text document by applying NLP algorithms. Our suggested technique uses a word frequency analysis of speech transcripts to assess segments. Then, by picking the segments with the highest score to duration ratios and concatenating them, a summary is created.

ACKNOWLEDGEMENT

We would like to express our special thanks and gratitude to our project guide **"MR. SHAJIL KUMAR P A"** for guiding us to do the project work on time and giving us all support and guidance, which made complete our project duly. We are extremely thankful to him for providing such nice support and guidance.

We are also thankful for and fortunate enough to get constant encouragement, support and guidance from the teachers of Information Technology who helped us in successfully completing our project work.

DECLARATION

I hereby declare that the project entitled, "**YOUTUBE TRANSCRIPT SUMMARIZER**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfilment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Saloni Maurya

Name and Signature of the Student

Table of Contents

List of Tables

Sr. no	Table Name	Pages No
1	*Table 1: Software Requirements*	32
2	*Table 2: Hardware Requirements*	32
3	*Table 3 Implementation and Testing*	40
4	*Table 4 Results and Discussions*	70

List of Figures

Chapter 1: Introduction

Today, we know that technology have become faster and more efficient and can assist us in every aspect of life; technology has progressed to the point where they can perform all of the duties that humans do, such as housework, controlling home devices, scheduling appointments, and so on. In today's world as we all know sometimes its very time consuming and difficult to watch such long duration of videos on YouTube and find relevant information out of it and sometimes our efforts may futile if we couldn't find relevant information out of it. Summarizing transcripts of videos, automatically allows us to quickly look out for the important patterns in the video and helps us to save time and efforts to go through the whole content of the video. Text Summarizer, as the name suggests, is an application that helps in the summarization of text. We can submit our data, and this software will provide us with a summary of it. The final outcome is primarily a text that summarises the information. The main objective is to provide accurate summaries. To get to the most relevant sentences, the unnecessary sentences will be removed. People must learn a great deal from texts. They do, however, prefer to spend less time doing so. It tries to solve this problem by providing them with summaries from which they desire to learn. The goal of our project is for these summaries to be as important as possible in terms of the intention of the texts. Providing a user-friendly and easy-to-understand interface.

YouTube is the second most visited website worldwide. The range of videos on YouTube includes short films, music videos, feature films, documentaries, audio recordings, corporate sponsored movie trailers, live streams, vlogs, and many other contents from popular YouTubers. YouTube users watch more than one billion hours of video every day. Hence, we have considered YouTube videos as the data for our proposed video summarization algorithm.

1.1 Background

500 hours of video are uploaded to YouTube every minute worldwide (Tubefilter, 2019). That's 30,000 hours of video uploaded every hour. And 720,000 hours of video uploaded every day to YouTube. Online video is one of the most popular digital activities worldwide, with 27 percent of internet users worldwide watching more than 10 hours of online videos on a weekly basis. The problem with YouTube content is that there is a lot of it. The disadvantage is that it leads to a constant stream of clickbait videos, which waste the user's time. A short glance at the summary will tell the user if the video is worth their time and if it covers the themes they're interested in. It can also be used to briefly summarise key points from the video. Various firms today, whether it is online shopping, private sector organisations, government, tourism, and catering, or any other agency that provides customer services, are all anxious to learn their customers' feedback each time their services are used. Consider Sentiment Analysis big companies receive a massive amount of input and data on a daily basis. Analysing each of these data points and coming up with insights becomes a tiresome effort for management.

However, technological improvements have brought us to a stage where technology can assist us in performing jobs that humans would otherwise have to perform. Machine Learning is one field that makes this possible. With the use of NLP, or Natural Language Processing, machines are now capable of interpreting human language. Text analytics is now being used to do research.

Text summarization is one use of text analytics and NLP. Python's Material Summarization aids in the summarization and condensing of text in user input. It can be done with the use of an algorithm that can assist in the reduction of text bodies while maintaining their original meaning or by providing insights into their original text.

1.2 Objectives

The objective to design and implement such type video summarizer are given as follows –

- Get a read-able summary from our project.

- Time will be saved.

- Efforts will be saved.

- Summary also occupies the mind, reducing the amount of work required.

- Also by generated summary use will be able to get the summary in few seconds.

- This app simulation is portable and can be used in any device

1.3 Purpose, Scope, Applicability (Feasibility Study)

1.3.1 Purpose

Purpose to design and implement such type video summarizer are given as follows –

- Our main purpose here is to help people by generating summary which they could understand in a better and easy way.

- And save time and efforts of user as, in few seconds summary will generate.

- A user can learn about the community's acceptability of their channel/video by using sentiment analysis of comments, allowing them to maintain the quality of their content.

- Sentiment analysis is widely used, with many large corporations examining client reviews of their products/services on social media and on their websites to assist them preserve their brand values.

- Some major organisations are employing this strategy to boost client involvement with their service areas

1.3.2 Scope

- User-friendly interface.

- It provides quick processing on data.

- User will have to select the category of the video.

- User has to paste YouTube video link in GUI.

- User can save the summary by selecting file location.

- User can display summary by selecting open path from option.

- As we are using AI & machine Learning here system may or may not

  give the desired outcome every day.

- We expect that in the future, if someone is interested, they will be able

  to find ways to extend the summarizer to other streaming providers.

1.3.3 Applicability (Feasibility study)

Presently, our project is being developed as an automation tool and Transcript summarizer, but there are various applications in which our project can play an important role.

Some of the ideas/projects are: -

• Audio Summarizer: -

An audio summary is a condensed version of an audiobook. These summaries expertly encapsulate the silent points and ideas of full-length audiobooks into a shorter, more digestible format. They skilfully distil the essence of the author's work, conveying content, style, and spirit. The thorough, yet concise, high-level overviews represent cutting-edge ideas that are shaping today's business environment.

• Text Summarization: -

The method of extracting these summaries from the original huge text without losing vital information is called as **Text Summarization**.

Text Summarization is one of those applications of Natural Language Processing (NLP) which is bound to have a huge impact on our lives. With growing digital media and ever growing publishing – who has the time to go through entire articles / documents / books to decide whether they are useful or not?

In fact, the google news, the in shorts app and various other news aggregator apps take advantage of text summarization algorithms.

• **Legal document summarizer:** -

Due to huge amount of legal information availability on the internet, as well as other sources, it is important for the research community to do more extensive research on the area of legal text processing, which can help us make sense out of the vast amount of available data.

This information growth has compelled the requirement to develop systems that can help legal professionals as well as ordinary citizens get relevant legal information with very little effort. In this survey paper, different text summarization techniques are surveyed, with a specific focus on legal document summarization, as this is one of the most important areas in the legal field, which can help with the quick understanding of legal documents. This paper starts with the general introduction to text summarization, following which various legal text summarization techniques are discussed. Various available tools are also described in this paper which is used for summarization of legal text. Two case studies are also presented in this work, where the automatic summarization of heterogeneous legal documents from two countries is considered. With the presented detailed review of the state of the art approaches, comparative analysis from the case studies and also discussions on several important research questions, this work is expected to provide a good starting point for researchers to perform a more in-depth exploration of the area of legal document summarization, more specifically with respect to the key future research directions identified in this work.

• Online meeting summarizer: -

As speech recognition of broadcast news is becoming more mature, research is moving into types of speech that are more challenging. One such area is conversational speech. Initially telephone conversations were studied but more recently attention moved to meeting recordings. Indeed, interesting applications can be foreseen if automatic speech recognition (ASR) performance of conversational speech could be boosted to reach the same level of accuracy as for broadcast news. In the EU projects M4 (M4 2002b) and AMI (M4 2002a), meetings are recorded in a "smart meeting room" using multiple synchronized cameras and microphones (de Jong 2004). The key application developed in these projects is the "meeting browser", which facilitates users to search and browse meeting recordings. For this purpose the raw data is processed by multimodal analyzers that recognize "meeting actions" (e.g. discussion, presentation etc.) and perform a shallow semantic analysis. During the AMI project, topic segmentation and summarizing functions will be developed

1.4 Organization of Report

Chapter-2: In this chapter we are going to discuss about the technologies that can be used in our project such as Python and the technology that we are planning to use. Why are we going to use this technology why there better than the rest of the other technology.

Chapter-3: In this chapter we are going to discuss on requirement analysis which includes problem definition, the basic software and hardware requirements and we are also going to discuss how we have planned the project? And how we have scheduled the planning of the project using Gantt chart.

Chapter-4: In this chapter we are going to discuss in detailed of the project in a diagrammatic format. Use case, Data flow , Sequence, Activity diagrams & etc are used to provide detailed description in a simple way.

Chapter-5: In this chapter we are going to discuss in detail about how the implementation plan was made, how the code is used how we made it more efficient, which modification & improvements are needed to rectify the bugs and errors found while unit testing and integration testing.

Chapter-6: In this chapter we are going to discuss about the Test reports generated after the testing phase and make user documentation so that any user can use the system with the help of it.

Chapter-7: In this chapter we are going to conclude things with the help of discussing on limitations of the system and the future scope of the project.

Chapter 2 : Survey of Technologies

2.1 Natural language processing (NLP) is the ability of a computer program to understand human language as it is spoken and written -- referred to as natural language. It is a component of artificial intelligence.

What is natural language processing used for?

Some of the main functions that natural language processing algorithms perform are:

- **Text classification** :- This involves assigning tags to texts to put them in categories. This can be useful for sentiment analysis, which helps the natural language processing algorithm determine the sentiment, or emotion behind a text. For example, when brand A is mentioned in X number of texts, the algorithm can determine how many of those mentions were positive and how many were negative. It can also be useful for intent detection, which helps predict what the speaker or writer may do based on the text they are producing.

- **Text extraction:-** This involves automatically summarizing text and finding important pieces of data. One example of this is keyword extraction, which pulls the most important words from the text, which can be useful for search engine optimization. Doing this with natural language processing requires some programming -- it is not completely automated. However, there are plenty of simple keyword extraction tools that automate most of the process -- the user just has to set parameters within the program. For example, a tool might pull out the most frequently used words in the text. Another example is named entity recognition, which extracts the names of people, places and other entities from text.

- **Machine translation:-** This is the process by which a computer translates text from one language, such as English, to another language, such as French, without human intervention.

- **Natural language generation:-** This involves using natural language processing algorithms to analyse unstructured data and automatically produce content based on that data. One example of this is in language models such as <u>GPT3</u>, which are able to analyze an unstructured text and then generate believable articles based on the text

Benefits of natural language processing

The main benefit of NLP is that it improves the way humans and computers communicate with each other. The most direct way to manipulate a computer is through code -- the computer's language. By enabling computers to understand human language, interacting with computers becomes much more intuitive for humans.

Other benefits include:

- improved accuracy and efficiency of documentation;

- ability to automatically make a readable summary of a larger, more complex original text;

- useful for personal assistants such as Alexa, by enabling it to understand spoken word;

- easier to perform sentiment analysis; and

- provides advanced insights from analytics that were previously unreachable due to data volume.

2.2 Language:-

Python

Figure 2.2 python

Python is a popular scientific language and a rising star for machine learning. quickly coming to rival R's dominance in academia and research. But why is Python so popular in the machine learning world? Why is Python good for AI? The reason is Python allows users to focus on real problems & Python has so many features that are attractive for scientific computing (TutorialsPoint, 2018).

Why use Python for Natural Language Processing (NLP)?

There are many things about Python that make it a really good programming language choice for an NLP project. The simple syntax and transparent semantics of this language make it an excellent choice for projects that include Natural Language Processing tasks.

It provides developers with an extensive collection of NLP tools and libraries that enable developers to handle a great number of NLP-related tasks such as document classification, topic modeling, part-of-speech (POS) tagging, word vectors, and sentiment analysis.

Python IDEL

Python IDLE is one of the IDEs used for Python programming. It automatically gets downloaded when we install Anaconda. IDLE stands for Integrated Development and Learning Environment.

You can access it by opening the command prompt and typing IDLE. It will give the IDLE as the result after opening it a Python shell is opened where you can begin coding. Shell is an interactive interpreter. It provides the output for each line of code immediately. Pressing the enter key not only changes the line but produces the immediate result of the line after which it is pressed. if a user wants to check each line of his code as he types it, he will prefer Python IDLE over Jupyter Notebook.

IDLE has the following features:

- coded in 100% pure Python, using the tkinter GUI toolkit

- cross-platform: works mostly the same on Windows, Unix, and macOS

- Python shell window (interactive interpreter) with colorizing of code input, output, and error messages

- multi-window text editor with multiple undo, Python colorizing, smart indent, call tips, auto completion, and other features

- search within any window, replace within editor windows, and search through multiple files (grep)

- debugger with persistent breakpoints, stepping, and viewing of global and local namespaces

- configuration, browsers, and other dialogs

Why Python IDEL?

- very simple and basic;

- runs without any server or browser;

- only requires Anaconda installation

- has an in-built debugger;

- can be customized according to the user's preferences;

REQUIRED PACKAGES

1. TKINTER

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, Tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with Tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using Tkinter is an easy task.

2. Natural Language Toolkit (NLTK)

NLTK is an essential library supports tasks such as classification, stemming, tagging, parsing, semantic reasoning, and tokenization in Python. It's basically your main tool for natural language processing and machine learning. Today it serves as an educational foundation for Python developers who are dipping their toes in this field (and machine learning).

3. numpy

NumPy is a Python library used for working with arrays.

It also has functions for working in domain of linear algebra, fourier transform, and matrices.

4. pandas

Pandas is an open source Python package that is most widely used for data science/data analysis and machine learning tasks.

6. spacy

spaCy is an open-source software library for advanced natural language processing,

7. youtube_dl

It is used download youtube video

8. webvtt-py:

It is a Python module for reading/writing Web VTT caption files

9. scikit-learn

Scikit-learn (Sklearn) is the most useful and robust library for machine learning in Python. It provides a selection of efficient tools for machine learning. This library, which is largely written in Python, is built upon NumPy, SciPy and Matplotlib.

10. re

A RegEx, or Regular Expression, is a sequence of characters that forms a search pattern.
RegEx can be used to check if a string contains the specified search pattern.

11. os

The OS module in Python provides functions for interacting with the operating system. OS comes under Python's standard utility modules.

12. YouTube transcript API

It is a lightweight, dependency-free Python library which is used to download YouTube videos easily. This can be achieved with just one or two lines of code. YouTube transcript API library creates the object of the YouTube module by passing a YouTube link of the video as the parameter. This download function takes only one parameter: the location where downloaded files need to be saved. In python URLs are handled using the urllib method, which calls a particular url and handles results after visiting the url. We are using urllib to get the title of a video using the YouTube link.

Chapter 3: Requirements and Analysis

3.1 Problem Definition

YouTube is not only kingdom of digital entertainment but also a primary source of knowledge because it contains educational and informative videos too. We spend a considerable amount of time on YouTube, Google claims people are now spending more than 40 minutes at a time watching YouTube on mobile devices.

Sometimes its very time consuming and difficult to watch such long duration of videos on YouTube and find relevant information out of it. Sometimes our efforts may futile if we couldn't find relevant information out of it.

Also, while watching YouTube videos people do face some issues like Un skippable advertisements before and middle of videos, audio issues for some videos, even video description is not provided for so many videos. moreover, the main problem here is the time constraint.

3.2 Requirement Specification

Some requirements must be met in order to complete this project, including a basic understanding of Natural Language Processing and the programming languages used to construct it.

NLP - Natural Language Processing (NLP) is a branch of Artificial Intelligence that aims to make computers capable of comprehending both written and spoken human language. Text summarization is a branch of Natural Language Processing (NLP) that deals with obtaining summary information from large amounts of text.

Python - Practical implementation of text summarization algorithm we will implement each of these algorithms step by step using modern technologies, such as the Python programming language, the NLTK (Natural Language Toolkit) and spaCy libraries and python IDEL.

GUI - Only providing a command-line solution may discourage a large number of potential consumers. A GUI - Graphical User Interface – is the most obvious way for most people to interact with a programme.

The user interacts with and manipulates the interface elements known as widgets while using a GUI. Buttons and checkboxes are examples of widgets that allow the user to interact with the programme. Others, such as windows and frames, are used to hold other widgets.

3.3 Planning and Scheduling

A Gantt chart is a project management tool assisting in the planning and scheduling of projects of all sizes, although they are particularly useful for simplifying complex projects.

Project management timelines and tasks are converted into a horizontal bar chart, showing start and end dates, as well as dependencies, scheduling and deadlines, including how much of the task is completed per stage and who is the task owner. This is useful to keep tasks on track when there is a large team and multiple stakeholders when the scope changes.

As it's in a bar chart format it is possible to check on progress with a quick glance. You can easily see:

• a visual display of the whole project,

• timelines and deadlines of all tasks, relationships and dependencies between the various activities.

Activities	Semester V													
	June		July				August			September			October	
	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Project Idea Finalization														
Requirements														
Survey of data/ need (Literature Review)	▓	▓												
Feasibility and need validation			▓	▓										
Scope Freezing					▓	▓								
Requirements Detailing														
Use Case Diagrams							▓	▓						
Static User Interface Prototype									▓	▓				
Design														
Database Design/ Block Diagram (ER Diagram, Key Data Structures)										▓	▓			
Other UML Diagrams (Sequence, Activity, Flow Chart etc.)												▓	▓	
Class Diagrams													▓	▓
Hardware Design - [for embedded/ IoT projects]														
Evaluate Technology options													▓	
Prototype														
Key Technical issue defination										▓	▓			
Build basic Working Prototype											▓	▓		
Planning & Review														
Overall Project Plan											▓			
Weekly Review/ Discussion with Guide		▓			▓		▓		▓			▓		

Figure 3.3.1 Gantt Chart

In this project, we are using the spiral model because it helps to implement each phase of system requirements.

Figure 3.3.2 Spiral model

Spiral model is one of the most important Software Development Life Cycle models, which provides support for Risk Handling. In its diagrammatic representation, Each loop of the spiral is called a Phase of the software development process. Each phase of the Spiral Model is divided into four quadrants as shown in the above figure. The functions of these four quadrants are as follow:

Objective determination and identify alternative solutions:

Requirements are gathered from the customers and the objectives are identified, elaborated, and analysed at the start of every phase. Then alternative solutions possible for the phase are proposed in this quadrant.

Identify and resolve Risks:

During the second quadrant, all the possible solutions are evaluated to select the best possible solution. Then the risks associated with that solution are identified and the risks are resolved using the best possible strategy. At the end of this quadrant, the Prototype is built for the best possible solution.

Develop next version of the Product:

During the third quadrant, the identified features are developed and verified through testing. At the end of the third quadrant, the next version of the software is available.

Review and plan for the next Phase:

In the fourth quadrant, the Customers evaluate the so far developed version of the software. In the end, planning for the next phase is started.

Advantages of Spiral Model:

1. Software is produced early in the software life cycle.

2. Risk handling is one of important advantages of the Spiral model, it is best development model to follow due to the risk analysis and risk handling at every phase.

3. Flexibility in requirements. In this model, we can easily change requirements at later phases and can be incorporated accurately. Also, additional Functionality can be added at a later date.

4. It is good for large and complex projects.

5. It is good for customer satisfaction. We can involve customers in the development of products at early phase of the software development. Also, software is produced early in the software life cycle.

6. Strong approval and documentation control.

7. It is suitable for high risked projects, where business needs may be unstable. A highly customized product can be developed using this.

Disadvantages of Spiral Model:

1. It is much more complex than other SDLC models. Process is complex.

2. Too much dependable on Risk Analysis and requires highly specific expertise.

3. Difficulty in time management. As the number of phases is unknown at the start of the project, so time estimation is very difficult.

4. Spiral may go on indefinitely.

5. End of the project may not be known early.

3.4 Software and Hardware Requirement

Software Requirement:

Operating System	Windows 7(or above).
Programming Language	Python.
Software Used	Python IDE

Table 1: Software Requirements

Hardware Requirement:

Processor	i5 or higher.
RAM	4GB
ROM	8GB
Internet	5mbps

Table 2: Hardware Requirements

3.5 Preliminary Product Description

The number of YouTube users in 2020 was approximately 2.3 billion, and has been increasing every year. Every minute, 300 hours of YouTube videos are uploaded. Almost one-third of the YouTube viewers in India access videos on their mobiles and spend over 48 hours a month on the website, a Google study said

It is frustrating and time consuming to search for the videos that contains the information we are actually looking for. For instance, there are many Ted Talk videos available online in which the speaker talks for a long time on a given topic, but it is hard to find the content the speaker is mainly focusing on unless we watch the entire video.

Many machine learning based video summarization techniques are present but they require devices with large processing powers, this is because each video contains thousands of frames and processing all frames takes a very long time.

It is a tool to summarize transcripts from YouTube videos. If you don't have time to watch the complete video or lecture, this tool helps you grasp the most important parts of the text by providing a very short summary. also With the help of this sentiment analysis of video comments, the user can get to know about the community acceptance of that channel/video or wider public opinion behind that video. User can save the summary by selecting file location. Also User can display previously saved summary by selecting open path from option.

Moreover, the summary is Abstractive and not Extractive. Hence it isn't simply extracting the main sentences, it understands the text to generate a summary; just like humans!

Chapter 4 : System Design

4.1 Basic Modules

In this section of the chapter we will discuss about the various modules which will be made to ease the task of designers to design the system and tester to test the system which will also satisfy all the requirements specified in *chapter-3*

1. Basic Implementation:

- In basic implementation we are going to code in command line using language python and check output line by line.

- It will beneficial for us to Identify and resolve the errors as well as to keep track of our project.

2. GUI (Graphical User Interface):

- we will design a GUI using Tkinter module in python.

- user interface allows us to paste the YouTube video link and the application takes care of the rest.

- Saves the summary to the specified location in text format.

3. NLP (Natural Language Processing):

- NLP convert whole text into summary the data is going to process in NLP

- text identification, interpretation and summary generation, and analysis of the generated summary will be done in NLP

4.3 Diagrams

4.3.1 Flow Chart Diagram

A Flow chart diagram shows step-by-step progression through a procedure or system especially using connecting lines and a set of conventional symbols. visually displays interrelated information such as events, steps in a process, functions, etc., in an organized fashion.

Fig 4.3.1 (Flow Chart Diagram)

4.3.2 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

Fig 4.3.2 (Use Case Diagram)

In the use case diagram Firstly ,the user will select video category and paste YouTube video link then the summarizer will process and calculate sentiment based on its comments and display the result also generate video summary. user will able to display and save summary.

ADVANTAGES OF USE CASE DAIGRAM :

- Use case daigram help to capture the functional requirements of a system.

- Use cases are traceable.

- Use cases can serve as the basis for the estimating, scheduling, and validating effort.

- Use case daigram can evolve at each iteration from a method of capturing requirements, to development guidelines to programmers, to a test case and finally into user documentation.

- Use case daigram alternative paths capture additional behavior that can improve system robustness.

- Use cases have proved to be easily understandable by business users, and so have proven an excellent bridge between software developers and end users.

4.3.3 Sequence Diagram

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram.

Sequence diagrams describe how and in what order the objects in a system function.

Chapter 5: Implementation and Testing

Sr. No.	Implementation Plan	Action
1.	Module	1. **Basic CMD Implementation** 2. **NLP** 3. **Sentiment Analysis** 4. **Summarizer GUI**
2.	Percentage Completed	1. Basic CMD Implementation -**100%** 2. NLP -**100%** 3. Sentiment Analysis -**100%** 4. Summarizer GUI -**100%**
3.	Status	1. Basic CMD Implementation -**Completed** 2. NLP - **Completed**

		3. Sentiment Analysis - **Completed**
		4. Summarizer GUI - **Completed**
4.	Day Started	1. Basic CMD Implementation **–** **[15/8/2021]**
		2. NLP **– [25/9/2021]**
		3. Sentiment Analysis **– [25/11/2021]**
		4. Summarizer GUI **– [5/12/2021]**
5.	Day to be Completed	1. Basic CMD Implementation – **[23/9/2021]**
		2. NLP -**– [20/11/2021]**
		3. Sentiment Analysis -**– [27/1/2022]**
		4. Summarizer GUI -**– [15/2/2021]**
6.	Actual Completion Date	1. Basic CMD Implementation -**– [23/9/2021]**

		5. NLP -**[20/11/2021]** 2. Sentiment Analysis - **– [27/2/2022]** 3. Summarizer GUI -**– [15/3/2021]**
7.	Module Assignment	1. Basic CMD Implementation – **[Saloni Maurya]** 2. NLP – **[Saloni Maurya]** 3. Sentiment Analysis **–** **[Pradnya Pophale]** 4. Summarizer GUI – **[Pradnya Pophale]**
8.	Importance of Module	1. Basic CMD Implementation -**Medium** 2. NLP -**High**

		3. Sentiment Analysis –**High**
		4. Summarizer GUI **-Medium**

Table 3 Implementation and Testing

5.2 Coding Details and Code Efficiency:

CODE:

```python
from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer
import pandas as pd
from apiclient.discovery import build
from tkinter import *
import tkinter as tk

from tkinter.messagebox import *

from transformers import pipeline
from youtube_transcript_api import YouTubeTranscriptApi
from functools import partial

from fpdf import FPDF

api_key = "AIzaSyDTfa3twrbqIJr7o3D3g4xq9hqp_FQHMXE"

youtube = build('youtube', 'v3', developerKey=api_key)
count = 0
commentbot = SentimentIntensityAnalyzer()
fresult = {"positivenum": 0, "negativenum": 0, "neutralnum": 0}
box = [['Name', 'Comment', 'Time', 'Likes', 'Reply Count']]
```

```python
def mainWindow():
    splash_screen.destroy()

    def videosFrame():
        framevideos.pack()
        framemain.forget()

    def moviesFrame():
        framemovies.pack()
        framemain.forget()

    def videosbackfun():
        framevideos.forget()
        framemain.pack()

    def moviesbackfun():
        framemovies.forget()
        framemain.pack()

    def sentimentAnalysis(LinkType):
        if (LinkType == "v"):
            url = youtubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                youtube_video = youtubeLink.get(1.0, "end-1c")
                ID = youtube_video.split("=")[0]
```

```python
        else:
            url = myoutubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                myoutube_video = myoutubeLink.get(1.0, "end-1c")
                ID = myoutube_video.split("=")[1]
        data = youtube.commentThreads().list(part='snippet', videoId=ID,
                                        maxResults='100', textFormat="plainText").execute()

        for i in data["items"]:

            name = i["snippet"]['topLevelComment']["snippet"]["authorDisplayName"]
            comment = i["snippet"]['topLevelComment']["snippet"]["textDisplay"]
            published_at = i["snippet"]['topLevelComment']["snippet"]['publishedAt']
            likes = i["snippet"]['topLevelComment']["snippet"]['likeCount']
            replies = i["snippet"]['totalReplyCount']

            box.append([name, comment, published_at, likes, replies])

            totalReplyCount = i["snippet"]['totalReplyCount']

            if totalReplyCount > 0:

                parent = i["snippet"]['topLevelComment']["id"]

                data2 = youtube.comments().list(part='snippet', maxResults='100', parentId=parent,
                                        textFormat="plainText").execute()
```

```python
        for i in data2["items"]:
            name = i["snippet"]["authorDisplayName"]
            comment = i["snippet"]["textDisplay"]
            published_at = i["snippet"]['publishedAt']
            likes = i["snippet"]['likeCount']
            replies = ""

            box.append([name, comment, published_at, likes, replies])

    while ("nextPageToken" in data):

        data = youtube.commentThreads().list(part='snippet', videoId=ID, pageToken=data["nextPageToken"],
                                    maxResults='100', textFormat="plainText").execute()

        for i in data["items"]:
            name = i["snippet"]['topLevelComment']["snippet"]["authorDisplayName"]
            comment = i["snippet"]['topLevelComment']["snippet"]["textDisplay"]
            published_at = i["snippet"]['topLevelComment']["snippet"]['publishedAt']
            likes = i["snippet"]['topLevelComment']["snippet"]['likeCount']
            replies = i["snippet"]['totalReplyCount']

            box.append([name, comment, published_at, likes, replies])

            totalReplyCount = i["snippet"]['totalReplyCount']

            if totalReplyCount > 0:

                parent = i["snippet"]['topLevelComment']["id"]

                data2 = youtube.comments().list(part='snippet', maxResults='100', parentId=parent,
                                        textFormat="plainText").execute()

                for i in data2["items"]:
                    name = i["snippet"]["authorDisplayName"]
                    comment = i["snippet"]["textDisplay"]
                    published_at = i["snippet"]['publishedAt']
                    likes = i["snippet"]['likeCount']
                    replies = ''
```

```python
            box.append(
                [name, comment, published_at, likes, replies])

df = pd.DataFrame({'Name': [i[0] for i in box], 'Comment': [i[1] for i in box], 'Time': [i[2]
                  'Likes': [i[3] for i in box], 'Reply Count': [i[4] for i in box]})

df.to_csv('youtube-comments.csv', index=False, header=False)
count = 0
with open("youtube-comments.csv", "r", errors='ignore') as csvfile:
    for line in csvfile.read().split('\n'):
        vs = commentbot.polarity_scores(line)
        count += 1
        if vs['compound'] >= 0.05:
            fresult["positivenum"] += 1
        elif vs['compound'] <= - 0.05:
            fresult["negativenum"] += 1
        else:
            fresult["neutralnum"] += 1

positivenum = fresult["positivenum"]
negativenum = fresult["negativenum"]
neutralnum = fresult["neutralnum"]

positive_percentage = positivenum / count * 100

negative_percentage = negativenum / count * 100

neutral_percentage = neutralnum / count * 100
```

```python
        if (LinkType == "v"):
            sentimemtPValLabel.config(
                text="|Positive|: " + str(round(positive_percentage, 2)) + "%", fg="green")
            sentimemtNeValLabel.config(
                text="|Negative|: " + str(round(negative_percentage, 2)) + "%", fg="red")
            sentimemtNeuValLabel.config(
                text="|Neutral|: " + str(round(neutral_percentage, 2)) + "%", fg="#fca503")
        else:
            msentimemtPValLabel.config(
                text="|Positive|: " + str(round(positive_percentage, 2)) + "%", fg="green")
            msentimemtNeValLabel.config(
                text="|Negative|: " + str(round(negative_percentage, 2)) + "%", fg="red")
            msentimemtNeuValLabel.config(
                text="|Neutral|: " + str(round(neutral_percentage, 2)) + "%", fg="#fca503")

def generateSummary(LinkType):
    if (LinkType == "v"):
        url = youtubeLink.get("1.0", END)
        if(url == "\n"):
            showerror(title="Error", message="Enter Video link!")
        else:
            youtube_video = youtubeLink.get(1.0, "end-1c")
            ID = youtube_video.split("=")[1]

    else:
        url = myoutubeLink.get("1.0", END)
        if(url == "\n"):
            showerror(title="Error", message="Enter Video link!")
        else:
            myoutube_video = myoutubeLink.get(1.0, "end-1c")
            ID = myoutube_video.split("=")[1]



transcript = YouTubeTranscriptApi.get_transcript(ID)
res = ""
for i in transcript:
    res += " " + i["text"]
transcriptValLabel.config(
    text="Transcript Word Count:- " + str(len(res)))
smry = pipeline("summarization")
num_iters = int(len(res)/1000)
print("num_iters--->", num_iters)
summarized_text = []
for i in range(0, num_iters + 1):
    start = 0
    start = i * 1000
    end = (i + 1) * 1000
    print("start--> ", start)
    print("end--> ", end)
    out = smry(res[start:end])
    out = out[0]
    out = out["summary_text"]
    summarized_text.append(out)
summaryDisplayText = ""
```

```python
        for s in summarized_text:
            summaryDisplayText = summaryDisplayText+s

        if (LinkType == "v"):
            summary.config(text=summaryDisplayText)
            summaryValLabel.config(
                text="Summary Word Count:- "+str(len(summaryDisplayText)))
        else:
            msummary.config(text=summaryDisplayText)
            msummaryValLabel.config(
                text="Summary Word Count:- "+str(len(summaryDisplayText)))
        print("summarized_text---> ", summaryDisplayText)

    def saveAsPDF(LinkType):
        if (LinkType == "v"):
            url = youtubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                youtube_video = youtubeLink.get(1.0, "end-1c")
                ID = youtube_video.split("=")[1]
                SummaryText = summary.cget("text")

        else:
            url = myoutubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                myoutube_video = myoutubeLink.get(1.0, "end-1c")
                ID = myoutube_video.split("=")[1]
                SummaryText = msummary.cget("text")
        pdf = FPDF()
        pdf.add_page()
        pdf.set_font("Arial", size=15)
        if (SummaryText==''):
            showerror(title="Error", message="Please Generate Summary First")
        else:
            pdf.cell(200, 10, txt="Summary", ln=1, align='C')
            pdf.multi_cell(0, 10, txt=SummaryText, align='L')
            pdf.output("Summary_" + ID + ".pdf")
```

```python
root = tk.Tk()
width = 780
height = 630

screen_width = root.winfo_screenwidth()
screen_height = root.winfo_screenheight()

x = (screen_width / 2) - (width / 2)
y = (screen_height / 2) - (height / 2)

root.geometry(f"{width}x{height}+{int(x)}+{int(y)}")
root.title("Transcript Summarizer")
root.iconbitmap(r'youtube.ico')
root.resizable(False, False)




# ----+----------------- Main Window Code-------------------------------------

framemain = tk.Frame(root, width=780, height=630, bg="#D8D8D8")
framemain.pack(fill=BOTH, expand=True)
framemain.pack_propagate(0)

label1 = Label(framemain, text="Youtube Transcript Summarizer",
            width=100, height=2, bg="#E51F24", fg="white")
label1.config(font=("", 30))
label1.pack()

subframe = tk.Frame(framemain, width=670, height=400, bg="#D8D8D8")
subframe.pack(pady=20)
subframe.propagate(0)

btnVideos = tk.Button(subframe, text="Videos", width=18,
                    height=2, bg="red", fg="white", command=videosFrame)
btnVideos.config(font=("", 23))
btnVideos.pack(pady=40)

btnMovies = tk.Button(subframe, text="Movies", width=18,
                    height=2, bg="red", fg="white", command=moviesFrame)
btnMovies.config(font=("", 23))
btnMovies.pack(pady=10)

greetLabel = tk.Label(
    framemain, text="Developed By:- Pradnya & Saloni\nProj. Guide:- Shajil Sir",
    width=100, bg="#D8D8D8")
greetLabel.config(font=("", 10))
greetLabel.pack(pady=6)
```

```python
# ------------------------------ Videos Window Code ------------------------------------------
framevideos = tk.Frame(root, width=780, height=630, bg="#D8D8D8")
framevideos.pack_propagate(0)

label1 = Label(framevideos, text="Youtube Video Summarizer",
               width=51, height=2, bg="#E51F24", fg="white")
label1.config(font=("", 19))
label1.pack(side=TOP)

videosSubFrame = tk.Frame(framevideos, bg="#D8D8D8")
videosSubFrame.pack(fill=BOTH, expand=True, padx=10)

linkLabel1 = Label(videosSubFrame, text="Youtube Link:-",
                   width=20, height=1, bg="#D8D8D8")
linkLabel1.config(font=("", 15))
linkLabel1.grid(row=0, column=0, columnspan=1, pady=5)

youtubeLink = tk.Text(videosSubFrame, width=43, height=1, bg="#EEECE1")
youtubeLink.config(font=("", 15))
youtubeLink.grid(row=0, column=1, columnspan=2, pady=5)

sentimentBtn = tk.Button(videosSubFrame, text="Sentiment Analysis", width=20,
                         height=1, bg="#D99594", command=partial(sentimentAnalysis, "v"))
sentimentBtn.config(font=("", 15))
sentimentBtn.grid(row=2, column=0, columnspan=1, padx=40, pady=5)

summaryBtn = tk.Button(videosSubFrame, text="Generate Summary",
                       width=20, height=1, bg="#D99594", command=partial(generateSummary, "v"))
summaryBtn.config(font=("", 15))
summaryBtn.grid(row=2, column=2, columnspan=1, padx=50, pady=5)

sentimentFrame = tk.Frame(videosSubFrame, width=50, height=2,
                          bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
sentimentFrame.grid(row=3, column=0, columnspan=3, pady=5)

sentimemtPValLabel = Label(
    sentimentFrame, text="|Positive|", width=21, height=1, bg="#F2DBDB")
sentimemtPValLabel.config(font=("", 15))
sentimemtPValLabel.grid(row=0, column=0, columnspan=1, pady=5)

sentimemtNeValLabel = Label(
    sentimentFrame, text="|Negative|", width=21, height=1, bg="#F2DBDB")
sentimemtNeValLabel.config(font=("", 15))
sentimemtNeValLabel.grid(row=0, column=1, columnspan=1, pady=5)

sentimemtNeuValLabel = Label(
    sentimentFrame, text="|Neutral|", width=21, height=1, bg="#F2DBDB")
sentimemtNeuValLabel.config(font=("", 15))
sentimemtNeuValLabel.grid(row=0, column=2, columnspan=1, pady=5)

countFrame = tk.Frame(videosSubFrame, width=50, height=2,
                      bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
countFrame.grid(row=4, column=0, columnspan=3, pady=5)
```

```python
transcriptValLabel = Label(
    countFrame, text="Transcript Word Count:- ", width=25, height=1, bg="#F2DBDB")
transcriptValLabel.config(font=("", 15))
transcriptValLabel.grid(row=0, column=0, columnspan=1, pady=5)


summaryValLabel = Label(
    countFrame, text="Summary Word Count:- ", width=25, height=1, bg="#F2DBDB")
summaryValLabel.config(font=("", 15))
summaryValLabel.grid(row=0, column=2, columnspan=1, pady=5)


summary = tk.Label(videosSubFrame, width=88, height=20, bg="#EEECE1",
                   fg="#000000", state=DISABLED, wraplength=600, justify="left")
summary.grid(row=5, column=0, rowspan=2, columnspan=3, pady=5)


summaryBtn = tk.Button(videosSubFrame, text="Back",
                       width=20, height=1, bg="#D99594", command=videosbackfun)
summaryBtn.config(font=("", 15))
summaryBtn.grid(row=7, column=0, columnspan=1, pady=5)


summarysaveBtn = tk.Button(videosSubFrame, text="Save as PDF",
                           width=20, height=1, bg="#D99594", command=partial(saveAsPDF, "v"))
summarysaveBtn.config(font=("", 15))
summarysaveBtn.grid(row=7, column=2, columnspan=1, pady=5)



countFrame = tk.Frame(videosSubFrame, width=50, height=2,
                      bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
countFrame.grid(row=4, column=0, columnspan=3, pady=5)

transcriptValLabel = Label(
    countFrame, text="Transcript Word Count:- ", width=25, height=1, bg="#F2DBDB")
transcriptValLabel.config(font=("", 15))
transcriptValLabel.grid(row=0, column=0, columnspan=1, pady=5)


summaryValLabel = Label(
    countFrame, text="Summary Word Count:- ", width=25, height=1, bg="#F2DBDB")
summaryValLabel.config(font=("", 15))
summaryValLabel.grid(row=0, column=2, columnspan=1, pady=5)


summary = tk.Label(videosSubFrame, width=88, height=20, bg="#EEECE1",
                   fg="#000000", state=DISABLED, wraplength=600, justify="left")
summary.grid(row=5, column=0, rowspan=2, columnspan=3, pady=5)


summaryBtn = tk.Button(videosSubFrame, text="Back",
                       width=20, height=1, bg="#D99594", command=videosbackfun)
summaryBtn.config(font=("", 15))
summaryBtn.grid(row=7, column=0, columnspan=1, pady=5)


summarysaveBtn = tk.Button(videosSubFrame, text="Save as PDF",
                           width=20, height=1, bg="#D99594", command=partial(saveAsPDF, "v"))
summarysaveBtn.config(font=("", 15))
summarysaveBtn.grid(row=7, column=2, columnspan=1, pady=5)
```

```python
# ------------------------------- Movies Window Code -------------------------------------

framemovies = tk.Frame(root, width=780, height=630, bg="#D8D8D8")
framemovies.pack_propagate(0)

mlabel1 = Label(framemovies, text="Youtube Movies Summarizer",
                width=34, height=2, bg="#E51F24", fg="white")
mlabel1.config(font=("", 28))
mlabel1.pack(side=TOP)

moviesSubFrame = tk.Frame(framemovies, bg="#D8D8D8")
moviesSubFrame.pack(fill=BOTH, expand=True, padx=10)

mlinkLabel1 = Label(moviesSubFrame, text="Youtube Link",
                    width=20, height=1, bg="#D8D8D8")
mlinkLabel1.config(font=("", 15))
mlinkLabel1.grid(row=0, column=0, columnspan=1)

myoutubeLink = tk.Text(moviesSubFrame, width=43, height=1, bg="#EEECE1")
myoutubeLink.config(font=("", 15))
myoutubeLink.grid(row=0, column=1, columnspan=2, pady=5)

msentimentBtn = tk.Button(moviesSubFrame, text="Sentiment Analysis", width=20,
                          height=1, bg="#D99594", command=partial(sentimentAnalysis, "m"))
msentimentBtn.config(font=("", 15))
msentimentBtn.grid(row=2, column=0, columnspan=1)

msummaryBtn = tk.Button(moviesSubFrame, text="Generate Summary",
                        width=20, height=1, bg="#D99594", command=partial(generateSummary, "m"))
msummaryBtn.config(font=("", 15))
msummaryBtn.grid(row=2, column=2, columnspan=1)

msentimentFrame = tk.Frame(moviesSubFrame, width=30, height=2,
                           bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
msentimentFrame.grid(row=3, column=0, columnspan=3)

msentimemtPValLabel = Label(
    msentimentFrame, text="|Positive|", width=20, height=1, bg="#F2DBDB")
msentimemtPValLabel.config(font=("", 15))
msentimemtPValLabel.grid(row=0, column=0, columnspan=1)

msentimemtNeValLabel = Label(
    msentimentFrame, text="|Negative|", width=22, height=1, bg="#F2DBDB")
msentimemtNeValLabel.config(font=("", 15))
msentimemtNeValLabel.grid(row=0, column=1, columnspan=1)
```

```python
msentimemtNeuValLabel = Label(
    msentimentFrame, text="|Neutral|", width=20, height=1, bg="#F2DBDB")
msentimemtNeuValLabel.config(font=("", 15))
msentimemtNeuValLabel.grid(row=0, column=2, columnspan=1)

mcountFrame = tk.Frame(moviesSubFrame, width=50, height=2,
                       bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
mcountFrame.grid(row=4, column=0, columnspan=3)

mtranscriptValLabel = Label(
    mcountFrame, text="Transcript Word Count:- 2450", width=25, height=1, bg="#F2DBDB")
mtranscriptValLabel.config(font=("", 15), padx=10)
mtranscriptValLabel.grid(row=0, column=0, columnspan=1)

msummaryValLabel = Label(
    mcountFrame, text="Summary Word Count:- 990", width=25, height=1, bg="#F2DBDB")
msummaryValLabel.config(font=("", 15))
msummaryValLabel.grid(row=0, column=2, columnspan=1)

msummary = tk.Label(moviesSubFrame, width=88, height=20, bg="#EEECE1",
                    fg="#000000", state=DISABLED, wraplength=600, justify="left")
msummary.grid(row=5, column=0, rowspan=2, columnspan=3, pady=5)


msummaryBtn = tk.Button(moviesSubFrame, text="Back",
                        width=20, height=1, bg="#D99594", command=moviesbackfun)
msummaryBtn.config(font=("", 15))
msummaryBtn.grid(row=7, column=0, columnspan=1)

msummarysaveBtn = tk.Button(
    moviesSubFrame, text="Save as PDF", width=20, height=1, bg="#D99594", command=partial
msummarysaveBtn.config(font=("", 15))
msummarysaveBtn.grid(row=7, column=2, columnspan=1)

root.mainloop()
```

```python
# ---------+------------ Splash Screen Code ----------------------

splash_screen = Tk()

width = 780
height = 630

screen_width = splash_screen.winfo_screenwidth()
screen_height = splash_screen.winfo_screenheight()

x = (screen_width / 2) - (width / 2)
y = (screen_height / 2) - (height / 2)

splash_screen.geometry(f"{width}x{height}+{int(x)}+{int(y)}")
splash_screen.overrideredirect(True)

img = PhotoImage(file="Transcript_Summarizer.png")

devLabel = Label(splash_screen, image=img, fg="black")
devLabel.config(font=("", 15))
devLabel.pack()

splash_screen.after(100, mainWindow)

mainloop()
```

OUTPUT:

Fig 1: splash screen

Fig 2: Main Screen

Fig 3: Videos Screen

Fig 3: Movies Screen

Fig 4: Sentiment Analysis Output

Fig 5: Generate Summary Output

Fig 6 : saved summary

Code Efficiency -

1. The Python code is very easy to read, write and understand because the syntax of python language is similar to English.

2. With the help of sublime text editor it is easy to type the code as it is a lightweight, cross-platform code editor known for its speed, ease of use, and strong community support. It's an incredible editor right out of the box, but the real power comes from the ability to enhance its functionality using Package Control and creating custom settings.

3. Python language has a very huge support of inbuilt and third party libraries which makes to implement the features of the project.

4. The if else ladder is used to implement the logic of query processing where the program goes through a number of conditions and then matches the user query.

5. The try/except is used in most part of code which handles the unexpected error at the run time of the program and prevents the application to stop functioning.

5.3 Testing approaches

- A test approach is the test strategy implementation of a project, defines how testing would be carried out.

- The test approach is usually defined in all test plans and test designs.

- Test approach refers to the commencement of various project activities such as planning the testing process, selecting the designs, defining the entry and exit criteria etc. Test approach has two techniques:

- **Proactive -** An approach in which the test design process is initiated as early as possible in order to find and fix the defects before the build is created.

- **Reactive -** An approach in which the testing is not started until after design and coding are completed.

5.3.1 Unit Testing

Unit testing involves the testing of each unit or an individual component of the software application. It is the first level of functional testing. The aim behind unit testing is to validate unit components with its performance.

1. A unit is a single testable part of a software system and tested during the development phase of the application software.

2. The purpose of unit testing is to test the correctness of isolated code. A unit component is an individual function or code of the application. White box testing approach used for unit testing and usually done by the developers.

3. Whenever the application is ready and given to the Test engineer, he/she will start checking every component of the module or module of the application independently or one by one, and this process is known as Unit testing or components testing.

4. In our project we have 3 modules.

❖ Basic Implementation Module –

This is the first module of our project. In this module we are basically implementing command line program for our project to check whether user/project requirements are matching with our product or not.

❖ Graphical User Interface (GUI) Module –

This is the second module of our project, GUI contains home page which has 3 Sub-page section "Shorts", "Videos", "Movies", which mainly helps to provide specific result. Every section has two main buttons *"Generate"* and *"Browse"*. The Generate button helps the user to generate summary of video link which pasted in URL section, and Browse button is used to browse the path where user wants to save PDF file of the summary.

❖ Natural Language Processing (NLP) Module –

This NLP module is the final module of our project, it contains natural language processing algorithms which help to provide more accurate summary of our YouTube videos.

<u>Advantages of Unit Testing –</u>

1. Reduces cost of testing as defects are captured in very early phase.

2. Improves design and better refactoring of code.

3. Unit Testing helps in simplifying debugging process. If a test fails then only latest changes made in code needs to be debugged.

4. It exposes the edge cases and makes you write better code.

5.3.2 Integration Testing

- Integration Testing is defined as a type of testing where software modules are integrated logically and tested as a group. A typical software project consists of multiple software modules, coded by different programmers.

- The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated.

- Integration Testing focuses on checking data communication amongst these modules.

Approaches in Integration Testing –

1. Big Bang Approach

2. Incremental Approach – which is further divided into the following

- Top Down Approach

- Bottom Up Approach

Approach used in this project is Bottom-up approach.

1. It starts with low level system or design or development. Then it looks for high level system or design.

2. Bottom-up approach initially focuses on detail design or development. At last it concentrates on abstract of overall system or project.

3. In this approach first programmer has to write code for modules. Then they look for integration of these modules.

4. Bottom-up approach is more suitable for a project or system which is going to start from some existing modules.

5.4 Modification and Improvements

After Unit Testing of our project we had found some bugs and errors which need to be modified which will make this YouTube Transcript Summarizer more efficient to the user.

1. Initially the home page wasn't any sub-page so it was very difficult to get specific result, so we have created Sub-pages like-"Shorts", "Videos", "Movies" which helped us to apply specific algorithms and also now it's very easy for users to use it.

2. When the user started to generate summary they want to save it for future reference, so we come up with the solution in which we have created a program so that the user can save their summary PDF file.

3. Some of our tasks were unexpectedly giving some error which results into inappropriate application termination so we had inserted that particular task in a try catch block so that our application will be in running state, despite of any error or any other issue like internet connection failure, Invalid link, etc.

Chapter 6: Results and Discussion

Sr. No	Test case	Step Description	Expected Output	Final Outcome
1	**Video Link**	The link of the YouTube video should fetch transcript of video.	The transcript must be available and accurate.	Successful
2	**Generate Sentiment analysis**	The sentiment analysis for video based on its comments should be generate with accuracy.	The sentiment analysis for video must be available and accurate	Successful

3	**Generate Summary**	The transcript should be summarize with accuracy.	The summary must be accurate	Successful
4	**NLP**	The summary accuracy should be increase.	The summary must be more accurate.	Successful
5	**PDF**	The Final summary should be save in a pdf file.	The final summary must be save in pdf format.	Successful

Table 4 Results and Discussions

6.2 User Documentation

USER MANUAL

You Tube

"Transcript Summarizer"

Prepared By:
Pradnya Pophale (19302B0055)
Saloni Maurya (19302B0049)

Under the Guidance of:
Mr. Shajil Kumar

GENERAL INFORMATION:-

"YouTube Transcript Summarizer" is a software agent that can provide summary of any YouTube video. This summarizer fetches data from video and gives us summary of that video. You can save this summary in the form of pdf file.

This software has two categories which is Videos and Movies.

SYSTEM REQUIREMENTS:-

Hardware Requirements:

Processor	i5 7th Generation (or more)
HDD	500 GB
RAM	4GB
Network	Active Internet Connection (500kbps)

Software Requirements:

Operating System	Windows 7(or above).
Programming Language	Python.
Software Used	Visual Studio Code, Jupyter Notebook, Sublime text editor, Python IDLE.
Libraries Used	Pandas, Tkinter,VaderSentiment, PyFPDF, Transformers, Youtube_transcript_api, Functools, apiclient.discovery

STEPS FOR SETUP YOUR SUMMARIZER:-

1. With power shell:
Go to folder where your summarizer file is -> shift + right click -> open power shell window here.
Now, In power shell type -> python Summarizer.py -> press enter.

2. With CMD:
Open your cmd -> Go to folder where summarizer file is -> type python Summarizer.py

3. With Python IDLE:
Open python IDLE -> Click on open -> select Summarizer file -> click on enter

4. With exe file:
Open software by double clicking on "Summarizer.exe".

Software Working:-

Step 1: Open software by double clicking on "Summarizer.exe", after clicking .exe file splash screen will flash for 1.5 seconds and then the application will start.

Fig 1: Splash Screen

Step 2: The below picture shows the main screen of the application, the main screen includes two buttons' "videos" and "movies" buttons, if you want to summarize videos click on videos button and if you want to summarize movies click on movies button.

Fig 2: Main Screen

Step 3: If you clicked on videos button, the videos screen will appear, Firstly you need to enter link of YouTube video which you want to summarize, after entering the video link to perform sentiment analysis on the video click on "sentiment analysis" button and for summarizing video click on generate summary button.

Fig 3: Videos Screen

Step 4. After clicking on the "Sentiment Analysis" button the sentiment analysis process starts and after completion of the process the positive, negative and neutral sentiments are updated.

Fig 4: Sentiment Analysis Output

Step 5. When you click on generate summary button the summarization process starts in background, after the process gets completed the transcript word count and summary word count is updated, also the generated summary is visible on the view area.

Fig 5: Generate Summary Output

Step 6. To go back to main screen of the application click on the "Back" button and you will be redirected to main screen of the application.

Step 7. To save the generated summary in a pdf file you need to click on "Save as PDF" button, when the button is clicked the generated summary is saved in a pdf file and the pdf file will be saved in the folder where the software application is installed.

Step 8. For performing sentiment analysis on movies and also to generate summary for movies you need to follow exact similar steps as videos part.

Example Links:-

1. https://www.youtube.com/watch?v=5YYsO0VAX5w

2. https://www.youtube.com/watch?v=7Odw4AjhE-4

3. https://www.youtube.com/watch?v=veys_B1fFe4

4. https://www.youtube.com/watch?v=m384o8tLAD0

5. https://www.youtube.com/watch?v=c3n616LA1-M

Chapter 7 Conclusion

7.1 Conclusion

A video summarizer is a python language-based desktop application or tool that extracts the captions from the videos by using the concept of web scrapping and generate specified short length summary out of it which condenses a long transcript to main points.

The need for video summarizers is increasing day by day, because of time constraints. If you don't have time to watch the complete video or lecture, this tool helps you grasp the most important parts of the text by providing a very short summary. And also With the help of this sentiment analysis of video comments, the user can get to know about the community acceptance of that channel/video or wider public opinion behind that video. User can save the summary by selecting file location. Also User can display previously saved summary by selecting open path from option.

People are looking for shortcut methods to learn ideas in lesser time. Even video summarizers are helping them to decide whether a long durations YouTube video, movie are worth to watching or not.

Our project Youtube transcript summarizer is Trained by machine learning transformers models, summarizer uses the concept of abstractive summarization to summarize a video,

In this method, algorithms are developed in such a way to reproduce a long text into a shorter one. It retains its meaning but changes the structure of sentences.

It uses Natural Language Processing to create novel sentences and generates a summary in which the main idea remains intact. IT is an advanced-level tool that uses AI for its work. Therefore, the summary produced by this tool appears to be flawless and inflow.

7.2 Limitation of the system

1. Every project has some limitations and our YouTube Transcript Summarizer is no exception. We have assumed that the summarizer will generate 95% accurate summary, but this is NLP project the accuracy of the generated summary is about 75-80%.

2. As our project generating summaries for the YouTube Videos by extracting its transcript (captions of the video) but if there is no caption provided for the video the summarizer will not be able to generate summary for that video.

7.3 Future Scope of the Project

1. For the Future scope of our project we can enhance the graphical user interface by making it a standalone interface in which the user will have only one screen to interact.

2. We can also use natural language processing so making it more user friendly as we can add more languages like Hindi, Marathi, etc. so generated summaries can be used by more numbers of people.

3. in future this summarizer can be used for Meetings and video-conferencing as a system that could turn voice to text and generate summaries from your team meetings.

4. also,this summarizer can be used to summarize videos of educational platforms like Udemy and Coursera which will be beneficial for students

References & Bibliography

[1] Munot, N. and Govilkar, S.S., 2014. Comparative study of text summarization methods. *International Journal of Computer Applications*, *102*(12).

[2] Hingu, D., Shah, D. and Udmale, S.S., 2015, January. Automatic text summarization of Wikipedia articles. In *2015 international conference on communication, information & computing technology (ICCICT)* (pp. 1-4). IEEE.

[3] Adhikari, S., 2020, March. Nlp based machine learning approaches for text summarization. In *2020 Fourth International Conference on Computing Methodologies and Communication (ICCMC)* (pp. 535-538). IEEE.

[4] Lin, H. and Ng, V., 2019, July. Abstractive summarization: A survey of the state of the art. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, No. 01, pp. 9815-9822).

[5] Wolf, T., Debut, L., Sanh, V., Chaumond, J., Delangue, C., Moi, A., Cistac, P., Rault, T., Louf, R., Funtowicz, M. and Davison, J., 2019. Huggingface's transformers: State-of-the-art natural language processing. *arXiv preprint arXiv:1910.03771*.

[6] Wolf, T., Chaumond, J., Debut, L., Sanh, V., Delangue, C., Moi, A., Cistac, P.,

Funtowicz, M., Davison, J., Shleifer, S. and Louf, R., 2020, October. Transformers: State-of-the-art natural language processing. In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing: System Demonstrations* (pp. 38-45).

[7] Asghar, M.Z., Ahmad, S., Marwat, A. and Kundi, F.M., 2015. Sentiment analysis on youtube: A brief survey. *arXiv preprint arXiv:1511.09142*.

[8] Garg, P. and Bassi, V., 2016. *Sentiment analysis of twitter data using NLTK in python* (Doctoral dissertation).

[9] Dilawari, A. and Khan, M.U.G., 2019. ASoVS: abstractive summarization of video sequences. *IEEE Access*, *7*, pp.29253-29263.

[10] Liu, B., 2012. Sentiment analysis and opinion mining. *Synthesis lectures on human language technologies*, *5*(1), pp.1-167.

Website Used

- https://stackabuse.com/python-gui-development-with-tkinter/

  (To study python GUI development with Tkinter)

- https://www.machinelearningplus.com/nlp/text-summarization-approachesnlp-example/

  (To study about different approaches in NLP for summarization)

- https://www.analyticsvidhya.com/blog/2019/06/comprehensive-guide-textsummarization-using-deep-learning-python/

  (To study about abstractive summarization in NLP)

- https://www.analyticssteps.com/blogs/sentiment-analysis-youtubecomments

  (To study about sentiment analysis on YouTube video comments)

PLAGARISM REPORT

93%
Unique Content

7%
Plagiarized content

✔ COMPLETED
100%

YOUTUBE TRANSCRIPT SUMMARIZER

A Project Report

Submitted in partial fulfilment of the requirements
for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Pradnya Pophale

Seat Number: _____

Under the esteemed guidance of

Mr. Shajil Kumar P A

Assistant Professor, Department of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2020 - 2021

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology
NAAC Accredited College

CERTIFICATE

This is to certify that the project entitled, **"YOUTUBE TRANSCRIPT SUMMARIZER "**,
is bonafied work of **Pradnya Pophale** bearing Seat No: _____ submitted in
partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE
in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

Date: **College Seal**   **Principal**

ABSTRACT

Online video is one of the most popular digital activities in the world, with 27% of internet users watching more than 10 hours of online video per week. every minute, 500 hours of video are uploaded to YouTube all across the world (Tubefilter, 2019). Every hour, 30,000 hours of video are uploaded. Every day, 720,000 hours of video are posted to YouTube.

We spend a noticeable amount of our weekly time watching YouTube videos, be it for entertainment, education, or exploring our interests. In most cases, the overall intent is to obtain some form of information from the video. We were seeking a solution to increase the efficiency of this information extraction process as so we decided to develop "YouTube Transcript Summarizer". The main motivation for making this project is to save time by summarizing the captions or transcript of any given video, it is able to pull the most important information and condense it into a small paragraph, reading this paragraph would take a tiny fraction of the total length of the video, while still providing the most important points to the user.

Those who are deaf or hard of hearing benefit from video transcripts, which are essential for comprehending video information. Because they are in an atmosphere that is not conducive to audio, many viewers prefer to watch video content on silent. These viewers will benefit from audio transcription in order to get the full content of the YouTube video.

We present a method for generating video summaries for long videos automatically. Our video summarising method consists mostly of two steps: first scrapping the transcript of the videos and convert it into text format and second is generate summary from the text document by applying NLP algorithms. Our suggested technique uses a word frequency analysis of speech transcripts to assess segments. Then, by picking the segments with the highest score to duration ratios and concatenating them, a summary is created.

ACKNOWLEDGEMENT

We would like to express our special thanks and gratitude to our project guide **"MR. SHAJIL KUMAR P A"** for guiding us to do the project work on time and giving us all support and guidance, which made complete our project duly. We are extremely thankful to him for providing such nice support and guidance.

We are also thankful for and fortunate enough to get constant encouragement, support and guidance from the teachers of Information Technology who helped us in successfully completing our project work.

DECLARATION

I hereby declare that the project entitled, "**YOUTUBE TRANSCRIPT SUMMARIZER**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfilment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

<div align="right">

Pradnya Pophale

Name and Signature of the Student

</div>

Table of Contents

List of Tables

Sr. no	Table Name	Pages No
1	*Table 1: Software Requirements*	32
2	*Table 2: Hardware Requirements*	32
3	*Table 3 Implementation and Testing*	40
4	*Table 4 Results and Discussions*	70

List of Figures

Chapter 1: Introduction

Today, we know that technology have become faster and more efficient and can assist us in every aspect of life; technology has progressed to the point where they can perform all of the duties that humans do, such as housework, controlling home devices, scheduling appointments, and so on. In today's world as we all know sometimes its very time consuming and difficult to watch such long duration of videos on YouTube and find relevant information out of it and sometimes our efforts may futile if we couldn't find relevant information out of it. Summarizing transcripts of videos, automatically allows us to quickly look out for the important patterns in the video and helps us to save time and efforts to go through the whole content of the video. Text Summarizer, as the name suggests, is an application that helps in the summarization of text. We can submit our data, and this software will provide us with a summary of it. The final outcome is primarily a text that summarises the information. The main objective is to provide accurate summaries. To get to the most relevant sentences, the unnecessary sentences will be removed. People must learn a great deal from texts. They do, however, prefer to spend less time doing so. It tries to solve this problem by providing them with summaries from which they desire to learn. The goal of our project is for these summaries to be as important as possible in terms of the intention of the texts. Providing a user-friendly and easy-to-understand interface.

YouTube is the second most visited website worldwide. The range of videos on YouTube includes short films, music videos, feature films, documentaries, audio recordings, corporate sponsored movie trailers, live streams, vlogs, and many other contents from popular YouTubers. YouTube users watch more than one billion hours of video every day. Hence, we have considered YouTube videos as the data for our proposed video summarization algorithm.

1.1 Background

500 hours of video are uploaded to YouTube every minute worldwide (Tubefilter, 2019). That's 30,000 hours of video uploaded every hour. And 720,000 hours of video uploaded every day to YouTube. Online video is one of the most popular digital activities worldwide, with 27 percent of internet users worldwide watching more than 10 hours of online videos on a weekly basis. The problem with YouTube content is that there is a lot of it. The disadvantage is that it leads to a constant stream of clickbait videos, which waste the user's time. A short glance at the summary will tell the user if the video is worth their time and if it covers the themes they're interested in. It can also be used to briefly summarise key points from the video. Various firms today, whether it is online shopping, private sector organisations, government, tourism, and catering, or any other agency that provides customer services, are all anxious to learn their customers' feedback each time their services are used. Consider Sentiment Analysis big companies receive a massive amount of input and data on a daily basis. Analysing each of these data points and coming up with insights becomes a tiresome effort for management.

However, technological improvements have brought us to a stage where technology can assist us in performing jobs that humans would otherwise have to perform. Machine Learning is one field that makes this possible. With the use of NLP, or Natural Language Processing, machines are now capable of interpreting human language. Text analytics is now being used to do research.

Text summarization is one use of text analytics and NLP. Python's Material Summarization aids in the summarization and condensing of text in user input. It can be done with the use of an algorithm that can assist in the reduction of text bodies while maintaining their original meaning or by providing insights into their original text.

1.2 Objectives

The objective to design and implement such type video summarizer are given as follows –

- Get a read-able summary from our project.

- Time will be saved.

- Efforts will be saved.

- Summary also occupies the mind, reducing the amount of work required.

- Also by generated summary use will be able to get the summary in few seconds.

- This app simulation is portable and can be used in any device

1.3 Purpose, Scope, Applicability (Feasibility Study)

1.3.1 Purpose

Purpose to design and implement such type video summarizer are given as follows –

- Our main purpose here is to help people by generating summary which they could understand in a better and easy way.

- And save time and efforts of user as, in few seconds summary will generate.

- A user can learn about the community's acceptability of their channel/video by using sentiment analysis of comments, allowing them to maintain the quality of their content.

- Sentiment analysis is widely used, with many large corporations examining client reviews of their products/services on social media and on their websites to assist them preserve their brand values.

- Some major organisations are employing this strategy to boost client involvement with their service areas

1.3.2 Scope

- User-friendly interface.

- It provides quick processing on data.

- User will have to select the category of the video.

- User has to paste YouTube video link in GUI.

- User can save the summary by selecting file location.

- User can display summary by selecting open path from option.

- As we are using AI & machine Learning here system may or may not

  give the desired outcome every day.

- We expect that in the future, if someone is interested, they will be able

  to find ways to extend the summarizer to other streaming providers.

1.3.3 Applicability (Feasibility study)

Presently, our project is being developed as an automation tool and Transcript summarizer, but there are various applications in which our project can play an important role.

Some of the ideas/projects are: -

• Audio Summarizer: -

An audio summary is a condensed version of an audiobook. These summaries expertly encapsulate the silent points and ideas of full-length audiobooks into a shorter, more digestible format. They skilfully distil the essence of the author's work, conveying content, style, and spirit. The thorough, yet concise, high-level overviews represent cutting-edge ideas that are shaping today's business environment.

• Text Summarization: -

The method of extracting these summaries from the original huge text without losing vital information is called as **Text Summarization**.

Text Summarization is one of those applications of Natural Language Processing (NLP) which is bound to have a huge impact on our lives. With growing digital media and ever growing publishing – who has the time to go through entire articles / documents / books to decide whether they are useful or not?

In fact, the google news, the in shorts app and various other news aggregator apps take advantage of text summarization algorithms.

• Legal document summarizer: -

Due to huge amount of legal information availability on the internet, as well as other sources, it is important for the research community to do more extensive research on the area of legal text processing, which can help us make sense out of the vast amount of available data.

This information growth has compelled the requirement to develop systems that can help legal professionals as well as ordinary citizens get relevant legal information with very little effort. In this survey paper, different text summarization techniques are surveyed, with a specific focus on legal document summarization, as this is one of the most important areas in the legal field, which can help with the quick understanding of legal documents. This paper starts with the general introduction to text summarization, following which various legal text summarization techniques are discussed. Various available tools are also described in this paper which is used for summarization of legal text. Two case studies are also presented in this work, where the automatic summarization of heterogeneous legal documents from two countries is considered. With the presented detailed review of the state of the art approaches, comparative analysis from the case studies and also discussions on several important research questions, this work is expected to provide a good starting point for researchers to perform a more in-depth exploration of the area of legal document summarization, more specifically with respect to the key future research directions identified in this work.

• **Online meeting summarizer: -**

As speech recognition of broadcast news is becoming more mature, research is moving into types of speech that are more challenging. One such area is conversational speech. Initially telephone conversations were studied but more recently attention moved to meeting recordings. Indeed, interesting applications can be foreseen if automatic speech recognition (ASR) performance of conversational speech could be boosted to reach the same level of accuracy as for broadcast news. In the EU projects M4 (M4 2002b) and AMI (M4 2002a), meetings are recorded in a "smart meeting room" using multiple synchronized cameras and microphones (de Jong 2004). The key application developed in these projects is the "meeting browser", which facilitates users to search and browse meeting recordings. For this purpose the raw data is processed by multimodal analyzers that recognize "meeting actions" (e.g. discussion, presentation etc.) and perform a shallow semantic analysis. During the AMI project, topic segmentation and summarizing functions will be developed

1.4 Organization of Report

Chapter-2: In this chapter we are going to discuss about the technologies that can be used in our project such as Python and the technology that we are planning to use. Why are we going to use this technology why there better than the rest of the other technology.

Chapter-3: In this chapter we are going to discuss on requirement analysis which includes problem definition, the basic software and hardware requirements and we are also going to discuss how we have planned the project? And how we have scheduled the planning of the project using Gantt chart.

Chapter-4: In this chapter we are going to discuss in detailed of the project in a diagrammatic format. Use case, Data flow , Sequence, Activity diagrams & etc are used to provide detailed description in a simple way.

Chapter-5: In this chapter we are going to discuss in detail about how the implementation plan was made, how the code is used how we made it more efficient, which modification & improvements are needed to rectify the bugs and errors found while unit testing and integration testing.

Chapter-6: In this chapter we are going to discuss about the Test reports generated after the testing phase and make user documentation so that any user can use the system with the help of it.

Chapter-7: In this chapter we are going to conclude things with the help of discussing on limitations of the system and the future scope of the project.

Chapter 2 : Survey of Technologies

2.1 Natural language processing (NLP) is the ability of a computer program to understand human language as it is spoken and written -- referred to as natural language. It is a component of artificial intelligence.

What is natural language processing used for?

Some of the main functions that natural language processing algorithms perform are:

- **Text classification** :- This involves assigning tags to texts to put them in categories. This can be useful for sentiment analysis, which helps the natural language processing algorithm determine the sentiment, or emotion behind a text. For example, when brand A is mentioned in X number of texts, the algorithm can determine how many of those mentions were positive and how many were negative. It can also be useful for intent detection, which helps predict what the speaker or writer may do based on the text they are producing.

- **Text extraction:-** This involves automatically summarizing text and finding important pieces of data. One example of this is keyword extraction, which pulls the most important words from the text, which can be useful for search engine optimization. Doing this with natural language processing requires some programming -- it is not completely automated. However, there are plenty of simple keyword extraction tools that automate most of the process -- the user just has to set parameters within the program. For example, a tool might pull out the most frequently used words in the text. Another example is named entity recognition, which extracts the names of people, places and other entities from text.

- **Machine translation:-** This is the process by which a computer translates text from one language, such as English, to another language, such as French, without human intervention.

- **Natural language generation:-** This involves using natural language processing algorithms to analyse unstructured data and automatically produce content based on that data. One example of this is in language models such as GPT3, which are able to analyze an unstructured text and then generate believable articles based on the text

Benefits of natural language processing

The main benefit of NLP is that it improves the way humans and computers communicate with each other. The most direct way to manipulate a computer is through code -- the computer's language. By enabling computers to understand human language, interacting with computers becomes much more intuitive for humans.

Other benefits include:

- improved accuracy and efficiency of documentation;

- ability to automatically make a readable summary of a larger, more complex original text;

- useful for personal assistants such as Alexa, by enabling it to understand spoken word;

- easier to perform sentiment analysis; and

- provides advanced insights from analytics that were previously unreachable due to data volume.

2.2 Language:-

Python

Figure 2.2 python

Python is a popular scientific language and a rising star for machine learning. quickly coming to rival R's dominance in academia and research. But why is Python so popular in the machine learning world? Why is Python good for AI? The reason is Python allows users to focus on real problems & Python has so many features that are attractive for scientific computing (TutorialsPoint, 2018).

Why use Python for Natural Language Processing (NLP)?

There are many things about Python that make it a really good programming language choice for an NLP project. The simple syntax and transparent semantics of this language make it an excellent choice for projects that include Natural Language Processing tasks.

It provides developers with an extensive collection of NLP tools and libraries that enable developers to handle a great number of NLP-related tasks such as document classification, topic modeling, part-of-speech (POS) tagging, word vectors, and sentiment analysis.

Python IDEL

Python IDLE is one of the IDEs used for Python programming. It automatically gets downloaded when we install Anaconda. IDLE stands for Integrated Development and Learning Environment.

You can access it by opening the command prompt and typing IDLE. It will give the IDLE as the result after opening it a Python shell is opened where you can begin coding. Shell is an interactive interpreter. It provides the output for each line of code immediately. Pressing the enter key not only changes the line but produces the immediate result of the line after which it is pressed. if a user wants to check each line of his code as he types it, he will prefer Python IDLE over Jupyter Notebook.

IDLE has the following features:

- coded in 100% pure Python, using the tkinter GUI toolkit

- cross-platform: works mostly the same on Windows, Unix, and macOS

- Python shell window (interactive interpreter) with colorizing of code input, output, and error messages

- multi-window text editor with multiple undo, Python colorizing, smart indent, call tips, auto completion, and other features

- search within any window, replace within editor windows, and search through multiple files (grep)

- debugger with persistent breakpoints, stepping, and viewing of global and local namespaces

- configuration, browsers, and other dialogs

Why Python IDEL?

- very simple and basic;

- runs without any server or browser;

- only requires Anaconda installation

- has an in-built debugger;

- can be customized according to the user's preferences;

REQUIRED PACKAGES

1. TKINTER

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, Tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with Tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using Tkinter is an easy task.

2. Natural Language Toolkit (NLTK)

NLTK is an essential library supports tasks such as classification, stemming, tagging, parsing, semantic reasoning, and tokenization in Python. It's basically your main tool for natural language processing and machine learning. Today it serves as an educational foundation for Python developers who are dipping their toes in this field (and machine learning).

3. numpy

NumPy is a Python library used for working with arrays.

It also has functions for working in domain of linear algebra, fourier transform, and matrices.

4. pandas

Pandas is an open source Python package that is most widely used for data science/data analysis and machine learning tasks.

6. spacy

spaCy is an open-source software library for advanced natural language processing,

7. youtube_dl

It is used download youtube video

8. webvtt-py:

It is a Python module for reading/writing Web VTT caption files

9. scikit-learn

Scikit-learn (Sklearn) is the most useful and robust library for machine learning in Python. It provides a selection of efficient tools for machine learning. This library, which is largely written in Python, is built upon NumPy, SciPy and Matplotlib.

10. re

A RegEx, or Regular Expression, is a sequence of characters that forms a search   pattern.
RegEx can be used to check if a string contains the specified search pattern.

11. os

The OS module in Python provides functions for interacting with the operating system. OS comes under Python's standard utility modules.

12. YouTube transcript API

It is a lightweight, dependency-free Python library which is used to download YouTube videos easily. This can be achieved with just one or two lines of code. YouTube transcript API library creates the object of the YouTube module by passing a YouTube link of the video as the parameter. This download function takes only one parameter: the location where downloaded files need to be saved. In python URLs are handled using the urllib method, which calls a particular url and handles results after visiting the url. We are using urllib to get the title of a video using the YouTube link.

Chapter 3: Requirements and Analysis

3.1 Problem Definition

YouTube is not only kingdom of digital entertainment but also a primary source of knowledge because it contains educational and informative videos too. We spend a considerable amount of time on YouTube, Google claims people are now spending more than 40 minutes at a time watching YouTube on mobile devices.

Sometimes its very time consuming and difficult to watch such long duration of videos on YouTube and find relevant information out of it. Sometimes our efforts may futile if we couldn't find relevant information out of it.

Also, while watching YouTube videos people do face some issues like Un skippable advertisements before and middle of videos, audio issues for some videos, even video description is not provided for so many videos. moreover, the main problem here is the time constraint.

3.2 Requirement Specification

Some requirements must be met in order to complete this project, including a basic understanding of Natural Language Processing and the programming languages used to construct it.

NLP - Natural Language Processing (NLP) is a branch of Artificial Intelligence that aims to make computers capable of comprehending both written and spoken human language. Text summarization is a branch of Natural Language Processing (NLP) that deals with obtaining summary information from large amounts of text.

Python - Practical implementation of text summarization algorithm we will implement each of these algorithms step by step using modern technologies, such as the Python programming language, the NLTK (Natural Language Toolkit) and spaCy libraries and python IDEL.

GUI - Only providing a command-line solution may discourage a large number of potential consumers. A GUI - Graphical User Interface – is the most obvious way for most people to interact with a programme.

The user interacts with and manipulates the interface elements known as widgets while using a GUI. Buttons and checkboxes are examples of widgets that allow the user to interact with the programme. Others, such as windows and frames, are used to hold other widgets.

3.3 Planning and Scheduling

A Gantt chart is a project management tool assisting in the planning and scheduling of projects of all sizes, although they are particularly useful for simplifying complex projects.

Project management timelines and tasks are converted into a horizontal bar chart, showing start and end dates, as well as dependencies, scheduling and deadlines, including how much of the task is completed per stage and who is the task owner. This is useful to keep tasks on track when there is a large team and multiple stakeholders when the scope changes.

As it's in a bar chart format it is possible to check on progress with a quick glance. You can easily see:

• a visual display of the whole project,

• timelines and deadlines of all tasks, relationships and dependencies between the various activities.

Activities	Semester V													
	June		July				August			September			October	
	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Project Idea Finalization														
Requirements														
Survey of data/ need (Literature Review)	■	■												
Feasibility and need validation			■	■										
Scope Freezing					■	■								
Requirements Detailing														
Use Case Diagrams							■	■						
Static User Interface Prototype									■	■				
Design														
Database Design/ Block Diagram (ER Diagram, Key Data Structures)										■	■			
Other UML Diagrams (Sequence, Activity, Flow Chart etc.)												■	■	
Class Diagrams													■	■
Hardware Design - [for embedded/ IoT projects]														
Evaluate Technology options													■	
Prototype														
Key Technical issue defination										■	■			
Build basic Working Prototype											■	■		
Planning & Review														
Overall Project Plan											■			
Weekly Review/ Discussion with Guide		■			■		■		■			■		

Figure 3.3.1 Gantt Chart

In this project, we are using the spiral model because it helps to implement each phase of system requirements.

Figure 3.3.2 Spiral model

Spiral model is one of the most important Software Development Life Cycle models, which provides support for Risk Handling. In its diagrammatic representation, Each loop of the spiral is called a Phase of the software development process. Each phase of the Spiral Model is divided into four quadrants as shown in the above figure. The functions of these four quadrants are as follow:

Objective determination and identify alternative solutions:

Requirements are gathered from the customers and the objectives are identified, elaborated, and analysed at the start of every phase. Then alternative solutions possible for the phase are proposed in this quadrant.

Identify and resolve Risks:

During the second quadrant, all the possible solutions are evaluated to select the best possible solution. Then the risks associated with that solution are identified and the risks are resolved using the best possible strategy. At the end of this quadrant, the Prototype is built for the best possible solution.

Develop next version of the Product:

During the third quadrant, the identified features are developed and verified through testing. At the end of the third quadrant, the next version of the software is available.

Review and plan for the next Phase:

In the fourth quadrant, the Customers evaluate the so far developed version of the software. In the end, planning for the next phase is started.

Advantages of Spiral Model:

1. Software is produced early in the software life cycle.

2. Risk handling is one of important advantages of the Spiral model, it is best development model to follow due to the risk analysis and risk handling at every phase.

3. Flexibility in requirements. In this model, we can easily change requirements at later phases and can be incorporated accurately. Also, additional Functionality can be added at a later date.

4. It is good for large and complex projects.

5. It is good for customer satisfaction. We can involve customers in the development of products at early phase of the software development. Also, software is produced early in the software life cycle.

6. Strong approval and documentation control.

7. It is suitable for high risked projects, where business needs may be unstable. A highly customized product can be developed using this.

Disadvantages of Spiral Model:

1. It is much more complex than other SDLC models. Process is complex.

2. Too much dependable on Risk Analysis and requires highly specific expertise.

3. Difficulty in time management. As the number of phases is unknown at the start of the project, so time estimation is very difficult.

4. Spiral may go on indefinitely.

5. End of the project may not be known early.

3.4 Software and Hardware Requirement

Software Requirement:

Operating System	Windows 7(or above).
Programming Language	Python.
Software Used	Python IDE

Table 1: Software Requirements

Hardware Requirement:

Processor	i5 or higher.
RAM	4GB
ROM	8GB
Internet	5mbps

Table 2: Hardware Requirements

3.5 Preliminary Product Description

The number of YouTube users in 2020 was approximately 2.3 billion, and has been increasing every year. Every minute, 300 hours of YouTube videos are uploaded. Almost one-third of the YouTube viewers in India access videos on their mobiles and spend over 48 hours a month on the website, a Google study said

It is frustrating and time consuming to search for the videos that contains the information we are actually looking for. For instance, there are many Ted Talk videos available online in which the speaker talks for a long time on a given topic, but it is hard to find the content the speaker is mainly focusing on unless we watch the entire video.

Many machine learning based video summarization techniques are present but they require devices with large processing powers, this is because each video contains thousands of frames and processing all frames takes a very long time.

It is a tool to summarize transcripts from YouTube videos. If you don't have time to watch the complete video or lecture, this tool helps you grasp the most important parts of the text by providing a very short summary. also With the help of this sentiment analysis of video comments, the user can get to know about the community acceptance of that channel/video or wider public opinion behind that video. User can save the summary by selecting file location. Also User can display previously saved summary by selecting open path from option.

Moreover, the summary is Abstractive and not Extractive. Hence it isn't simply extracting the main sentences, it understands the text to generate a summary; just like humans!

Chapter 4 : System Design

4.1 Basic Modules

In this section of the chapter we will discuss about the various modules which will be made to ease the task of designers to design the system and tester to test the system which will also satisfy all the requirements specified in *chapter-3*

1. Basic Implementation:

- In basic implementation we are going to code in command line using language python and check output line by line.

- It will beneficial for us to Identify and resolve the errors as well as to keep track of our project.

2. GUI (Graphical User Interface):

- we will design a GUI using Tkinter module in python.

- user interface allows us to paste the YouTube video link and the application takes care of the rest.

- Saves the summary to the specified location in text format.

3. NLP (Natural Language Processing):

- NLP convert whole text into summary the data is going to process in NLP

- text identification, interpretation and summary generation, and analysis of the generated summary will be done in NLP

4.3 Diagrams

4.3.1 Flow Chart Diagram

A Flow chart diagram shows step-by-step progression through a procedure or system especially using connecting lines and a set of conventional symbols. visually displays interrelated information such as events, steps in a process, functions, etc., in an organized fashion.

Fig 4.3.1 (Flow Chart Diagram)

4.3.2 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

Fig 4.3.2 (Use Case Diagram)

In the use case diagram Firstly ,the user will select video category and paste YouTube video link then the summarizer will process and calculate sentiment based on its comments and display the result also generate video summary. user will able to display and save summary.

ADVANTAGES OF USE CASE DAIGRAM :

- Use case daigram help to capture the functional requirements of a system.

- Use cases are traceable.

- Use cases can serve as the basis for the estimating, scheduling, and validating effort.

- Use case daigram can evolve at each iteration from a method of capturing requirements, to development guidelines to programmers, to a test case and finally into user documentation.

- Use case daigram alternative paths capture additional behavior that can improve system robustness.

- Use cases have proved to be easily understandable by business users, and so have proven an excellent bridge between software developers and end users.

4.3.3 Sequence Diagram

A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interactions take place. We can also use the terms event diagrams or event scenarios to refer to a sequence diagram.

Sequence diagrams describe how and in what order the objects in a system function.

Chapter 5: Implementation and Testing

Sr. No.	Implementation Plan	Action
1.	Module	1. **Basic CMD Implementation** 2. **NLP** 3. **Sentiment Analysis** 4. **Summarizer GUI**
2.	Percentage Completed	1. Basic CMD Implementation -**100%** 2. NLP -**100%** 3. Sentiment Analysis -**100%** 4. Summarizer GUI -**100%**
3.	Status	1. Basic CMD Implementation -**Completed** 2. NLP - **Completed**

		3. Sentiment Analysis - **Completed** 4. Summarizer GUI - **Completed**
4.	Day Started	1. Basic CMD Implementation **–** **[15/8/2021]** 2. NLP **– [25/9/2021]** 3. Sentiment Analysis **– [25/11/2021]** 4. Summarizer GUI **– [5/12/2021]**
5.	Day to be Completed	1. Basic CMD Implementation – **[23/9/2021]** 2. NLP -**– [20/11/2021]** 3. Sentiment Analysis -**– [27/1/2022]** 4. Summarizer GUI -**– [15/2/2021]**
6.	Actual Completion Date	1. Basic CMD Implementation -**–** **[23/9/2021]**

		5. NLP -**[20/11/2021]**
		2. Sentiment Analysis - **– [27/2/2022]**
		3. Summarizer GUI -**– [15/3/2021]**
7.	Module Assignment	1. Basic CMD Implementation – **[Saloni Maurya]**
		2. NLP – **[Saloni Maurya]**
		3. Sentiment Analysis **–** **[Pradnya Pophale]**
		4. Summarizer GUI – **[Pradnya Pophale]**
8.	Importance of Module	1. Basic CMD Implementation -**Medium**
		2. NLP -**High**

		3. Sentiment Analysis –**High**
		4. Summarizer GUI -**Medium**

Table 3 Implementation and Testing

5.2 Coding Details and Code Efficiency:

CODE:

```python
from vaderSentiment.vaderSentiment import SentimentIntensityAnalyzer
import pandas as pd
from apiclient.discovery import build
from tkinter import *
import tkinter as tk

from tkinter.messagebox import *

from transformers import pipeline
from youtube_transcript_api import YouTubeTranscriptApi
from functools import partial

from fpdf import FPDF

api_key = "AIzaSyDTfa3twrbqIJr7o3D3g4xq9hqp_FQHMXE"

youtube = build('youtube', 'v3', developerKey=api_key)
count = 0
commentbot = SentimentIntensityAnalyzer()
fresult = {"positivenum": 0, "negativenum": 0, "neutralnum": 0}
box = [['Name', 'Comment', 'Time', 'Likes', 'Reply Count']]
```

```python
def mainWindow():
    splash_screen.destroy()

    def videosFrame():
        framevideos.pack()
        framemain.forget()

    def moviesFrame():
        framemovies.pack()
        framemain.forget()

    def videosbackfun():
        framevideos.forget()
        framemain.pack()

    def moviesbackfun():
        framemovies.forget()
        framemain.pack()

    def sentimentAnalysis(LinkType):
        if (LinkType == "v"):
            url = youtubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                youtube_video = youtubeLink.get(1.0, "end-1c")
                ID = youtube_video.split("=")[0]
```

```python
        else:
            url = myoutubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                myoutube_video = myoutubeLink.get(1.0, "end-1c")
                ID = myoutube_video.split("=")[1]
        data = youtube.commentThreads().list(part='snippet', videoId=ID,
                                    maxResults='100', textFormat="plainText").execute()

        for i in data["items"]:

            name = i["snippet"]['topLevelComment']["snippet"]["authorDisplayName"]
            comment = i["snippet"]['topLevelComment']["snippet"]["textDisplay"]
            published_at = i["snippet"]['topLevelComment']["snippet"]['publishedAt']
            likes = i["snippet"]['topLevelComment']["snippet"]['likeCount']
            replies = i["snippet"]['totalReplyCount']

            box.append([name, comment, published_at, likes, replies])

            totalReplyCount = i["snippet"]['totalReplyCount']

            if totalReplyCount > 0:

                parent = i["snippet"]['topLevelComment']["id"]

                data2 = youtube.comments().list(part='snippet', maxResults='100', parentId=parent,
                                        textFormat="plainText").execute()
```

```python
        for i in data2["items"]:
            name = i["snippet"]["authorDisplayName"]
            comment = i["snippet"]["textDisplay"]
            published_at = i["snippet"]['publishedAt']
            likes = i["snippet"]['likeCount']
            replies = ""

            box.append([name, comment, published_at, likes, replies])

    while ("nextPageToken" in data):

        data = youtube.commentThreads().list(part='snippet', videoId=ID, pageToken=data["nextPageToken"],
                                       maxResults='100', textFormat="plainText").execute()

        for i in data["items"]:
            name = i["snippet"]['topLevelComment']["snippet"]["authorDisplayName"]
            comment = i["snippet"]['topLevelComment']["snippet"]["textDisplay"]
            published_at = i["snippet"]['topLevelComment']["snippet"]['publishedAt']
            likes = i["snippet"]['topLevelComment']["snippet"]['likeCount']
            replies = i["snippet"]['totalReplyCount']

            box.append([name, comment, published_at, likes, replies])

            totalReplyCount = i["snippet"]['totalReplyCount']

            if totalReplyCount > 0:

                parent = i["snippet"]['topLevelComment']["id"]

                data2 = youtube.comments().list(part='snippet', maxResults='100', parentId=parent,
                                          textFormat="plainText").execute()

                for i in data2["items"]:
                    name = i["snippet"]["authorDisplayName"]
                    comment = i["snippet"]["textDisplay"]
                    published_at = i["snippet"]['publishedAt']
                    likes = i["snippet"]['likeCount']
                    replies = ''
```

```python
                box.append(
                    [name, comment, published_at, likes, replies])

df = pd.DataFrame({'Name': [i[0] for i in box], 'Comment': [i[1] for i in box], 'Time': [i[2]
                    'Likes': [i[3] for i in box], 'Reply Count': [i[4] for i in box]})

df.to_csv('youtube-comments.csv', index=False, header=False)
count = 0
with open("youtube-comments.csv", "r", errors='ignore') as csvfile:
    for line in csvfile.read().split('\n'):
        vs = commentbot.polarity_scores(line)
        count += 1
        if vs['compound'] >= 0.05:
            fresult["positivenum"] += 1
        elif vs['compound'] <= - 0.05:
            fresult["negativenum"] += 1
        else:
            fresult["neutralnum"] += 1

positivenum = fresult["positivenum"]
negativenum = fresult["negativenum"]
neutralnum = fresult["neutralnum"]

positive_percentage = positivenum / count * 100

negative_percentage = negativenum / count * 100

neutral_percentage = neutralnum / count * 100
```

```python
        if (LinkType == "v"):
            sentimemtPValLabel.config(
                text="|Positive|: " + str(round(positive_percentage, 2)) + "%", fg="green")
            sentimemtNeValLabel.config(
                text="|Negative|: " + str(round(negative_percentage, 2)) + "%", fg="red")
            sentimemtNeuValLabel.config(
                text="|Neutral|: " + str(round(neutral_percentage, 2)) + "%", fg="#fca503")
        else:
            msentimemtPValLabel.config(
                text="|Positive|: " + str(round(positive_percentage, 2)) + "%", fg="green")
            msentimemtNeValLabel.config(
                text="|Negative|: " + str(round(negative_percentage, 2)) + "%", fg="red")
            msentimemtNeuValLabel.config(
                text="|Neutral|: " + str(round(neutral_percentage, 2)) + "%", fg="#fca503")

    def generateSummary(LinkType):
        if (LinkType == "v"):
            url = youtubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                youtube_video = youtubeLink.get(1.0, "end-1c")
                ID = youtube_video.split("=")[1]

        else:
            url = myoutubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                myoutube_video = myoutubeLink.get(1.0, "end-1c")
                ID = myoutube_video.split("=")[1]



    transcript = YouTubeTranscriptApi.get_transcript(ID)
    res = ""
    for i in transcript:
        res += " " + i["text"]
    transcriptValLabel.config(
        text="Transcript Word Count:- " + str(len(res)))
    smry = pipeline("summarization")
    num_iters = int(len(res)/1000)
    print("num_iters--->", num_iters)
    summarized_text = []
    for i in range(0, num_iters + 1):
        start = 0
        start = i * 1000
        end = (i + 1) * 1000
        print("start--> ", start)
        print("end--> ", end)
        out = smry(res[start:end])
        out = out[0]
        out = out["summary_text"]
        summarized_text.append(out)
    summaryDisplayText = ""
```

```python
        for s in summarized_text:
            summaryDisplayText = summaryDisplayText+s

        if (LinkType == "v"):
            summary.config(text=summaryDisplayText)
            summaryValLabel.config(
                text="Summary Word Count:- "+str(len(summaryDisplayText)))
        else:
            msummary.config(text=summaryDisplayText)
            msummaryValLabel.config(
                text="Summary Word Count:- "+str(len(summaryDisplayText)))
        print("summarized_text---> ", summaryDisplayText)

    def saveAsPDF(LinkType):
        if (LinkType == "v"):
            url = youtubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                youtube_video = youtubeLink.get(1.0, "end-1c")
                ID = youtube_video.split("=")[1]
                SummaryText = summary.cget("text")

        else:
            url = myoutubeLink.get("1.0", END)
            if(url == "\n"):
                showerror(title="Error", message="Enter Video link!")
            else:
                myoutube_video = myoutubeLink.get(1.0, "end-1c")
                ID = myoutube_video.split("=")[1]
                SummaryText = msummary.cget("text")
        pdf = FPDF()
        pdf.add_page()
        pdf.set_font("Arial", size=15)
        if (SummaryText==''):
            showerror(title="Error", message="Please Generate Summary First")
        else:
            pdf.cell(200, 10, txt="Summary", ln=1, align='C')
            pdf.multi_cell(0, 10, txt=SummaryText, align='L')
            pdf.output("Summary_" + ID + ".pdf")
```

```python
root = tk.Tk()
width = 780
height = 630

screen_width = root.winfo_screenwidth()
screen_height = root.winfo_screenheight()

x = (screen_width / 2) - (width / 2)
y = (screen_height / 2) - (height / 2)

root.geometry(f"{width}x{height}+{int(x)}+{int(y)}")
root.title("Transcript Summarizer")
root.iconbitmap(r'youtube.ico')
root.resizable(False, False)




# ----+------------------- Main Window Code--------------------------------------

framemain = tk.Frame(root, width=780, height=630, bg="#D8D8D8")
framemain.pack(fill=BOTH, expand=True)
framemain.pack_propagate(0)

label1 = Label(framemain, text="Youtube Transcript Summarizer",
               width=100, height=2, bg="#E51F24", fg="white")
label1.config(font=("", 30))
label1.pack()

subframe = tk.Frame(framemain, width=670, height=400, bg="#D8D8D8")
subframe.pack(pady=20)
subframe.propagate(0)

btnVideos = tk.Button(subframe, text="Videos", width=18,
                      height=2, bg="red", fg="white", command=videosFrame)
btnVideos.config(font=("", 23))
btnVideos.pack(pady=40)

btnMovies = tk.Button(subframe, text="Movies", width=18,
                      height=2, bg="red", fg="white", command=moviesFrame)
btnMovies.config(font=("", 23))
btnMovies.pack(pady=10)

greetLabel = tk.Label(
    framemain, text="Developed By:- Pradnya & Saloni\nProj. Guide:- Shajil Sir",
    width=100, bg="#D8D8D8")
greetLabel.config(font=("", 10))
greetLabel.pack(pady=6)
```

```python
# ------------------------------ Videos Window Code ------------------------------
framevideos = tk.Frame(root, width=780, height=630, bg="#D8D8D8")
framevideos.pack_propagate(0)

label1 = Label(framevideos, text="Youtube Video Summarizer",
               width=51, height=2, bg="#E51F24", fg="white")
label1.config(font=("", 19))
label1.pack(side=TOP)

videosSubFrame = tk.Frame(framevideos, bg="#D8D8D8")
videosSubFrame.pack(fill=BOTH, expand=True, padx=10)

linkLabel1 = Label(videosSubFrame, text="Youtube Link:-",
                   width=20, height=1, bg="#D8D8D8")
linkLabel1.config(font=("", 15))
linkLabel1.grid(row=0, column=0, columnspan=1, pady=5)

youtubeLink = tk.Text(videosSubFrame, width=43, height=1, bg="#EEECE1")
youtubeLink.config(font=("", 15))
youtubeLink.grid(row=0, column=1, columnspan=2, pady=5)

sentimentBtn = tk.Button(videosSubFrame, text="Sentiment Analysis", width=20,
                         height=1, bg="#D99594", command=partial(sentimentAnalysis, "v"))
sentimentBtn.config(font=("", 15))
sentimentBtn.grid(row=2, column=0, columnspan=1, padx=40, pady=5)

summaryBtn = tk.Button(videosSubFrame, text="Generate Summary",
                       width=20, height=1, bg="#D99594", command=partial(generateSummary, "v"))
summaryBtn.config(font=("", 15))
summaryBtn.grid(row=2, column=2, columnspan=1, padx=50, pady=5)

sentimentFrame = tk.Frame(videosSubFrame, width=50, height=2,
                          bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
sentimentFrame.grid(row=3, column=0, columnspan=3, pady=5)

sentimemtPValLabel = Label(
    sentimentFrame, text="|Positive|", width=21, height=1, bg="#F2DBDB")
sentimemtPValLabel.config(font=("", 15))
sentimemtPValLabel.grid(row=0, column=0, columnspan=1, pady=5)

sentimemtNeValLabel = Label(
    sentimentFrame, text="|Negative|", width=21, height=1, bg="#F2DBDB")
sentimemtNeValLabel.config(font=("", 15))
sentimemtNeValLabel.grid(row=0, column=1, columnspan=1, pady=5)

sentimemtNeuValLabel = Label(
    sentimentFrame, text="|Neutral|", width=21, height=1, bg="#F2DBDB")
sentimemtNeuValLabel.config(font=("", 15))
sentimemtNeuValLabel.grid(row=0, column=2, columnspan=1, pady=5)

countFrame = tk.Frame(videosSubFrame, width=50, height=2,
                      bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
countFrame.grid(row=4, column=0, columnspan=3, pady=5)
```

```python
transcriptValLabel = Label(
    countFrame, text="Transcript Word Count:- ", width=25, height=1, bg="#F2DBDB")
transcriptValLabel.config(font=("", 15))
transcriptValLabel.grid(row=0, column=0, columnspan=1, pady=5)

summaryValLabel = Label(
    countFrame, text="Summary Word Count:- ", width=25, height=1, bg="#F2DBDB")
summaryValLabel.config(font=("", 15))
summaryValLabel.grid(row=0, column=2, columnspan=1, pady=5)

summary = tk.Label(videosSubFrame, width=88, height=20, bg="#EEECE1",
                   fg="#000000", state=DISABLED, wraplength=600, justify="left")
summary.grid(row=5, column=0, rowspan=2, columnspan=3, pady=5)

summaryBtn = tk.Button(videosSubFrame, text="Back",
                       width=20, height=1, bg="#D99594", command=videosbackfun)
summaryBtn.config(font=("", 15))
summaryBtn.grid(row=7, column=0, columnspan=1, pady=5)

summarysaveBtn = tk.Button(videosSubFrame, text="Save as PDF",
                           width=20, height=1, bg="#D99594", command=partial(saveAsPDF, "v"))
summarysaveBtn.config(font=("", 15))
summarysaveBtn.grid(row=7, column=2, columnspan=1, pady=5)



countFrame = tk.Frame(videosSubFrame, width=50, height=2,
                      bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
countFrame.grid(row=4, column=0, columnspan=3, pady=5)

transcriptValLabel = Label(
    countFrame, text="Transcript Word Count:- ", width=25, height=1, bg="#F2DBDB")
transcriptValLabel.config(font=("", 15))
transcriptValLabel.grid(row=0, column=0, columnspan=1, pady=5)

summaryValLabel = Label(
    countFrame, text="Summary Word Count:- ", width=25, height=1, bg="#F2DBDB")
summaryValLabel.config(font=("", 15))
summaryValLabel.grid(row=0, column=2, columnspan=1, pady=5)

summary = tk.Label(videosSubFrame, width=88, height=20, bg="#EEECE1",
                   fg="#000000", state=DISABLED, wraplength=600, justify="left")
summary.grid(row=5, column=0, rowspan=2, columnspan=3, pady=5)

summaryBtn = tk.Button(videosSubFrame, text="Back",
                       width=20, height=1, bg="#D99594", command=videosbackfun)
summaryBtn.config(font=("", 15))
summaryBtn.grid(row=7, column=0, columnspan=1, pady=5)

summarysaveBtn = tk.Button(videosSubFrame, text="Save as PDF",
                           width=20, height=1, bg="#D99594", command=partial(saveAsPDF, "v"))
summarysaveBtn.config(font=("", 15))
summarysaveBtn.grid(row=7, column=2, columnspan=1, pady=5)
```

```
# ------------------------------ Movies Window Code -----------------------------------------

framemovies = tk.Frame(root, width=780, height=630, bg="#D8D8D8")
framemovies.pack_propagate(0)

mlabel1 = Label(framemovies, text="Youtube Movies Summarizer",
                width=34, height=2, bg="#E51F24", fg="white")
mlabel1.config(font=("", 28))
mlabel1.pack(side=TOP)

moviesSubFrame = tk.Frame(framemovies, bg="#D8D8D8")
moviesSubFrame.pack(fill=BOTH, expand=True, padx=10)

mlinkLabel1 = Label(moviesSubFrame, text="Youtube Link",
                    width=20, height=1, bg="#D8D8D8")
mlinkLabel1.config(font=("", 15))
mlinkLabel1.grid(row=0, column=0, columnspan=1)

myoutubeLink = tk.Text(moviesSubFrame, width=43, height=1, bg="#EEECE1")
myoutubeLink.config(font=("", 15))
myoutubeLink.grid(row=0, column=1, columnspan=2, pady=5)

msentimentBtn = tk.Button(moviesSubFrame, text="Sentiment Analysis", width=20,
                          height=1, bg="#D99594", command=partial(sentimentAnalysis, "m"))
msentimentBtn.config(font=("", 15))
msentimentBtn.grid(row=2, column=0, columnspan=1)

msummaryBtn = tk.Button(moviesSubFrame, text="Generate Summary",
                        width=20, height=1, bg="#D99594", command=partial(generateSummary, "m"))
msummaryBtn.config(font=("", 15))
msummaryBtn.grid(row=2, column=2, columnspan=1)

msentimentFrame = tk.Frame(moviesSubFrame, width=30, height=2,
                           bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
msentimentFrame.grid(row=3, column=0, columnspan=3)

msentimemtPValLabel = Label(
    msentimentFrame, text="|Positive|", width=20, height=1, bg="#F2DBDB")
msentimemtPValLabel.config(font=("", 15))
msentimemtPValLabel.grid(row=0, column=0, columnspan=1)

msentimemtNeValLabel = Label(
    msentimentFrame, text="|Negative|", width=22, height=1, bg="#F2DBDB")
msentimemtNeValLabel.config(font=("", 15))
msentimemtNeValLabel.grid(row=0, column=1, columnspan=1)
```

```python
msentimemtNeuValLabel = Label(
    msentimentFrame, text="|Neutral|", width=20, height=1, bg="#F2DBDB")
msentimemtNeuValLabel.config(font=("", 15))
msentimemtNeuValLabel.grid(row=0, column=2, columnspan=1)

mcountFrame = tk.Frame(moviesSubFrame, width=50, height=2,
                       bg="#F2DBDB", highlightbackground="black", highlightthickness=2)
mcountFrame.grid(row=4, column=0, columnspan=3)

mtranscriptValLabel = Label(
    mcountFrame, text="Transcript Word Count:- 2450", width=25, height=1, bg="#F2DBDB")
mtranscriptValLabel.config(font=("", 15), padx=10)
mtranscriptValLabel.grid(row=0, column=0, columnspan=1)

msummaryValLabel = Label(
    mcountFrame, text="Summary Word Count:- 990", width=25, height=1, bg="#F2DBDB")
msummaryValLabel.config(font=("", 15))
msummaryValLabel.grid(row=0, column=2, columnspan=1)

msummary = tk.Label(moviesSubFrame, width=88, height=20, bg="#EEECE1",
                    fg="#000000", state=DISABLED, wraplength=600, justify="left")
msummary.grid(row=5, column=0, rowspan=2, columnspan=3, pady=5)


msummaryBtn = tk.Button(moviesSubFrame, text="Back",
                        width=20, height=1, bg="#D99594", command=moviesbackfun)
msummaryBtn.config(font=("", 15))
msummaryBtn.grid(row=7, column=0, columnspan=1)

msummarysaveBtn = tk.Button(
    moviesSubFrame, text="Save as PDF", width=20, height=1, bg="#D99594", command=partial
msummarysaveBtn.config(font=("", 15))
msummarysaveBtn.grid(row=7, column=2, columnspan=1)

root.mainloop()
```

```python
# ---------+----------- Splash Screen Code ---------------------

splash_screen = Tk()

width = 780
height = 630

screen_width = splash_screen.winfo_screenwidth()
screen_height = splash_screen.winfo_screenheight()

x = (screen_width / 2) - (width / 2)
y = (screen_height / 2) - (height / 2)

splash_screen.geometry(f"{width}x{height}+{int(x)}+{int(y)}")
splash_screen.overrideredirect(True)

img = PhotoImage(file="Transcript_Summarizer.png")

devLabel = Label(splash_screen, image=img, fg="black")
devLabel.config(font=("", 15))
devLabel.pack()

splash_screen.after(100, mainWindow)

mainloop()
```

OUTPUT:

Transcript Summarizer

Developed by:- Pradnya & Saloni
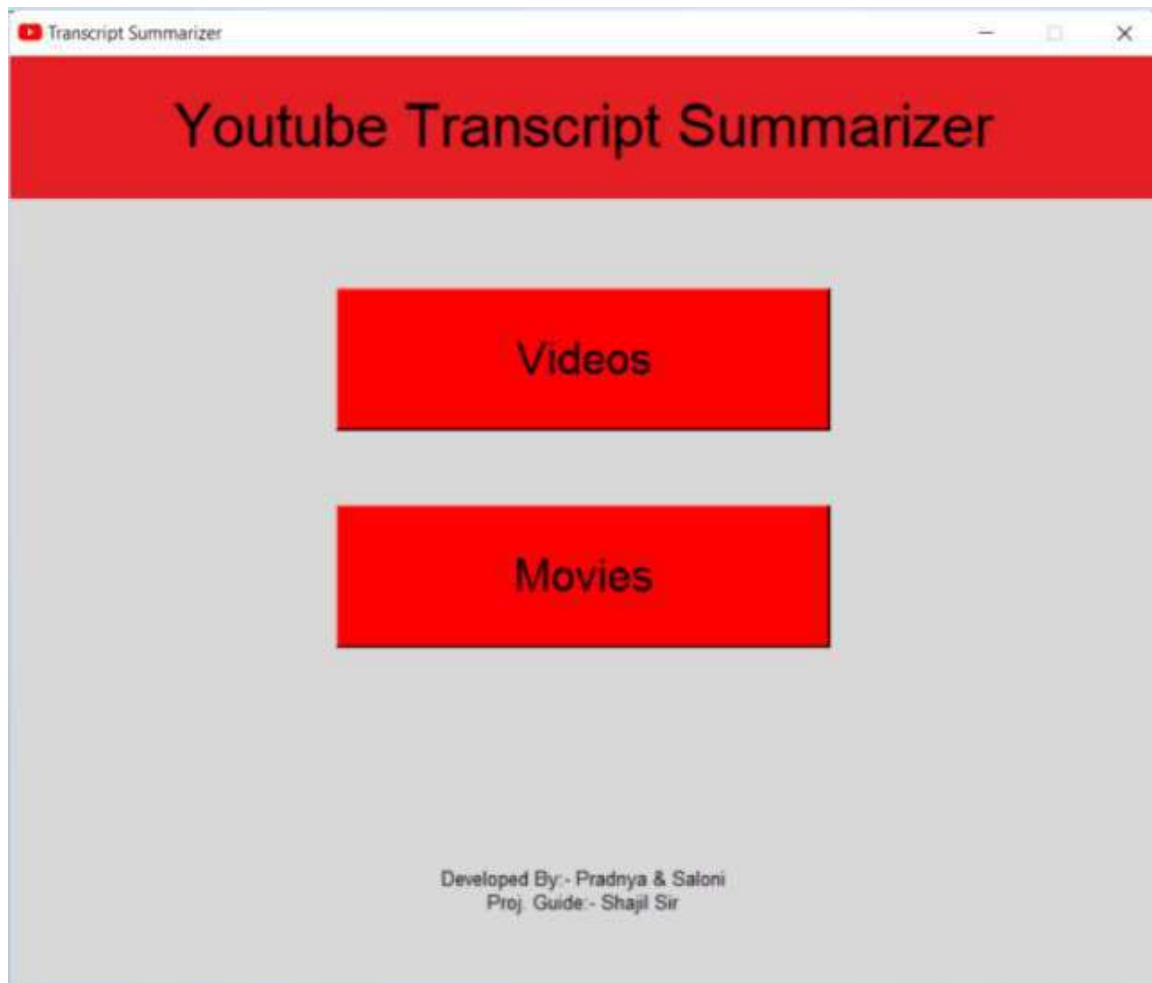Proj. Guide:- Shajil Sir

Fig 1: splash screen
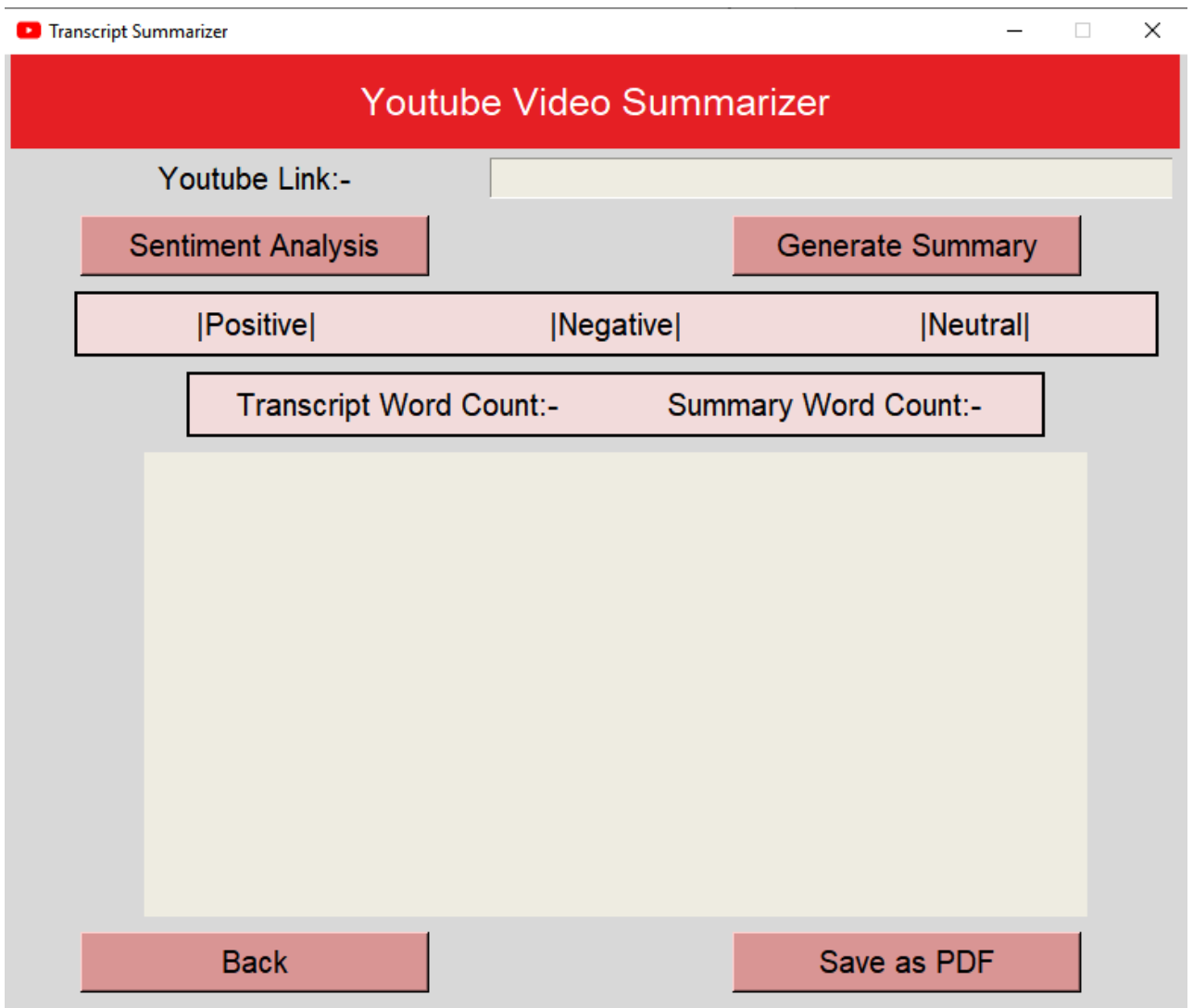
Fig 2: Main Screen

Fig 3: Videos Screen

Fig 3: Movies Screen

Fig 4: Sentiment Analysis Output

Fig 5: Generate Summary Output

Fig 6 : saved summary

Code Efficiency -

1. The Python code is very easy to read, write and understand because the syntax of python language is similar to English.

2. With the help of sublime text editor it is easy to type the code as it is a lightweight, cross-platform code editor known for its speed, ease of use, and strong community support. It's an incredible editor right out of the box, but the real power comes from the ability to enhance its functionality using Package Control and creating custom settings.

3. Python language has a very huge support of inbuilt and third party libraries which makes to implement the features of the project.

4. The if else ladder is used to implement the logic of query processing where the program goes through a number of conditions and then matches the user query.

5. The try/except is used in most part of code which handles the unexpected error at the run time of the program and prevents the application to stop functioning.

5.3 Testing approaches

- A test approach is the test strategy implementation of a project, defines how testing would be carried out.

- The test approach is usually defined in all test plans and test designs.

- Test approach refers to the commencement of various project activities such as planning the testing process, selecting the designs, defining the entry and exit criteria etc. Test approach has two techniques:

- **Proactive -** An approach in which the test design process is initiated as early as possible in order to find and fix the defects before the build is created.

- **Reactive -** An approach in which the testing is not started until after design and coding are completed.

5.3.1 Unit Testing

Unit testing involves the testing of each unit or an individual component of the software application. It is the first level of functional testing. The aim behind unit testing is to validate unit components with its performance.

1. A unit is a single testable part of a software system and tested during the development phase of the application software.

2. The purpose of unit testing is to test the correctness of isolated code. A unit component is an individual function or code of the application. White box testing approach used for unit testing and usually done by the developers.

3. Whenever the application is ready and given to the Test engineer, he/she will start checking every component of the module or module of the application independently or one by one, and this process is known as Unit testing or components testing.

4. In our project we have 3 modules.

❖ Basic Implementation Module –

This is the first module of our project. In this module we are basically implementing command line program for our project to check whether user/project requirements are matching with our product or not.

❖ Graphical User Interface (GUI) Module –

This is the second module of our project, GUI contains home page which has 3 Sub-page section "Shorts", "Videos", "Movies", which mainly helps to provide specific result. Every section has two main buttons *"Generate"* and *"Browse"*. The Generate button helps the user to generate summary of video link which pasted in URL section, and Browse button is used to browse the path where user wants to save PDF file of the summary.

❖ Natural Language Processing (NLP) Module –

This NLP module is the final module of our project, it contains natural language processing algorithms which help to provide more accurate summary of our YouTube videos.

Advantages of Unit Testing –

1. Reduces cost of testing as defects are captured in very early phase.

2. Improves design and better refactoring of code.

3. Unit Testing helps in simplifying debugging process. If a test fails then only latest changes made in code needs to be debugged.

4. It exposes the edge cases and makes you write better code.

5.3.2 Integration Testing

- Integration Testing is defined as a type of testing where software modules are integrated logically and tested as a group. A typical software project consists of multiple software modules, coded by different programmers.

- The purpose of this level of testing is to expose defects in the interaction between these software modules when they are integrated.

- Integration Testing focuses on checking data communication amongst these modules.

Approaches in Integration Testing –

1. Big Bang Approach

2. Incremental Approach – which is further divided into the following

➢ Top Down Approach

➢ Bottom Up Approach

Approach used in this project is Bottom-up approach.

1. It starts with low level system or design or development. Then it looks for high level system or design.

2. Bottom-up approach initially focuses on detail design or development. At last it concentrates on abstract of overall system or project.

3. In this approach first programmer has to write code for modules. Then they look for integration of these modules.

4. Bottom-up approach is more suitable for a project or system which is going to start from some existing modules.

5.4 Modification and Improvements

After Unit Testing of our project we had found some bugs and errors which need to be modified which will make this YouTube Transcript Summarizer more efficient to the user.

1. Initially the home page wasn't any sub-page so it was very difficult to get specific result, so we have created Sub-pages like-"Shorts", "Videos", "Movies" which helped us to apply specific algorithms and also now it's very easy for users to use it.

2. When the user started to generate summary they want to save it for future reference, so we come up with the solution in which we have created a program so that the user can save their summary PDF file.

3. Some of our tasks were unexpectedly giving some error which results into inappropriate application termination so we had inserted that particular task in a try catch block so that our application will be in running state, despite of any error or any other issue like internet connection failure, Invalid link, etc.

Chapter 6: Results and Discussion

Sr. No	Test case	Step Description	Expected Output	Final Outcome
1	**Video Link**	The link of the YouTube video should fetch transcript of video.	The transcript must be available and accurate.	Successful
2	**Generate Sentiment analysis**	The sentiment analysis for video based on its comments should be generate with accuracy.	The sentiment analysis for video must be available and accurate	Successful

3	**Generate Summary**	The transcript should be summarize with accuracy.	The summary must be accurate	Successful
4	**NLP**	The summary accuracy should be increase.	The summary must be more accurate.	Successful
5	**PDF**	The Final summary should be save in a pdf file.	The final summary must be save in pdf format.	Successful

Table 4 Results and Discussions

6.2 User Documentation

USER MANUAL

You Tube

"Transcript Summarizer"

Prepared By:
Pradnya Pophale (19302B0055)
Saloni Maurya (19302B0049)

Under the Guidance of:
Mr. Shajil Kumar

GENERAL INFORMATION:-

"YouTube Transcript Summarizer" is a software agent that can provide summary of any YouTube video. This summarizer fetches data from video and gives us summary of that video. You can save this summary in the form of pdf file.

This software has two categories which is Videos and Movies.

SYSTEM REQUIREMENTS:-

Hardware Requirements:

Processor	i5 7th Generation (or more)
HDD	500 GB
RAM	4GB
Network	Active Internet Connection (500kbps)

Software Requirements:

Operating System	Windows 7(or above).
Programming Language	Python.
Software Used	Visual Studio Code, Jupyter Notebook, Sublime text editor, Python IDLE.
Libraries Used	Pandas, Tkinter,VaderSentiment, PyFPDF, Transformers, Youtube_transcript_api, Functools, apiclient.discovery

STEPS FOR SETUP YOUR SUMMARIZER:-

1. With power shell:
Go to folder where your summarizer file is -> shift + right click -> open power shell window here.
Now, In power shell type -> python Summarizer.py -> press enter.

2. With CMD:
Open your cmd -> Go to folder where summarizer file is -> type python Summarizer.py

3. With Python IDLE:
Open python IDLE -> Click on open -> select Summarizer file -> click on enter

4. With exe file:
Open software by double clicking on "Summarizer.exe".

Software Working:-

Step 1: Open software by double clicking on "Summarizer.exe", after clicking .exe file splash screen will flash for 1.5 seconds and then the application will start.

Fig 1: Splash Screen

Step 2: The below picture shows the main screen of the application, the main screen includes two buttons' "videos" and "movies" buttons, if you want to summarize videos click on videos button and if you want to summarize movies click on movies button.

Fig 2: Main Screen

Step 3: If you clicked on videos button, the videos screen will appear, Firstly you need to enter link of YouTube video which you want to summarize, after entering the video link to perform sentiment analysis on the video click on "sentiment analysis" button and for summarizing video click on generate summary button.

Fig 3: Videos Screen

Step 4. After clicking on the "Sentiment Analysis" button the sentiment analysis process starts and after completion of the process the positive, negative and neutral sentiments are updated.

Fig 4: Sentiment Analysis Output

Step 5. When you click on generate summary button the summarization process starts in background, after the process gets completed the transcript word count and summary word count is updated, also the generated summary is visible on the view area.

Fig 5: Generate Summary Output

Step 6. To go back to main screen of the application click on the "Back" button and you will be redirected to main screen of the application.

Step 7. To save the generated summary in a pdf file you need to click on "Save as PDF" button, when the button is clicked the generated summary is saved in a pdf file and the pdf file will be saved in the folder where the software application is installed.

Step 8. For performing sentiment analysis on movies and also to generate summary for movies you need to follow exact similar steps as videos part.

Example Links:-

1. https://www.youtube.com/watch?v=5YYsO0VAX5w

2. https://www.youtube.com/watch?v=7Odw4AjhE-4

3. https://www.youtube.com/watch?v=veys_B1fFe4

4. https://www.youtube.com/watch?v=m384o8tLAD0

5. https://www.youtube.com/watch?v=c3n616LA1-M

Chapter 7 Conclusion

7.1 Conclusion

A video summarizer is a python language-based desktop application or tool that extracts the captions from the videos by using the concept of web scrapping and generate specified short length summary out of it which condenses a long transcript to main points.

The need for video summarizers is increasing day by day, because of time constraints. If you don't have time to watch the complete video or lecture, this tool helps you grasp the most important parts of the text by providing a very short summary. And also With the help of this sentiment analysis of video comments, the user can get to know about the community acceptance of that channel/video or wider public opinion behind that video. User can save the summary by selecting file location. Also User can display previously saved summary by selecting open path from option.

People are looking for shortcut methods to learn ideas in lesser time. Even video summarizers are helping them to decide whether a long durations YouTube video, movie are worth to watching or not.

Our project Youtube transcript summarizer is Trained by machine learning transformers models, summarizer uses the concept of abstractive summarization to summarize a video,

In this method, algorithms are developed in such a way to reproduce a long text into a shorter one. It retains its meaning but changes the structure of sentences.

It uses Natural Language Processing to create novel sentences and generates a summary in which the main idea remains intact. IT is an advanced-level tool that uses AI for its work. Therefore, the summary produced by this tool appears to be flawless and inflow.

7.2 Limitation of the system

1. Every project has some limitations and our YouTube Transcript Summarizer is no exception. We have assumed that the summarizer will generate 95% accurate summary, but this is NLP project the accuracy of the generated summary is about 75-80%.

2. As our project generating summaries for the YouTube Videos by extracting its transcript (captions of the video) but if there is no caption provided for the video the summarizer will not be able to generate summary for that video.

7.3 Future Scope of the Project

1. For the Future scope of our project we can enhance the graphical user interface by making it a standalone interface in which the user will have only one screen to interact.

2. We can also use natural language processing so making it more user friendly as we can add more languages like Hindi, Marathi, etc. so generated summaries can be used by more numbers of people.

3. in future this summarizer can be used for Meetings and video-conferencing as a system that could turn voice to text and generate summaries from your team meetings.

4. also,this summarizer can be used to summarize videos of educational platforms like Udemy and Coursera which will be beneficial for students

References & Bibliography

[1] Munot, N. and Govilkar, S.S., 2014. Comparative study of text summarization methods. *International Journal of Computer Applications*, *102*(12).

[2] Hingu, D., Shah, D. and Udmale, S.S., 2015, January. Automatic text summarization of Wikipedia articles. In *2015 international conference on communication, information & computing technology (ICCICT)* (pp. 1-4). IEEE.

[3] Adhikari, S., 2020, March. Nlp based machine learning approaches for text summarization. In *2020 Fourth International Conference on Computing Methodologies and Communication (ICCMC)* (pp. 535-538). IEEE.

[4] Lin, H. and Ng, V., 2019, July. Abstractive summarization: A survey of the state of the art. In *Proceedings of the AAAI Conference on Artificial Intelligence* (Vol. 33, No. 01, pp. 9815-9822).

[5] Wolf, T., Debut, L., Sanh, V., Chaumond, J., Delangue, C., Moi, A., Cistac, P., Rault, T., Louf, R., Funtowicz, M. and Davison, J., 2019. Huggingface's transformers: State-of-the-art natural language processing. *arXiv preprint arXiv:1910.03771*.

[6] Wolf, T., Chaumond, J., Debut, L., Sanh, V., Delangue, C., Moi, A., Cistac, P.,

Funtowicz, M., Davison, J., Shleifer, S. and Louf, R., 2020, October. Transformers: State-of-the-art natural language processing. In *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing: System Demonstrations* (pp. 38-45).

[7] Asghar, M.Z., Ahmad, S., Marwat, A. and Kundi, F.M., 2015. Sentiment analysis on youtube: A brief survey. *arXiv preprint arXiv:1511.09142*.

[8] Garg, P. and Bassi, V., 2016. *Sentiment analysis of twitter data using NLTK in python* (Doctoral dissertation).

[9] Dilawari, A. and Khan, M.U.G., 2019. ASoVS: abstractive summarization of video sequences. *IEEE Access*, *7*, pp.29253-29263.

[10] Liu, B., 2012. Sentiment analysis and opinion mining. *Synthesis lectures on human language technologies*, *5*(1), pp.1-167.

Website Used

- https://stackabuse.com/python-gui-development-with-tkinter/

  (To study python GUI development with Tkinter)

- https://www.machinelearningplus.com/nlp/text-summarization-approachesnlp-example/

  (To study about different approaches in NLP for summarization)

- https://www.analyticsvidhya.com/blog/2019/06/comprehensive-guide-textsummarization-using-deep-learning-python/

  (To study about abstractive summarization in NLP)

- https://www.analyticssteps.com/blogs/sentiment-analysis-youtubecomments

  (To study about sentiment analysis on YouTube video comments)

PLAGARISM REPORT

93%
Unique Content

7%
Plagiarized content

✔ COMPLETED
100%

POP UP & REMINDER APP

A Project Report

Submitted in partial fulfilment of the

Requirements for the award of the Degree of

BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

RUTHVIK SALUNKE & MADHAVAN NADAR

Seat Number: 19302B0061

19302B0052

Under the esteemed guidance of

Mrs. ROHINI DESAI

Assistant Professor, Department of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

CERTIFICATE

This is to certify that the project entitled, **"POP UP & REMINDER APP"**, is bonafied work **of RUTHVIK SALUNKE bearing** Seat No: **19302B0061** submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Internal Guide   **Coordinator**

Internal Examiner   **External Examiner**

ABSTRACT

With the chaotic hustle and bustle along with the out pour of daily Tasks, one suffers from managing their task effectively. For Example, if there is a call of numerous meetings & calls as well Submission on a daily schedule chart will be a tedious task. Virtual Assit is an android application that is a POP & REMINDER APPLICATION which will manage and Prioritize the task effectively

ACKNOWLEDGEMENT

We would like to convey our heartfelt gratitude to your project Guide, Mrs. Rohini Desai , for assisting us in completing our Project on time and providing us with all the necessary support And direction. We owe her a huge debt of gratitude for all her help and advice.

In addition, I'd want to convey my gratitude to all of my Information technology teachers for their constant encouragement And support, who assisted us in successfully completing our project Work. Last but not

least, I am grateful for my project partner's Selfless cooperation and aid in helping me achieve this final year Project.

DECLARATION

I hereby declare that the project entitled, "**POP UP & REMINDER APP**" done at Vidyalankar School of Information Technology, has not been in any case duplicated to submit to any other universities for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfillment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

Table of Contents

Chapter 1 Introduction

1.1 Background

In the today's era, when life has become so fast, so busy and So pressured that for many it become stressful depriving us Of pleasure. Everyone wants to perform their task on time Without any hurdle and it's difficult for every person to Remember each task. In cooperate level world, manager who perform number of work activities required scheduler which Help them to manage their activities and pretend like Reminder

The terms pop-up notification, toast, passive pop-up, Snackbar, desktop notification, notification bubble, or Simply notification all refer to a graphical control element That communicates certain events to the user without Forcing them to react to this notification immediately, Unlike conventional pop-up windows. Desktop notifications usually disappear automatically After a short amount of time. Often their content is then stored in some widget that allows the users to access past Notifications at a more convenient time.

1.2 Objectives

Pop-ups, dialogues, those little boxes that appear on your screen, Whatever you may call them, are not to be taken for granted. Although they are a relatively "small" element of your app, they play a Significant role when it comes to your app's user experience.

On the one hand, they can help users progress through their in-app Journeys. On the contrary, when done wrong, they can truly frustrate your users.

Luckily pop-ups are a ripe low-hanging fruit. You can easily improve Them with the right tools and guidelines. That is where this nifty article Comes in.

Since not all pop-ups are created equal, we have broken down five Common uses for popups and the "rules" for how to optimise each One. Follow these instructions, and you are sure to see better results For your pop up goals.

2 Purpose, Scope , Applicability (Feasibility Study)

1.3.1 PURPOSE

The purpose of this document is to present a detail Information about scheduling working activities. Identify the major problem that come in our daily life and to find such a system who helps out

1.3.2. SCOPE

The Pop up & Reminder app is aiming to maximize the accuracy Of human working by scheduling their routine activities and task Missed out notifications . People have to remember each task, Assignment, social event so it is a hectic task although, according to Psychologist, human brain is made for processing not for Memorizing purpose. This android application is developed to Maximize the human working efficiency as well as to reduce the Time wasting .

"We aim to free your mind from memorizing your routine Task"

1.3.3. APPLICABILITY

Economic Feasibility Study

Being a Mobile application will have an associated hosting Cost. Since the system doesn't .

No cost will be charged from The students.
Beside this, there will be many benefits for the students.

Especially the extra effort that is associated with printing the Notices will be reduced.

From these it's clear that project is financially feasible.

Operational Feasibility Study

In this phase, we studied the operational implementation for . The application.It is the Activity stream which can help the Students

Chapter 2 Survey of Technologies

The technologies for web development keep changing and

Phasing out; New ones come in all the time while most of

The old ones become obsolete. Even so, there are still some

Web technologies that are still popular. Though you .Need to be

Aware of the latest trends, there are still some old ones that are

Still . Running successfully and are quite popular among

Developers.

Existing System with Limitations

In online education systems duet to pandemic Students face Various problems & Assignment submissions on time has been One of the pronlem

- Due to online lectures students misses out some of the Activities / assingments
- In off-line education Teachers used to give a reminder
- Because of online education it becomes hectic work for Teachers so we come up here with a solution

Hardware requirements:
✓ PC.

✓ Minimum 1GHz processor.

✓ 1 GB RAM.

✓ Minimum space in Hard drive 35-40GB.

✓ Internet connection.

✓Minimum 2-GB of Graphic card

JAVA :-

Java is a high-level, class-based, object-oriented programming

Language that is Designed to have as few implementation dependencies as Possible. Java Applications are typically compiled to Bytecode that can run on any Java virtual Machine (JVM) Regardless of the underlying computer architecture.

• Java is open-source, platform-independent, reliable, Highperformance,

• scalable, secure, and easy to use and learn.

• It's also extremely versatile, enabling you to create an Enormous array of Projects.

• Once the only official language of Android, Java is now Joined by Kotlin as one of the two official languages for Mobile application development

• for the Google OS. The programming language is supported

By Android Studio and facilitates secure and efficient development for a Wide range of mobile applications.

• Java is easy to learn. Java was designed to be easy to use and Is therefore .Easy to write, compile, debug, and learn than Other programming Languages.

• Java is platform-independent. One of the most significant Advantages of

• Java is its ability to move easily from one computer system to Another.

• The ability to run the same program on many different Systems is crucial

• To World Wide Web software, and Java succeeds at this by Being

 platform-independent at both the source and binary levels.

• Java is fast and reliable, which makes it a great choice when You're Working with data

• Combine applications or services using the Java language to

Create highly

• Customized applications or services.

ANDROID STUDIO

• Android Studio is the official integrated development Environment (IDE) For Android application development. It is based on the IntelliJ IDEA, a Java integrated development environment for Software, and incorporates Its code editing and developer tools.

• To support application development within the Android Operating system, android Studio uses a Gradle-based build System, emulator, code Templates, and GitHub integration. Every project in Android Studio has One or more modalities with source code and Resource files. These Modalities include Android app modules, Library modules, and Google App Engine modules

• Android Studio uses an Instant Push feature to push code and Resource Changes to a running application. A code editor Assists the developer with Writing code and offering code Completion, refraction, and analysis. Applications built in Android Studio are then compiled into the APK Format for Submission to the Google Play Store.

• The software was first announced at Google I/O in May 2013, and the First stable build was released in December 2014. Android Studio is Available for Mac, Windows, and Linux desktop platforms. It replaced Eclipse Android Development Tools (ADT) as the primary IDE for Android application development. Android Studio and the Software Development Kit can be downloaded directly from Google.

OBJECTIVES

Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA . On top of IntelliJ's powerful

Code editor and developer tools, Android Studio offers even
More features that
Enhance your productivity when building Android apps, such
As follows.

- A flexible Gradle-based build system

- A fast and feature-rich emulator

- A unified environment where you can develop for all
Android devices

- Apply Changes to push code and resource changes to your
Running app Without restarting your app

- Code templates and GitHub integration to help you build
Common app Features and import sample code

- Extensive testing tools and frameworks

- Lint tools to catch performance, usability, version
Compatibility, and Other problems

- C++ and NDK support

- Built-in support for Google Cloud Platform, making it easy
to Integrate Google Cloud Messaging and App Engine

Chapter 3 Requirements and Analysis

3.1 Problem Definition

In Today's life, we miss a lot of our daily activities, social Events and we can't make great use of our time effectively. According to physiological science over 18,500 individuals, Ages 18 to 99, were asked about memory problems and the Lifestyle factors. Unsurprisingly, memory problems were more Prevalent as people aged. Twenty percent of the respondents Had memory issues, with 14 percent of them being young Adults, 22 percent being middle-aged and 26 percent being Older. There is call for many meetings over email and you have To go through each one of them along with your daily schedule Chart .

FIG : 1 PROBLEM DEFINITION

FIG 2 : For Problem Definition

3.2 Requirement Specification

Hardware requirements:

PC.

 Minimum 1GHz processor.

1 GB RAM.

Minimum space in Hard drive 35-40GB.

Internet connection.

2-GB of Graphic card

Software Requirement

Android operating system

Version above "Ice Cream Sandwich" (Android operating system

3.3 Planning and Scheduling

Gantt Chart

A Gantt chart, which is widely utilized in project management, Is one among the foremost popular and useful

ways to depict Activities against the clock. An inventory of the activities could also be found on the left side of the chart, and an appropriate duration are often found along the highest. Each action is represented by a bar, whose location and length indicate the activity's start, duration, and end date. It's possible to check on progress with a quick scan because it's in bar chart format. You can readily see: a visible representation of the whole project, including task timelines and deadlines, relationships and dependencies between activities, and project phases.

	Tasks	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4	Week 1	Week 2	Week 3	Week 4
1	Assign the project			▬									
2	Understanding the problem locally				▬▬▬								
3	AV-1 Establishing personal relation							▬					
4	Assesment of customers needs						▬						
5	AV-2 Discuss customers needs							▬					
6	Concept generation							▬					
7	AV-3 Discuss concept ideas								▬				
8	Refining ideas								▬				
9	AV-4 Discuss refined ideas									▬			
10	Concept selection									▬			
11	Share selected concept										▬		
12	Develop computer 3D model										▬▬		
13	Develop final report											▬▬	
14	Prepare oral presentation											▬	
15	Present final report												▬

Key			Key Dates				
International Collaboration	▬ (red)		Feb. 24	Assign project		Apr. 12-14	Share selected concepts
			Mar. 15-17	AV-1 Conference			
Local Collaboration	▬ (blue)		Mar. 22-24	AV-2 Conference			
			Mar. 29-31	AV-3 Conference			
			Apr. 5-7	AV-4 Conference			

FIG 3 : GANTT CHART

Waterfall Model

The first Process Model to be introduced was the Waterfall Model. A linear-sequential life cycle model is another name for it. It is easy to comprehend and use. In a waterfall model, each phase must be completed before moving on to the next, and the phases do not overlap. The waterfall paradigm is straightforward and easy to comprehend. In this model, phases are handled one by one. Waterfall model's stages are all properly described. The milestones in this paradigm are highly obvious and well known. The process, activities, and outcomes are all meticulously documented.
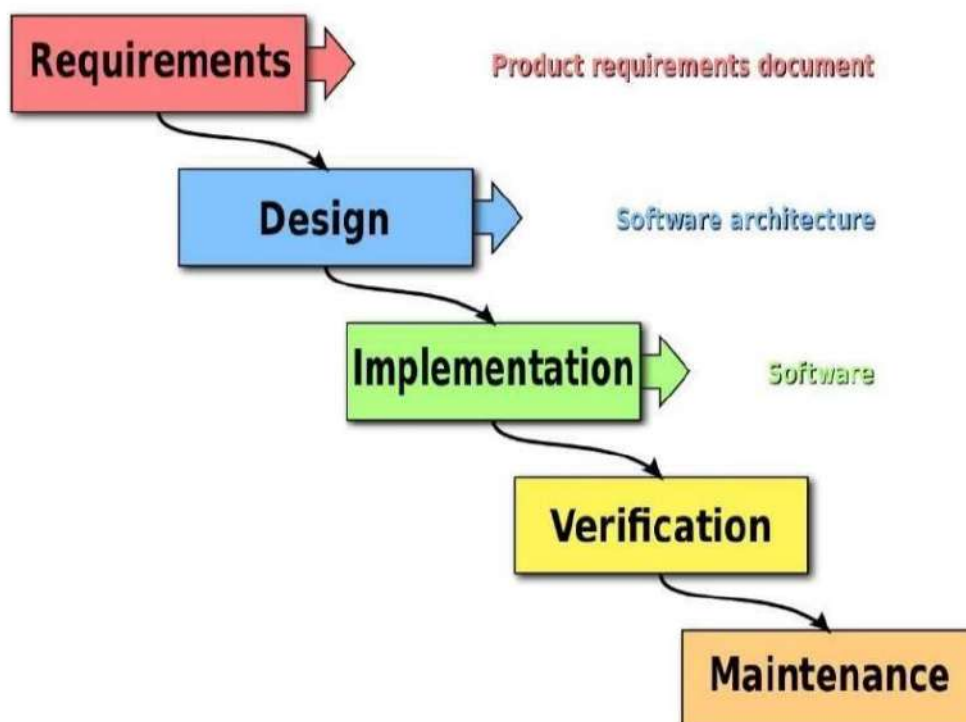
FIG 04 : WATERFALL MODEL

Pert Chart

A PERT chart, also known as a PERT diagram, is a tool for Planning, organising, and mapping out project tasks. The Programme evaluation and review technique, or PERT, is an Acronym for programme evaluation and review method. It shows The timeline of a project and breaks down specific tasks.
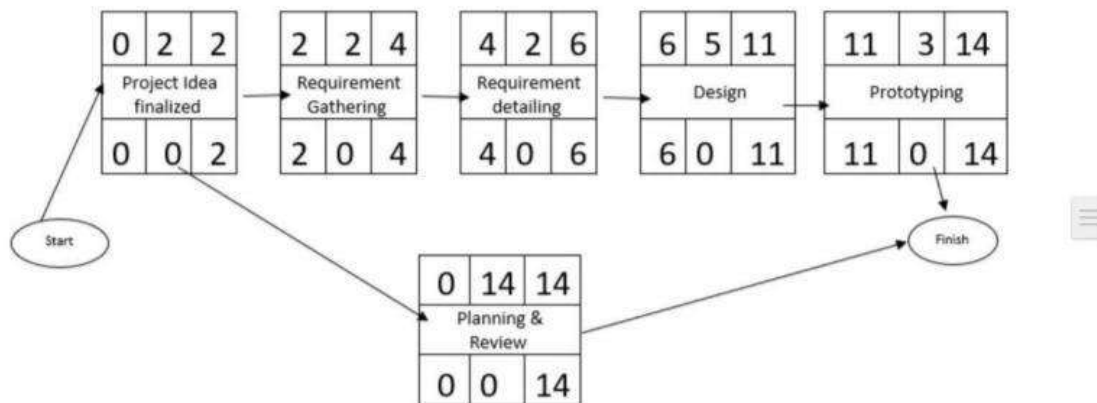
FIG 05 : PERT CHART

3.4 Software and Hardware Requirement

HARDWARE REQUIREMENT

To build this project we minimum need:

• 8-GB of RAM.

• Minimum 2-GB of Graphic card.

• 1.9 GHz of processor.

• Minimum space in Hard drive 40GB.

SOFTWARE REQUIREMENT

To get started as an Android developer Android provides the Following Software toolkits for Android app development:

• Software Development Kit(SDK)

• Integrated Development Kit

Java Software Development Kit(JDK)

Android Studio

Android Studio is the official integrated development Environment (IDE) for Google's Android operating system, Built on JetBrains' IntelliJ IDEA software and designed Specifically for Android development. It is available for Download on Windows, macOS and Linux based operating Systems or as a subscription-based service in 2020. It is a Replacement for the Eclipse Android Development Tools (E-ADT) because the primary IDE for native Android application Development.

FIG NO :06 ANDROID STUDIO LOGO
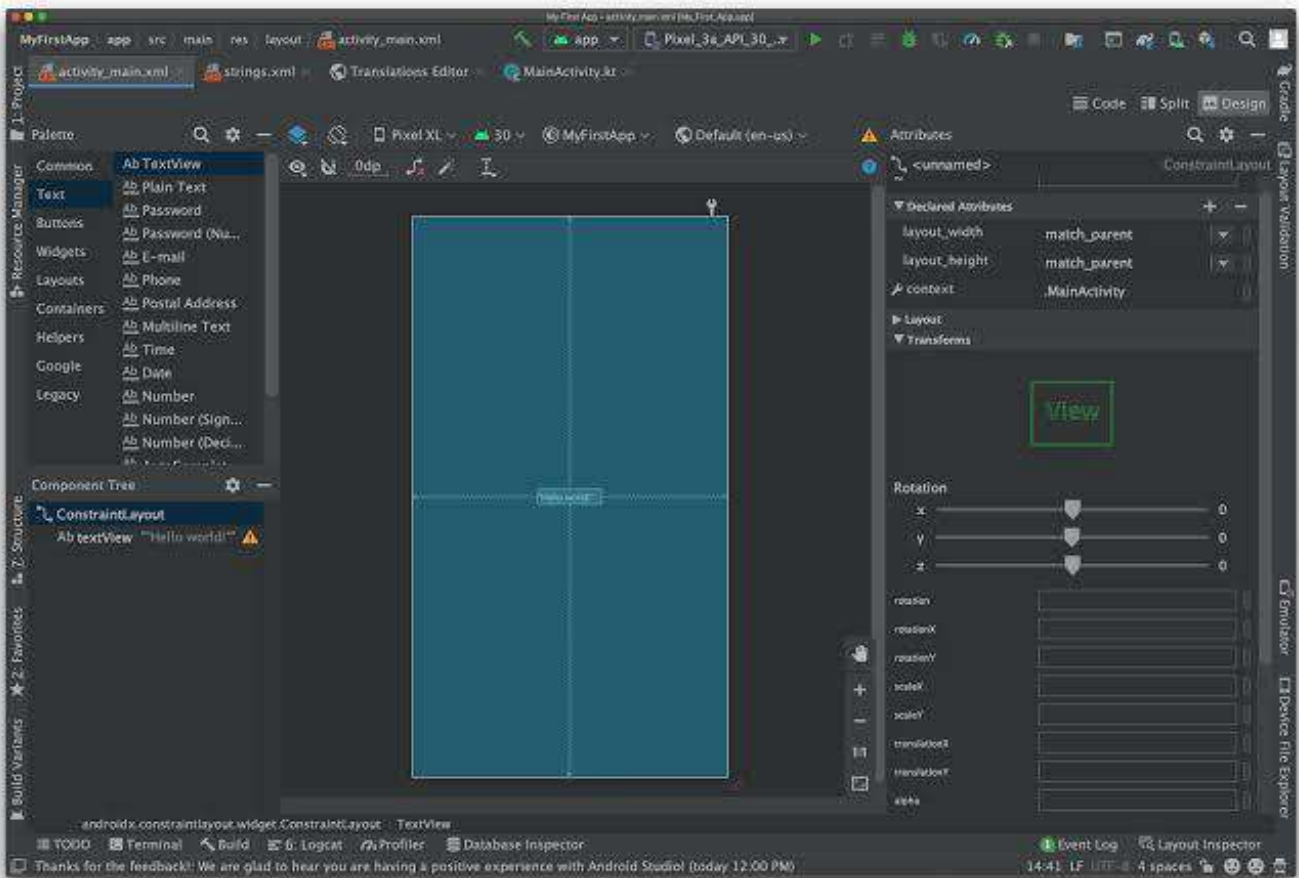
FIG NO 07 : ANDROID STUDIO INTERFACE

Google Firebase

By giving secure access to the database directly from client-side code, the Firebase Realtime Database allows you to create complex, collaborative apps. Data is saved locally, and real-time events continue to occur even when the user is not connected, ensuring a responsive experience. When the device is reconnected, the Realtime Database combines any differences between local data changes and remote updates that occurred while the client was offline.

To describe how your data should be formatted and when data can be read from or written to, the Realtime Database provides a flexible, expression-based rules language called Firebase Realtime Database Security Rules. Developers can decide who has access to what data and how they can access it when Firebase Authentication is used.

The Realtime Database is a NoSQL database, which means it differs from relational databases in terms of optimizations and functionality. Only operations that can be completed fast are allowed in the Realtime Database API. This allows you to create a fantastic real-time experience that can serve millions of users while remaining responsive. As a result, it's critical to consider how people will access your data and then organise it correctly.

FIG NO 08 : FIREBASE LOGO

Chapter 4 System Design

4.1 Basic Modules

There are a few broad steps to follow when designing a Notification system.

#Create a framework for your notification design. ...

#Give users control over their notifications. ...

#Use multi-channel notifications. ...

#Adapt your notifications to users' changing needs.

FIG NO 10 : User Interface

4.2 Data Design (Table Design)
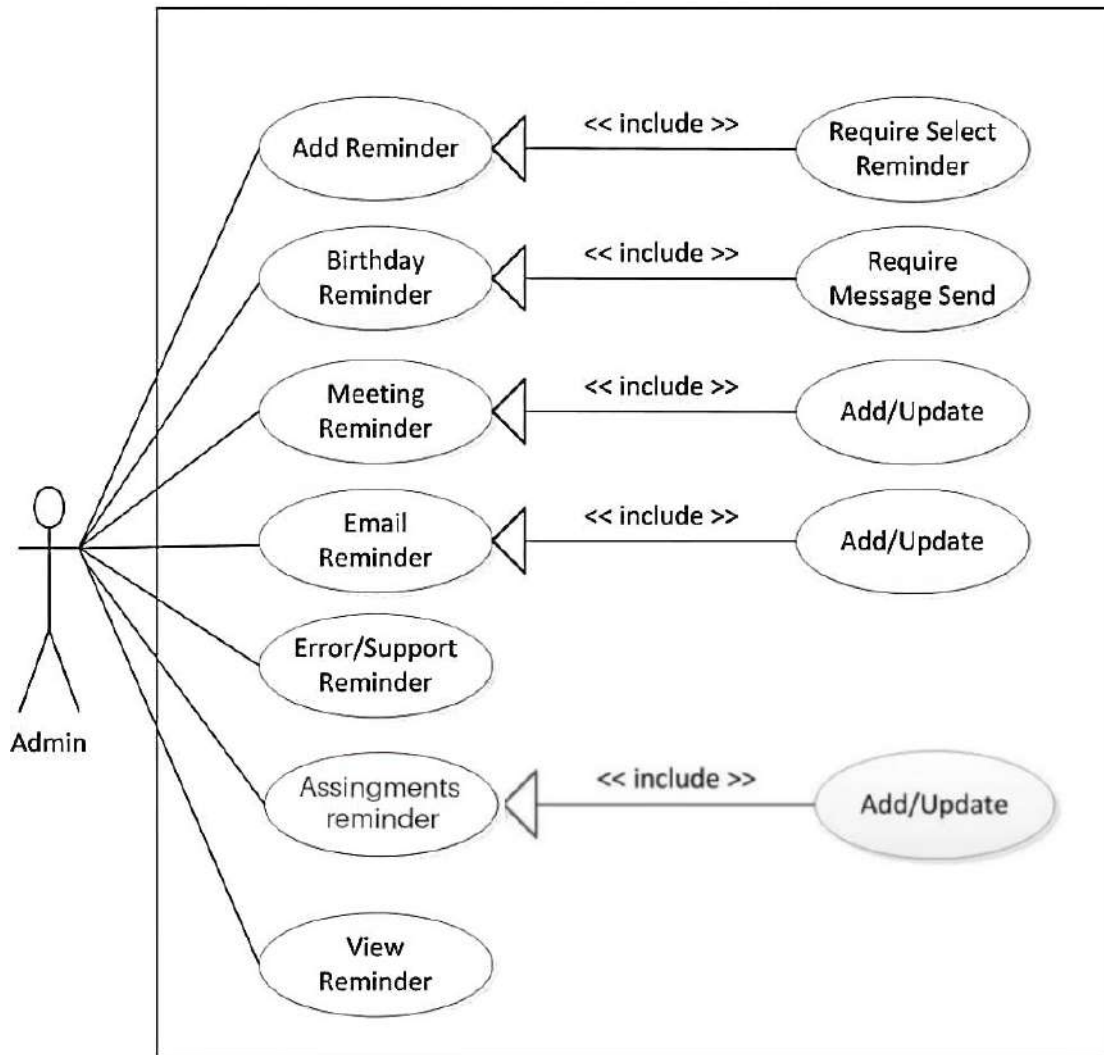
4.2.1 Schema Design

FIG NO 11 : SCHEMA DESIGN

4.3 Diagrams

4.3.2 Class Diagram / Data Flow Diagram
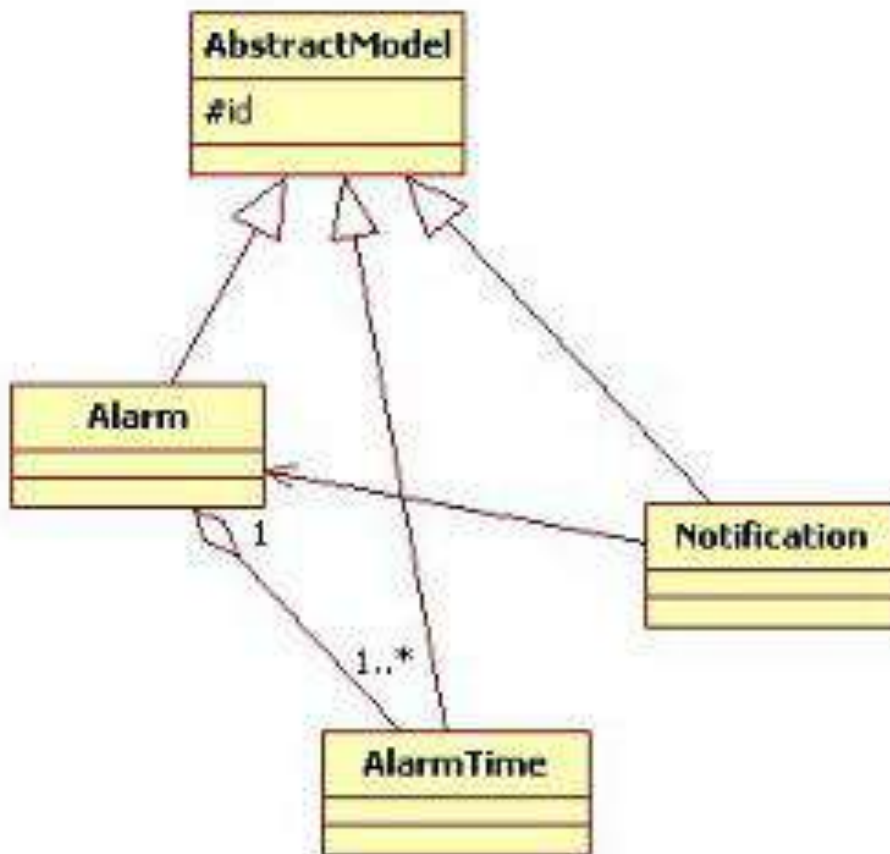
FIG NO 12 : DIAGRAM MODEL

4.3.3 Use Case Diagram
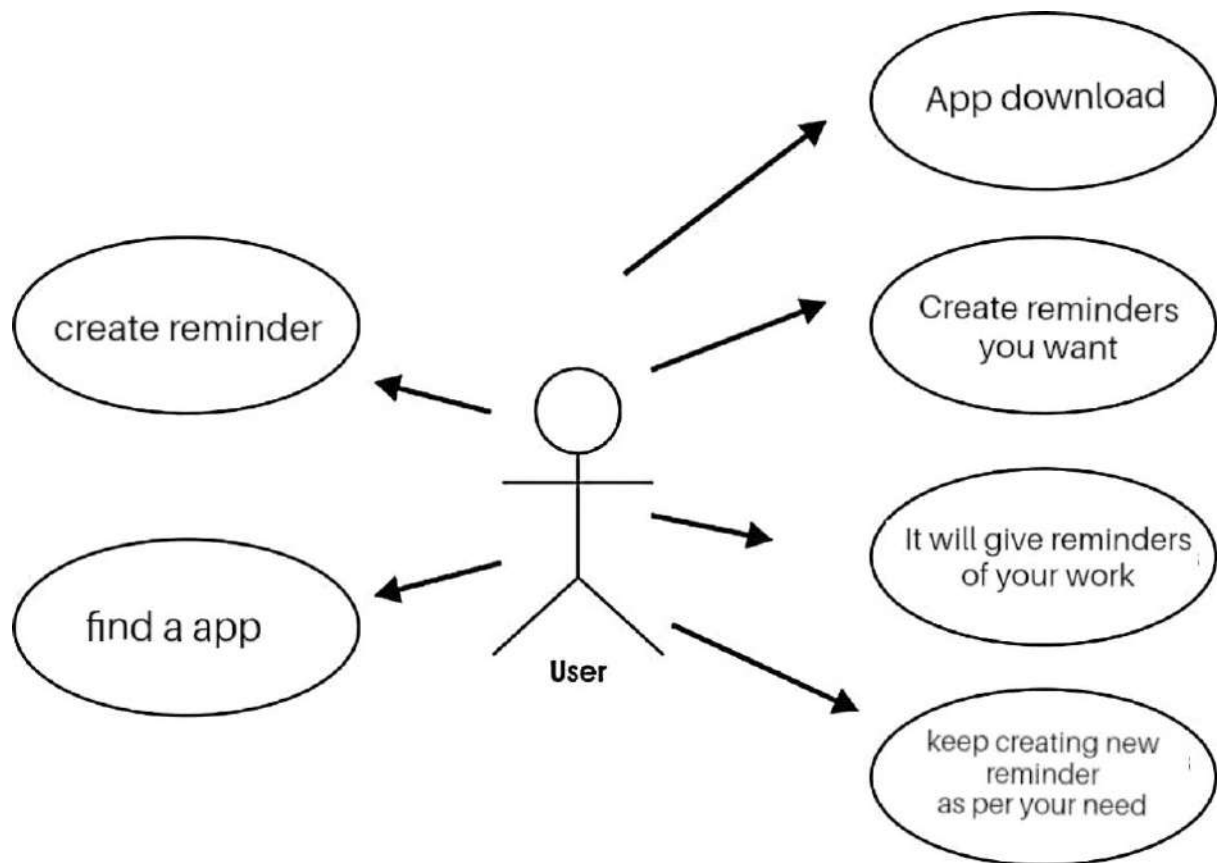
FIG NO 13 : USE CASE DIAGRAM

4.3.4 Sequence Diagram
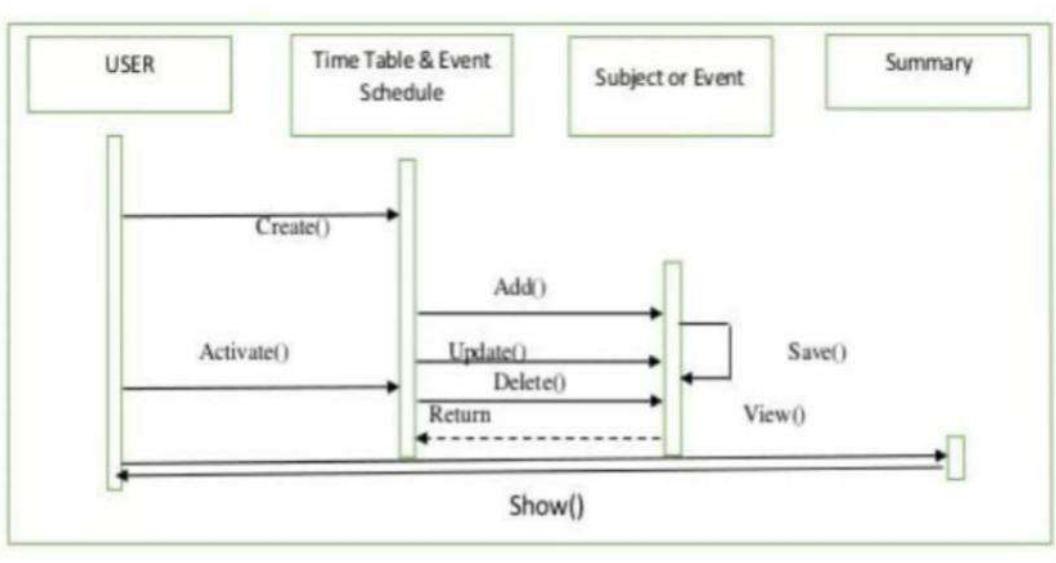
FIG NO 14 : SEQUENCE DIAGRAM

4.3.7 Menu Tree / Circuit Diagram
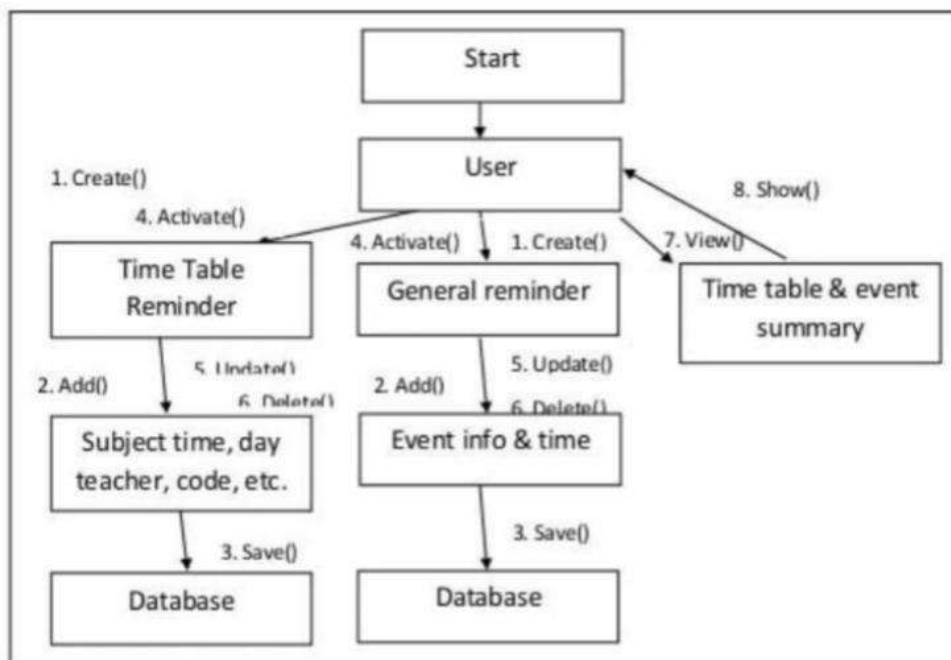
Chapter 5 Implementation and Testing

5.1 Implementation Approaches
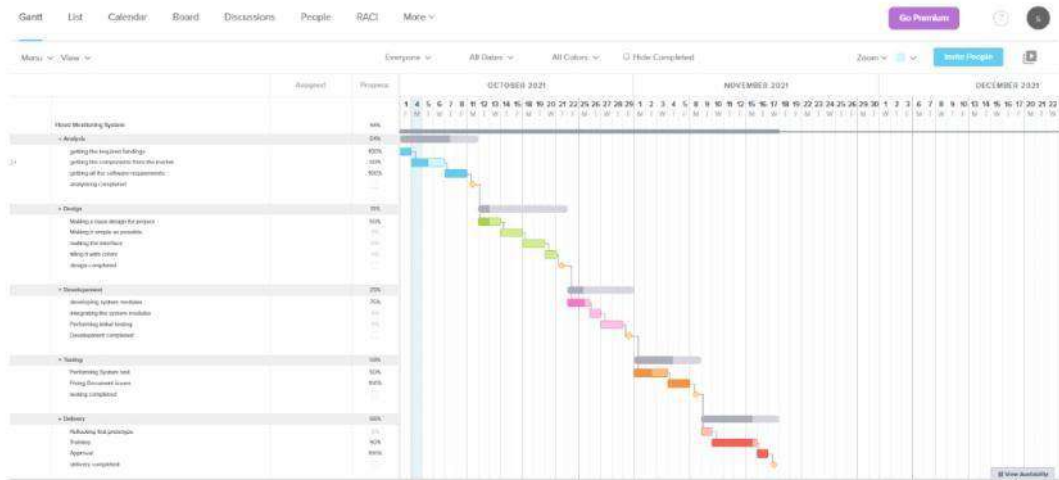
5.2 Coding Details and Code Efficiency:

```
Package com.example.finalyearreminderapp;


Import androidx.appcompat.app.AppCompatActivity;


Import android.app.AlarmManager;

Import android.app.PendingIntent;

Import android.content.Intent;

Import android.os.Bundle;

Import android.view.View;

Import android.widget.EditText;

Import android.widget.TimePicker;

Import android.widget.Toast;


Import java.util.Calendar;


Public class MainActivity extends AppCompatActivity
implements View.OnClickListener {

    Private int notificationId=1;


    @Override
```

```java
Protected void onCreate(Bundle savedInstanceState) {

    Super.onCreate(savedInstanceState);

    setContentView(R.layout.activity_main);

    findViewById(R.id.setBtn).setOnClickListener(this);

    findViewById(R.id.cancelBtn).setOnClickListener(this);

}


@Override
Public void onClick(View view) {


    EditText editText=findViewById(R.id.editText);

    TimePicker timePicker=findViewById(R.id.timePicker);


    Intent intent= new
Intent(MainActivity.this,AlarmReceiver.class);

    Intent.putExtra("notificationId",notificationId);

    Intent.putExtra("message",editText.getText().toString());


    PendingIntent alarmIntent=PendingIntent.getBroadcast(

MainActivity.this,0,intent,PendingIntent.FLAG_CANCEL_CURRENT
    );
```

```java
AlarmManager alarmManager=(AlarmManager)
getSystemService(ALARM_SERVICE);
Switch (view.getId()){
    Case R.id.setBtn:

        Int hour=timePicker.getCurrentHour();

        Int minutes=timePicker.getCurrentMinute();


        Calendar startTime=Calendar.getInstance();

        startTime.set(Calendar.HOUR_OF_DAY,hour);

        startTime.set(Calendar.MINUTE,minutes);

        startTime.set(Calendar.SECOND,0);

        long alarmStartTime= startTime.getTimeInMillis();



alarmManager.set(AlarmManager.RTC_WAKEUP,alarmStartTime,alarmIntent);
        Toast.makeText(this, "Done!",
Toast.LENGTH_SHORT).show();

        Break;


    Case R.id.cancelBtn:

        alarmManager.cancel(alarmIntent);
```

```
        Toast.makeText(this, "Canceled",
Toast.LENGTH_SHORT).show();

    }


  }
}
```

2.

```
package com.example.finalyearreminderapp; import
android.app.Notification; import
android.app.NotificationChannel; import
android.app.NotificationManager; import
android.app.PendingIntent; import
android.content.BroadcastReceiver;import
android.content.Context; import android.content.Intent;
import android.os.Build; import
androidx.core.app.NotificationCompat;

public class AlarmReceiver extends BroadcastReceiver {
private static final String CHANNEL_ID="SAMPLE_CHANNEL";
@Override   public void onReceive(Context context, Intent
intent) {      int notificationId=
intent.getIntExtra("notificationId",0);
```

```java
    String message =intent.getStringExtra("message");
Intent mainIntent= new Intent(context,MainActivity.class);
PendingIntent contentIntent=
PendingIntent.getActivity(context,0,mainIntent,0
);NotificationManager
notificationManager=(NotificationManager)
context.getSystemService(Context.NOTIFICATION_SERVICE);
if (Build.VERSION.SDK_INT>=Build.VERSION_CODES.O){

CharSequence channel_name="My nofication";int
importancee=NotificationManager.IMPORTANCE_DEFAULT;
NotificationChannel channel= new
NotificationChannel(CHANNEL_ID,channel_name,importance
e);
notificationManager.createNotificationChannel(channel);     }
NotificationCompat.Builder builder=new
NotificationCompat.Builder(context,CHANNEL_ID)
.setSmallIcon(android.R.drawable.ic_dialog_info)
.setContentTitle("TITLE")   .setContentText(message)

   .setContentIntent(contentIntent)          .setPriority(
NotificationCompat.PRIORITY_DEFAULT)
.setAutoCancel(true);
notificationManager.notify(notificationId,builder.build());    }
}.
```

<?xml version="1.0" encoding="utf-8"?>

```xml
<LinearLayout
xmlns:android=http://schemas.android.com/apk/res/android

    Xmlns:app=http://schemas.android.com/apk/res-auto

    Xmlns:tools=http://schemas.android.com/tools

    Android:layout_width="match_parent"

    Android:layout_height="match_parent"

    Android:orientation="vertical"

    Tools:context=".MainActivity"

    Android:gravity="center"

    Android:padding="10dp">


    <EditText

        Android:id="@+id/editText"

        Android:layout_width="match_parent"

        Android:layout_height="wrap_content"

        Android:hint="Message"

        />
    <TimePicker

        Android:id="@+id/timePicker"

        Android:layout_width="wrap_content"
```

```
        Android:layout_height="360dp"
        Android:layout_marginTop="20dp"/>
    <LinearLayout
        Android:layout_width="wrap_content"
        Android:layout_height="wrap_content"
        Android:orientation="horizontal"
        Android:padding="10dp">
        <Button
            Android:id="@+id/setBtn"
            Android:layout_width="wrap_content"
            Android:layout_height="wrap_content"
            Android:padding="10dp"
            Android:text="set"/>
        <Button
            Android:id="@+id/cancelBtn"
            Android:layout_width="wrap_content"
            Android:layout_height="wrap_content"
            Android:text="cancle"
            Android:padding="10dp"/>
    </LinearLayout>


</LinearLayout>
```

• Code Efficiency:

Code efficiency is a broad term used to depict the reliability, speed and programming methodology used in developing codes for an application. Code efficiency is directly linked with algorithmic efficiency and the speed of runtime execution for software. It is the key element in ensuring high performance. The goal of code efficiency is to reduce resource consumption and completion time as much as possible with minimum risk to the business or operating environment. The software product quality can be accessed and evaluated with the help of the efficiency of the code used. In Project I have use phone authentication of firebase database, it is very smooth and real-time authentication. For overall project I have only used firebase as database for my project. For this project I have used android Studio Software in that for front end xml is use of android studio with java language. All the java file and the adapter for the project are sorted in Sequence. In database with phone authentication the data base consists of real-time data base and remote config.

5.3 Testing approaches

Software testing is the process of evaluating and verifying that a software product or application does what it is supposed to do. The benefits of testing include preventing bugs, reducing development costs and improving performance. There are many different types of software tests, each with specific objectives and strategies:

5.3.1 Unit Testing

Unit testing involves the testing of each unit or an individual component of the software application. It is the first level of functional testing. The aim behind unit testing is to validate unit components with its performance. A unit is a single testable part of a software system and tested during the development phase of the application software. The purpose of unit testing is to test the correctness of isolated code. A unit component is an individual function or code of the application. White box testing approach used for unit testing and usually done by the developers. Whenever the application is ready and given to the Test engineer, he/she will start checking every component of the module or module of the application independently or one by one, and this process is known as Unit testing or components testing..

5.3.2 Integration Testing

Integration testing is the phase in software testing in which individual software modules are combined and tested as a group. Integration testing is conducted to evaluate the compliance of a system or component with specified functional requirements. I

.

5.4 Modification and Improvements

Once the students finish the testing they are bound to be faced with bugs, errors and they will need to modify your source code to improve the system. Define what modification are implemented in the system and how it improved the system.

Chapter 6 Results and Discussion

6.1 Test Reports

Explain the test results and reports based on the test cases, which should show that the project is capable of facing any problematic situation and that it works fine in different conditions. Take the different sample inputs and show the outputs.

6.2 User Documentation

Finalyearreminderapp

Hello

Set time

Type in time

3   : 40   PM   ▼

hour   minute

🕒

SET   CANCLE

Chapter 7 Conclusion

7.1 Conclusion

We have created this Application for scheduling working activities and reminding your task and some notifications

7.2 Limitation of the system

There is no login option given in this Application so user privacy issue is there . Your reminder & some of notification can be read by stranger on your lockscreen Privacy issues

7.3 Future Scope of the Project

We can also add a various Notifications reminders . We can also enhance the application by adding email If there is a call of numerous meetings via email; going through each email and mapping them individually on a daily schedule chart .

References

Development of Iterative Real-time Scheduler to Planner by Charles B. McVey Ella M. Atkins Edmund H. Durfee Kang G. Shin

Managing concurrency in temporal planning using planner-scheduler interaction by Andrew Coles

Design of Work and Development of Personnel in Advanced Manufacturing (book) chapter 12 – Human planner and scheduler by H.Nakamura & G.Salvendy

CasePlan: A case-based planner and scheduler for construction using product modeling. Dzeng, Ren-Jye 1995

Website Used

https://reqtest.com/

https://developer.android.com/reference/java/lang/Error

https://firebase.google.com/docs/database

https://online.visual-paradigm.com/

Summary

.

POP Reminder is one of the best reminder app Android. Unlike the apps discussed above, it doesn't have many features in its pocket.

However, the few features it has, they have been extremely impressive.

This elegant app is super easy to use.

KEY FEATURES

*Repeat task

*Call reminder

*Birthday Reminder

*Calendar

Further Reading

1. Modern Systems Analysis and Design; Jeffrey A. Hoffer, Joey F. George, Joseph,S. Valacich; Pearson Education; Third Edition; 2002.

2. ISO/IEC 12207: Software Life Cycle Process

(http://www.software.org/quagmire/descriptions/iso-iec12207.asp).

Plagiarism Report

Plagiarism Report

Scan Properties		8%	92%
		Plagiarism	Unique

Number of Words : 6219
Results Found : 11

Make it Unique   Start New Search

To check plagiarism in photos click here

Reverse Image Search

To or From	To or From
Binary Translator	PDF Converter

A PROJECT REPORTS ON

A STUDY ON CUSTOMERS SATISAFACTION TOWARDS E-BANKING OF ICICI BANK.

SUBMITTED BY

SAHIL KONDVILKAR

BACHELOR OF COMMERCE (BANKING AND INSURANCE)

SEMESTER VI

2021-22

UNDER THE GUIDANCE OF

PROF. SWAPNA KADAM

HEAD OF DEPARTMENT

PROF. SINDHU KRISHNAN

SUBMITTED TO

UNIVERSITY OF MUMBAI

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY COLLEGE (AFFILIATED TO UNIVERSITY OF MUMBAI) VIDYALANKAR MARG, WADALA (E) MUMBAI 400 037.

2021-22

VSIT | Vidyalankar School of Information Technology

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to Mumbai University)

Certificate

This is to certify that

*Mr./Ms. SAHIL KONDVILKAR of B.Com. in Banking & Insurance, Semester VI has undertaken & completed the project work titled **A STUDY ON CUSTOMERS SATISAFACTION TOWARDS E-BANKING OF ICICI BANK** during the academic year **2021-22** under the guidance of Ms. SWAPNA KADAM submitted on **5-4-22** to this college in fulfilment of the curriculum of B.Com. in Banking & Insurance Markets University of Mumbai.*

This is a Bonafede project work & the information presented is True & original to the best of our knowledge and belief.

PROJECT	COURSE	EXTERNAL	PRINCIPAL
GUIDE	CO-ORDINATOR	EXAMINER	

ACKNOWLEDGMENT

I hereby acknowledge all those who directly or indirectly helped me in drafting of this project report. It would not have been possible for me to complete the task without their help and guidance.

First, I would like to thank my Ms. Swapna Kadam for the valuable guidance in completion of my project. I thank the Head of the Department Ms.Sindhu Krishnan and department faculty members for the moral support to complete the project. I thank our project in charge Ms. Kushboo Jhulka for updating me with university guidelines during my project work. My heartfelt gratitude to the principal Dr. Rohini Kelkar and the Vice-Principal Mr. Vijay Gawde, for the opportunity given to do the project work. Finally, I thank our library staff for assisting me in getting the right source of information.

Last but not the least; I am thankful to the University of Mumbai for offering the project in the syllabus. I must mention my hearty gratitude towards my family, other faculties and friends who supported me to go ahead with the project.

DECLARATION

Vidyalankar School of Information Technology

(Affiliated to University of Mumbai)

Vidyalankar Marg, Wadala (E),

Mumbai 400 037

I **Sahil Kondvilkar**, student of T.Y.B.Com. Banking & Insurance/Bachelor in Management studies/ B.Com. In financial Markets Semester VI, Vidyalankar School of Information Technology, hereby declare that I have completed the project on A STUDY ON CUSTOMERS SATISAFACTION TOWARDS E-BANKING OF ICICI BANK in academic year 2021-22.

The information submitted is true and original to the best of my knowledge.

Signature of student

Sahil Kondvilkar

Executive Summary

The E-Banking market is one that is experiencing a period of dramatic change, both in terms of users and product. This time of change is expected to continue in the future, making for some exciting times in the industry.

E-Banking banking has been the major success story in the industry. A number of new functions have become available to E-banking for consumers, such as applying for a loan or extension of an overdraft. In the past, customers had to visit a bank branch to ask the bank manager for a loan, but now this can be done online in a much shorter period of time.

As more users access or think about E-Banking it is very important for banks to ensure that their website is user friendly. As people use banking websites more often it is integral that they find them easy to use and do not find that a competitor's website is better in terms of user experience.

In terms of the number of E-Banking users, Key Note estimates that there were 45.1 million bank accounts registered to use E-Banking in 2010, up from 28.2 million in 2006. This rise shows how this part of the market is growing rapidly and banks need to be prepared for this figure to continue to rise, as Key Note has forecast that there will be 59.8 million bank accounts registered to use E-Banking in 2015.

As more people choose to use E-Banking to manage their finances, banks are starting to shut down their local branches. This is another sign that E-Banking is the future of the consumer banking industry.

Telephone banking is a market that is in slight decline. In 2009, the number of telephone banking users fell for the first time since its launch in 1989 and Key Note has forecast a small loss of accounts using telephone banking in 2010. This decline is forecasted to continue into the future.

The mobile phone banking sector is the market's biggest opportunity. If implemented correctly, consumers could pay their bills or apply for a loan within seconds on the go.

NatWest has had its iPhone application on the market for over a year and First Direct launched the first application in the UK to have a facility to transfer money in January 2011. India has recently updated its specifically designed mobile phone website and almost all of the major banks have plans to launch a mobile phone application or website in the coming months. Mobile banking will become much more accessible in the India in 2011.

-: INDEX:

➤ **Chapter No. 1:**
INTRODUCTION

➤ **ORIGIN OF THE TERM BANK: -**

The name bank is derived from the Italian word banco "desk/bench", used during the renaissance by Florentine bankers. these bankers used to make their transaction above a desk covered by a green tablecloth.

There are traces of banking activity even in ancient times. the word traces its origins back to the ancient Roman Empire, where moneylenders would set up their stalls in the middle of enclosed courtyards called macella on a long bench called a banquet. it is from here that the words banco and bank are derived.

In simple terms, a bank is an institution that accepts various types of deposits and then advances money in form of loans to people requiring it.

The oldest bank still in existence is Monte De Paschi DiSiena, headquartered in Italy, which has been operating continuously since 1472. be assigned, only the original depositor could collect the stored goods.

FIGURE 1. BANK OF ENGLAND CHARTER SEALING

- **BANKING:**

Under Indian law banking regulation act of India ,1949 "Accepting for the purpose of lending or investment, of deposits of money from the public, repayable on demand or otherwise and withdrawal by cheque, draft, and order or otherwise {section 5b}.

The Section 49A of the act prohibits any institution other than a banking company to accept deposit money from public withdraw able by cheque. banking business is the function of accepting from public with the facility of withdrawal of money by cheque. In other words, the combination of the functions of acceptance of public deposit and withdrawal of the money by cheques by any institution cannot be performed without the approval of Reserve Bank.

The origin of modern banks is traced to three important sources. they are: -

The goldsmiths

The money lenders

The merchant banker

The goldsmith by virtue of dealing in gold, which is a very valuable item, had facilities for the safe keeping of valuables. he accepted for safe custody the money, another important valuable item, belonging to his customers. The goldsmiths began to lend the money knowing that all the depository does not withdraw their saving at a time. the money lender lent his surplus funds to the needy and earned income by way of interest. The merchant bankers were primarily trader and had to oblige his customers by accepting their money for safe custody. he was doing the banking business as a side occupation.

FIGURE 2. CURRENCY OF INDIA

The banking industry has evolved from barter system and gift economics of earlier times to modern globalized and technology savvy internet and

e-banking an overview of history of banking detailing the major events of banking industry.

A bank is a financial institution that serves as a financial intermediary. the term "Bank" may refer to one of several related types of entities: -

A central bank: circulates money on behalf of a government and acts as its monetary authority by implementing monetary policy, which regulates the money supply.

A commercial bank: accepts deposits and pools those funds to provide credit, either directly by lending or indirectly by investing through the capital markets. within the global financial markets, these institutions connect market participants with capital deficits[borrowers] to market participants with capital surplus [investor or lenders] by transferring funds from those parties who have surplus funds to invest [financial asset] to those parties who borrow funds to invest in real assets

Land and development banks: The special banks providing Long Term Loans are called Land Development Banks, in the short, LDB. The history of LDB is quite old. The first LDB was started at Jang in Punjab in 1920. The main objective of the LDBs is to promote the development of land, agriculture and increase the agricultural production. The LDBs provide long-term finance to members directly through their branches

A saving bank: saving bank is also known as "building society" in the UK is similar to a savings and loan association they can either be stockholder owned or mutually owned, in which case they are permitted to only borrow from members of the financial co-operative. the asset structure of savings banks and savings and loan association is similar, with residential mortgage loans providing the principal assets of the institution's portfolio. because of the important role depository institutions play in the financial system, the

banking industry is generally regulated with government restrictions on financial activity by location.

A Banks main source of income paid on loans. a bank pays out at a lower interest rate on deposits and receives a higher interest rate on loans. the difference between these rates represents the bank's net income. bank also generate non-interest income from service fees for retail and business banking products, transactional fees or other non-traditional services such as trust and wealth management consulting, insurance, cash management services, mortgage loan closing costs and points.

❖ BANKING IN INDIA:

Banking in India in the modern sense originated in the last decades of the 18th century. The first banks were Bank of Hindustan (1770-1829) and The General Bank of India, established 1786 and since defunct. The largest bank, and the oldest still in existence, is the State Bank of India, which originated in the Bank of Calcutta in June 1806, which almost immediately became the Bank of Bengal. This was one of the three presidency banks, the other two being the Bank of Bombay and the Bank of Madras, all three of which were established under charters from the British East India Company. The three banks merged in 1921 to form the Imperial Bank of India, which, upon India's independence, became the State Bank of India in 1955. For many years the presidency banks acted as quasi-central banks, as did their successors, until the Reserve Bank of India was established in 1935.

A couple of decades later, foreign banks like credit Lyonnais also started operation in the 1850s in Calcutta. Banking activity took roots and prospered in Calcutta. The Allahabad bank, in 1895, was the first fully Indian owned bank. Bank of India, in 1906 in Mumbai both were founded under private ownership.

The Reserve bank of India formally took on the responsibility of regulating the Indian banking sector from 1935. After India's independence in 1947, the Reserve bank was nationalized and given broader powers to regulate and control the banking sector.

In 1969 the Indian government nationalized all the major banks that it did not already own and these have remained under government ownership. They are run under a structure known as 'profit-making public sector undertaking' (PSU) and are allowed to compete and operate as commercial banks. The Indian banking sector is made up of four types of banks, as well as the PSUs and the state banks, they have been joined since the 1990s by new private commercial banks and a number of foreign banks.

Generally banking in India was fairly mature in terms of supply product range and reach-even though reach in rural India and to the poor still remains a challenge. The government has developed initiatives to address this through the State Bank of India expanding its

branch network and through the <u>National Bank for Agriculture and Rural Development</u> with things like <u>microfinance</u>.

A bank's main source of income is interest paid on loans. A bank pays out a lower interest rate on deposits and receives a higher interest rate on loans. the difference between these rates represents the bank's net income. Banks also generate non- interest income from service fees for retail and business banking products, transactional fees, and non-traditional services such as trust and wealth management consulting, insurance, mortgage loan closing costs and points.

➢ FEATURES OF THE BANK:

Dealing in money: The banks accept deposits from the public and advancing them as loans to the needy people. the deposits may be of different types- fixed, current savings accounts etc.

.

Deposits must be withdrawal: The deposits [other than fixed deposits made by the public can be withdrawal by cheques, draft or otherwise. the deposits are usually withdrawal on demand.

Dealing with credit: The banks are the institutions that can create credit i.e., creation of additional money for lending. thus "creation of credit" is the unique features of banking.

Commercial in nature: since all the banking activities of commercial banks are carried on with the aim of making profit, it is regarded as a commercial institution

Nature of agent: besides the basic functions of accepting deposits and lending money as loans, banks possess the character of an agent because of its various agency services.

Payment and withdrawal: A bank provide easy payment and withdrawal facility to its customer in the form of cheque and draft it also brings bank money in circulation this money is the form of cheque, draft, etc.

Online tools: Check your account balances online, change your contact details, pay your BPAY bills, transfer money overseas, replace and activate your cards and much more.

➢ ROLE OF BANKS IN INDIAN ECONOMY:

There are some important roles in Indian economy are as follow:

Mobilizing Saving for Capital Formation:

The commercial banks help in mobilizing savings through network of branch banking. People in developing countries have low incomes but the banks induce them to save by introducing variety of deposit schemes to suit the needs of individual depositors. They also mobilize idle savings of the few rich. By mobilizing savings, the banks channelize them into productive investments. Thus, they help in the capital formation of a developing country.

Financing Industry:

The commercial banks finance the industrial sector in a number of ways. They provide short-term, medium-term and long-term loans to industry. In India they provide short-term loans. Income of the Latin American countries like Guatemala, they advance medium-term loans for one to three years. But in Korea, the commercial banks also advance long-term loans to industry. In India, the commercial banks undertake short-term and medium-term financing of small-scale industries, and also provide hire-purchase finance. Besides, they underwrite the shares and debentures of large-scale industries. Thus, they not only provide finance for industry but also help in developing the capital market which is undeveloped in such countries.

Financing Trade:

The commercial banks help in financing both internal and external trade. The banks provide loans to retailers and wholesalers to stock goods in which they deal. They also help in the movement of goods from one place to another by providing all types of facilities such as discounting and accepting bills of exchange, providing overdraft facilities, issuing drafts, etc. Moreover, they finance both exports and imports of developing countries by providing foreign exchange facilities to importers and exporters of goods.

Financing Agriculture:

The commercial banks help the large agricultural sector in developing countries in a number of ways. They provide loans to traders in agricultural commodities. They open a network of branches in rural areas to provide agricultural credit. They provide finance directly to agriculturists for the marketing of their produce, for the modernization and mechanization of their farms, for providing irrigation facilities, for developing land, etc. They also provide financial assistance for animal husbandry, dairy farming, sheep breeding, poultry farming, piece culture and horticulture. The small and marginal farmers and landless agricultural workers, artisans and petty shopkeepers in rural areas are provided financial assistance through the regional rural banks in India. These regional rural banks operate under a commercial bank. Thus, the commercial banks meet the credit requirements of all types of rural people.

Financing Consumer Activities:

People in underdeveloped countries being poor and having low incomes do not possess sufficient financial resources to buy durable consumer goods. The commercial banks advance loans to consumers for the purchase of such items as houses, scooters, fans, refrigerators, etc. In this way, they also help in raising the standard of living of the people in developing countries by providing loans for consumptive activities.♪

Financing Employment Generating Activities:

The commercial banks finance employment generating activities in developing countries. They provide loans for the education of young person's studying in engineering, medical and other vocational institutes of higher learning. They advance loans to young entrepreneurs, medical and engineering graduates, and other technically trained persons in establishing their own business. Such loan facilities are being provided by a number of commercial banks in India. Thus, the banks not only help inhuman capital formation but also in increasing entrepreneurial activities in developing countries.

Help in Monetary Policy:

The commercial banks help the economic development of a country by faithfully following the monetary policy of the central bank. In fact, the central bank depends upon the commercial banks for the success of its policy of monetary management in keeping with requirements of a developing economy.

Thus, the commercial banks contribute much to the growth of a developing economy by granting loans to agriculture, trade and industry, by helping in physical and human capital formation and by following the monetary policy of the country.

In India, the commercial banking sector has been the central part in the country's financial system. the sector has performed the key functions of providing liquidity and payment services to the real sector has accounted for the bulk of the financial intermediation process. besides institutionalizing savings, the banking sector has contributed to the process of economic development by serving as a major source of credit to household, government, and business and to weaker sectors of the economy like village and small-scale industries and agriculture. over the years, over 30-40% of gross household savings have been in the form of bank deposits and around 60% of the assets of all financial institutions accounted for by commercial banks.

An important landmark in the development of banking sector in recent years has been the initiation if reforms following the recommendation of the first Narasimha committee on financial system. in reviewing the strengths and weaknesses of these banks, the committee suggested several measures to transform the India banking sector from a highly regulated to a more market-oriented system and to enable it to compete effectively in an increasingly globalized environment. many of the recommendations of the committee especially those pertaining to interest rate, an institution of prudential norms and transparent accounting norms were in line with banking policy reforms. implemented by a host of developing countries since 1970"s.

FIGURE 3. TOP 10 BANKS IN INDIA

Range of activities

Activities undertaken by banks include personal banking, corporate banking, investment banking, private banking, transaction banking, insurance, consumer finance, trade finance and other related. Channels Banks offer many different

Channels

to access their banking and other services:

• Branch, in-person banking in a retail location

• Automated teller machine banking adjacent to or remote from the bank

• Bank by mail: Most banks accept cheque deposits via mail and use mail to communicate to their customers

• Online banking over the Internet to perform multiple types of transactions

• Mobile banking is using one's mobile phone to conduct banking transactions

• Telephone banking allows customers to conduct transactions over the telephone with an automated attendant, or when requested, with a telephone operator

• Video banking performs banking transactions or professional banking consultations via a remote video and audio connection. Video banking can be performed via purpose-built banking transaction machines (similar to an Automated teller machine) or via a video conference enabled bank branch clarification

• Relationship manager, mostly for private banking or business banking, who visits customers at their homes or businesses

• Direct Selling Agent, who works for the bank based on a contract, whose main job is to increase the customer base for the bank.

History of Banking in India

The first bank in India, though conservative, was established in 1786. From 1786 till today, the journey of Indian Banking System can be segregated into three distinct phases: • Early phase from 1786 to 1969 of Indian Banks • Nationalization of Indian Banks and up to 1991 prior to Indian banking sector reforms. • New phase of Indian Banking System with the advent of Indian Financial and Banking Sector Reforms after 1991. To make this write-up more explanatory, I prefix the scenario as:

- Phase I

- Phase II

- Phase III

FIGURE 4.

Phase I

The first bank in India, the General Bank of India, was set up in 1786. Bank of Hindustan and Bengal Bank followed. The East India Company established Bank of Bengal (1809), Bank of Bombay (1840), and Bank of Madras (1843) as independent units and called them Presidency banks. These three banks were amalgamated in 1920 and the Imperial Bank of India, a bank of private shareholders, mostly Europeans, was established. Allahabad Bank was established, exclusively by Indians, in 1865. Punjab National Bank was set up in 1894 with headquarters in Lahore. Between 1906 and 1913, Bank of India, Central Bank of India, Bank of Baroda, Canara Bank, Indian Bank, and Bank of Mysore were set up. The Reserve Bank of India came in 1935. During the first phase, the growth was very slow and banks also experienced periodic failures between 1913 and 1948. There were approximately 1,100 banks, mostly small. To streamline the functioning and activities of commercial banks, the Government of India came up with the Banking Companies Act, 1949, which was later changed to the Banking Regulation Act, 1949 as per amending Act of 1965 (Act No. 23 of 1965). The Reserve Bank of India (RBI) was vested with extensive powers for the supervision of banking in India as the Central banking authority. During

those days, the general public had lesser confidence in banks. As an aftermath, deposit mobilization was slow. Moreover, the savings bank facility provided by the Postal department was comparatively safer, and funds were largely given to traders.

Phase II

(1969 to 1991) The government took major initiatives in banking sector reforms after Independence. In 1955, it nationalized the Imperial Bank of India and started offering extensive banking facilities, especially in rural and semi-urban areas. The government constituted the State Bank of India to act as the principal agent of the RBI and to handle banking transactions of the Union government and state governments all over the country. Seven banks owned by the Princely states were nationalized in 1959 and they became subsidiaries of the State Bank of India. In 1969, 14 commercial banks in the country were nationalized. In the second phase of banking sector reforms, seven more banks were nationalized in 1980. With this, 80 percent of the banking sector in India came under the government ownership. The following are the steps taken by the Government of India to Regulate Banking Institutions in the country:

1949: Enactment of Banking Regulation Act.

1955: Nationalization of State Banking of India.

1959: Nationalization of SBI subsidiaries.

1961: Insurance cover extended to deposits.

1969: Nationalization of 14 major banks.

1971: Creation of credit guarantee corporation.

1975: Creation of regional rural banks.

1980: Nationalization of seven banks with deposits over 200 crores. After the nationalization of banks, the branches of the public sector bank India rose to approximately 800% in deposits and advances took a huge jump by 11,000%. Banking in the sunshine of Government ownership gave the public implicit faith and immense confidence.

Phase III (1991 onwards)

This phase has introduced many more products and facilities in the banking sector as part of the reforms process. In 1991, under the chairmanship of M Narasimha, a committee was set up, which worked for the liberalization of banking practices. Now, the country is flooded with foreign banks and their ATM stations. Efforts are being put to give a satisfactory service to customers. Phone banking and net banking are introduced. The entire system became more convenient and swifter. Time is given importance in all money transactions. The financial system of India has shown a great deal of resilience. It is sheltered from crises triggered by external macroeconomic shocks, which other East Asian countries often suffered. This is all due to a flexible exchange rate regime, the high foreign exchange reserve, the not-yet fully convertible capital account, and the limited foreign exchange exposure of banks and their customers.
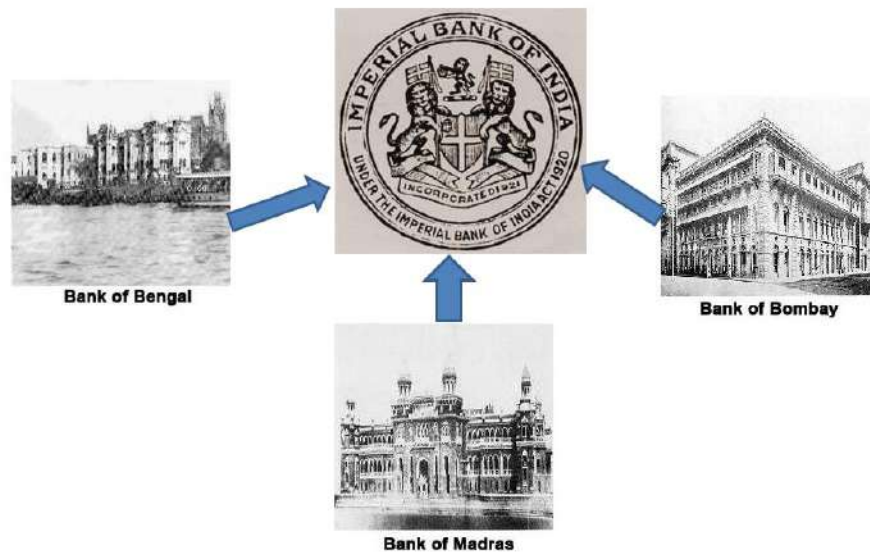
FIGURE 5. HISTORY OF BANKING IN INDIA

❖ DEFINITION OF E-BANKING:

E-Banking is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels.

INTRODUCTION TO E-BANKING: -

Electronic banking, personal computer [pc] banking, Internet banking, virtual banking, online banking, home banking, remote electronic banking and phone banking. electronic banking is an umbrella term for the process by which a customer may perform banking transaction electronically without visiting a brick-and-mortar institution.

E-Banking includes the systems that enable banks' customers- individuals or business, to check accounts, do/transact business or obtain information on financial products and services through a public or private network, including the internet.

customers can avail e-banking services by using an intelligent electronic device, such as a personal computer[pc], personal digital assistant [PDA], Automated teller machine [ATM], Kiosk or Touch Tone Telephone [TTT].

FIGURE 6. E-Banking

Traditional banks offer many services to their customers, including accepting customer money deposits provide various banking services to customers, and making loans to individuals and companies. compared with traditional channels of offering banking services through physical branches, e-banking uses the internet to deliver traditional banking services to their customers, such as opening accounts, transferring funds, and electronic bill payment.

E-Banking can be offer by existing bank with physical offices can establish online site and offer e-banking services to its customers in addition to regular channel.

E-Banking services are delivered to customers through the internet and the web using hypertext markup language [HTML]. in order to use e-banking services customers need internet access and web browser software. multimedia information in [HTML] format from online banks can be displayed in web browsers. the heart of the e-banking application is the computer system, which includes web server data base management system and web application programs that can generate dynamic HTML pages. one of the main concerns of e-banking is security. without great confidence in security customers are unwilling to use a public network such as the internet, to view their financial information online and conduct financial transaction. some of the security threats include invasion of individual's privacy and theft of confidential information.

To access a financial institution's online banking facility, a customer with Internet access would need to register with the institution for the service, and set up some password (under various names) for customer verification. The password for online banking is normally not the same as for telephone banking. Financial institutions now routinely allocate customers numbers (also under various names), whether or not customers have indicated an intention to access their online banking facility. Customers' numbers are normally not the same as account numbers, because a number of customer accounts can be linked to the one customer number The customer can link to the customer number any account which the customer controls, which may be cheque, savings, loan and credit card. Customer numbers will also not be the same as any debit or credit card issued by the financial institution to the customer.

To access online banking, a customer would go to the financial institution secured website, and enter the online banking facility using the customer number and password previously setup. Some financial institutions have set up additional security steps for access to online banking, but there is no consistency to the approach adopted.

Introduction of I-Mobile App.

ICICI Bank celebrates crossing the milestone of 20 years of digital banking journey in the country which was started with the launch of internet banking two decades ago. The Bank was the first to launch internet banking in 1998. It repeated the same feat when it introduced its mobile banking application, I-Mobile, in 2008, digital wallet in 2015 among many others. Today, the Bank's internet and mobile banking platforms are most comprehensive with over 350 and 250 services respectively. To celebrate this unique milestone, it unveiled an a ray of design thinking led futuristic and industry first services in I-Mobile to bring in the next level of customer experience. It includes the country's first and only software robotics algorithm led investment advisory application on mobile, 'Money Coach'. It manages the entire investment journey of a customer from building an investible corpus to investing in recommended portfolio sand tracking it 24x7. It also brings in a paperless KYC and online registration process for mutual funds in a single click, which is a first among banks. This facility brings in a new level of convenience and experience to customers as it replaces a lengthy and paper intensive process of registering their KYC for mutual funds. ICICI Academy for Skills (IAS) The Academy offers industry-relevant and job-oriented vocational training to youth from Underprivileged sections of the society. The Academy has trained over 1,05,000 candidates through its 24 Centre's free-of cost and empowered them to build a better future for the nation and themselves. Rural Self Employment Training Institutes (RSETI's) As part of a national programmer initiated by the Ministry of Rural Development (MORD), ICICI has set up RSETI's in Udaipur and Jodhpur.

HISTORY OF E-BANKING: -

The precursor for the modern home online banking services were the distance banking services over electronic media from the early 1980s. The term online became popular in the late '80s and referred to the use of a terminal, keyboard and TV (or monitor) to access the banking system using a phone line. 'Home banking' can also refer to the use of a numeric keypad to send tones down a phone line with instructions to the bank. Online services started in New York in 1981 when four of the city's major banks (Citibank, Chase Manhattan, Chemical and Manufacturers Hanover) offered home banking services. using the videotext system. Because of the commercial failure of videotext these banking services never became popular except in France where the use of videotext (Minitel) was subsidized by the telecom provider and the UK, where the Prestel system was used.

The UK's first home online banking services was set up by bank of Scotland for customers of the Nottingham building society in 1983. the system used a customer such as the BBC micro or keyboard [tan data Td 1400] connected to the telephone system and television set. the system known as 'Home link' allowed online viewing of statements, bank transfer and bill payments a written instruction giving detail of the intended recipient had to be sent to the NBS who set the details up on the home link system. typical recipients were gas, electricity and telephone companies and accounts with other banks. details of payments to be made were input into the NBS system by the account holder via Prestel.

FIGURE 7. CASHLESS ECONOMY

Chemical introduced its Pronto services for individuals and small businesses in 1983. It allowed individual and small-business clients to maintain electronic checkbook registers, see account balances, and transfer funds between checking and savings accounts. Pronto failed to attract enough customers to break even and was abandoned in 1989. Other banks had a similar experience.

Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value-added products and services. The delivery channels include direct dial – up connections, private networks, public networks etc. and the devices include telephone, Personal Computers including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), Internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as Internet Banking, although the range of products and services offered by different banks vary widely both in their content and sophistication.

Stanford federal credit union was the first financial institution to offer online internet banking services to all of its members in October 1994.

In 1994 online banking is built into Microsoft money personal finance software 100000 households began accessing bank accounts online after words in 2007 apple launch the iPhone and a shift from banking via personal computer to banking via smart phone begins. in 2009 the bank branches are increasingly less important to customer and banking moves to kiosk and online solution.

The entry of Indian banks into Net Banking:

Internet banking, both as a medium of delivery of banking services and as a strategic tool for business development, has gained wide acceptance internationally and is fast catching up in India with more and more banks entering the fray. India can be said to be on the threshold of a major banking revolution with net banking having already been unveiled. A recent questionnaire to which 46 banks responded, has revealed that at present, 11 banks

in India are providing Internet banking services at different levels, 22 banks propose to offer Internet banking in near future while the remaining 13 banks have no immediate plans to offer such facility.

At present, the total Internet users in the country are estimated at 9 lakhs. However, this is expected to grow exponentially to 90 lakhs by 2003. Only about 1% of Internet users did banking online in 1998. This increased to 16.7% in March 2000. * The growth potential is, therefore, immense. Further incentives provided by banks would dissuade customers from visiting physical branches, and thus get 'hooked' to the convenience of arm-chair banking. The facility of accessing their accounts from anywhere in the world by using a home computer with Internet connection, is particularly fascinating to Non-Resident Indians and High Net Worth Individuals having multiple bank accounts.

Today, many banks are internet only banks. unlike their predecessors these internets only banks do not maintain brick and mortar bank branches. instead, they typically differentiate themselves by offering better interest rates and online banking feature

FIGURE 8. HISTORY OF E-BANKING

- **THE BEGANNING**

The application covers Savings bank, Debit Card, Credit Card and Loan accounts. Customers can also pay their utility bills and insurance premium through this facility. ICICI Bank offers this facility free of charge to customers. Customers who are already registered for mobile alerts will be able to download this application by sending an SMS. Customers who have a GPRS connection will receive a WAP link for activation. Customers who do not have GPRS can download I-Mobile from ICICI Bank.com on their desktops. It can then be transferred on to their handsets using either Bluetooth or data cable.

VISION

Our Bank's plunge to excellence in all directions will be powered by the VISION that provides overarching inspiration, The VALUES that serve to guide taught & action, The VITALITY that embarks on strategy formation & execution. The immense potential of our Bank will be realized by the distinctive amalgam of the 'Vision, Values & Vitality.

MISSION

The new I-Mobile app is equipped with advanced encryption technologies making it as safe and secure as Internet Banking. No activation happens without a grid value verification, making it a multi-step security procedure. What's more, you can choose the method of log in with either an easy four-digit login Personal Identification Number (PIN) or use your Internet Banking User ID and Password. No sensitive information is stored on your mobile handset.

GROWTH & STRENGTH

I-Mobile is available on all mobile platforms including Android, iOS, Java, Windows and Blackberry. The upgraded app is available for download on Google Play store and Apple app store. Any ICICI Bank savings account customer, who has a mobile number registered with the Bank can download the I-Mobile application.

SERVICES OFFED BY I-MOBILE APP

- Internet Banking Login
- Internet Banking
- Open NRI Account
- NRI
- Open NRI Account
- Products
- Money Transfer
- NRI Engage
- Ways to Bank
- Personal
- Privilege
- Wealth Private
- Business
- SME
- Corporate
- Cashback Deals
- Offers
- ICICI Bank Country Websites

➢ **ICICI Bank**

INDUSTRIAL CREDIT AND INVESTMENT CORPORATION OF INDIA [ICICI] BANK: -

FIGURE 9. OFFICIAL LOGO OF ICICI BANK

❖ HISTORY

ICICI Bank was established by the Industrial Credit and Investment Corporation of India (ICICI), an Indian financial institution, as a wholly owned subsidiary in 1994. The parent company was formed in 1955 as a joint-venture of the World Bank, India's public-sector banks and public-sector insurance companies to provide project financing to Indian industry.

ICICI Bank launched internet banking operations in 1998.

ICICI's shareholding in ICICI Bank was reduced to 46 percent, through a public offering of shares in India in 1998. followed by an equity offering in the form of American Depositary Receipts on the NYSE in 2000. ICICI Bank acquired the *Madura Limited* in an all-stock deal in 2001 and sold additional stakes to institutional investors during 2001-02.

in the 1990s, ICICI transformed its business from a development financial institution offering only project finance to a diversified financial services group offering a wide variety of products and services, both directly and through a number of subsidiaries and affiliates like ICICI Bank. In 1999, ICICI become the first Indian company and the first bank or financial institution from non-Japan Asia to be listed on the NYSE. In 2000, ICICI Bank became the first Indian bank to list on the New York Stock Exchange with its five million American depository shares issue generating a demand book 13 times the offer size.

In October 2001, the Boards of Directors of ICICI and ICICI Bank approved the merger of ICICI and two of its wholly owned retail finance subsidiaries, ICICI Personal Financial Services Limited and ICICI Capital Services Limited, with ICICI Bank. The merger was approved by shareholders of ICICI and ICICI Bank in January 2002, by the High Court of Gujarat at Ahmadabad in March 2002 and by the High Court of Judicature at Mumbai and the Reserve Bank of India in April 2002.

In 2008, following the 2008 financial crisis, customers rushed to ICICI ATMs and branches in some locations due to rumors of adverse financial position of ICICI Bank. The Reserve Bank of India issued a clarification on the financial strength of ICICI Bank to dispel the rumors.

ICICI Bank is one of the *Big Four banks* of India, along with State Bank of India, Punjab National Bank and Bank of Baroda. The bank has subsidiaries in the United Kingdom, Russia, and Canada; branches in United States, Singapore, Bahrain, Hong Kong, Sri Lanka, Qatar and Dubai International Finance Centre; and representative offices in United Arab Emirates, China, South Africa, Bangladesh, Thailand, Malaysia and Indonesia. The company's UK subsidiary has also established branches in Belgium and Germany.

In March 2013, Operation Red Spider showed high-ranking officials and some employees of ICICI Bank involved in money laundering. After a government inquiry ICICI Bank suspended 18 employees and faced penalties from the Reserve Bank of India in relation to the activity.

ICICI Bank is India's second–largest bank with total assets of RS. 4,062.34 billion ($91 billion) at March 31, 2011 and profit after tax Rs. 51.51 billion ($1,155 million) for the year ended March 31, 2011. The Bank has a network of 2,535 branches and 6,810 ATMs in India, and has a presence in 19 countries, including India. ICICI Bank offers a wide range of banking products and financial services to corporate and retail customers through a variety of delivery channels and through its specialized subsidiaries in the areas of investment banking, life and non–life insurance, venture capital and asset management.

1.1 OBJECTIVE

- To know the purpose of using internet banking services
- To identify the reasons for maintaining internet banking account; and
- To measure the level of satisfaction of customers on Internet banking services provided by ICICI Bank.

Credit rating

On account of the growing concerns over India's sovereign debt ratings, credit ratings agency Moody's lowered the ratings for ICICI Bank from Baa3 to Baa2 in

Current Board of Director or Board Members

Girish Chandra Chaturvedi	Non-Exe.Part Time Chairman
Vijay Chandok	Executive Director
Sandeep Bakhshi	Managing Director & CEO
V K Sharma	Non-Executive Director
Uday Chitale	Non-Executive Director
Hari L Mundra	Independent Director
B Sriram	Independent Director
Vishakha Mulye	Executive Director
Anup Bagchi	Executive Director
Dileep Choksi	Non-Executive Director
Neelam Dhawan	Non-Executive Director
Radhakrishnan Nair	Independent Director
Lalit Kumar Chandel	Government Nominee Direct
Rama Bijapurkar	Independent Director

FIGURE 10. E-BANKING

ICICIs role in Indian financial infrastructure:

The bank has contributed to the setup of a number of Indian institutions to establish financial infrastructure in the country over the years;

National Stock Exchange - The National Stock Exchange was promoted by India's leading financial institutions (including ICICI Ltd.) in 1992 on behalf of the Government of India with the objective of establishing a nationwide trading facility for equities, debt instruments and hybrids by ensuring equal access to investors all over the country through an appropriate communication network.

Credit Rating Information Services of India Limited (CRISIL) - In 1987, ICICI Ltd along with UTI set up CRISIL as India's first professional credit rating agency. CRISIL offers a

comprehensive range of integrated products and service offerings which include credit ratings, capital market information industry analysis and detailed reports.

National Commodities and Derivatives Exchange Limited -NCDEX is an online multi-commodity exchange, set up in 2003, by ICICI Bank Ltd, LIC, NABARD, NSE, Canara Bank, CRISIL, Goldman Sachs, Indian Farmers Fertilizer Cooperative Limited (IFFCO) and Punjab National Bank.

Financial Innovation Network and Operations Pvt Ltd. - ICICI Bank has facilitated setting up of "FINO Cross Link to Case Link Study" in 2006 as a company that would provide technology solutions and services to reach the underserved and under banked population of the country. Using cutting edge technologies like smart cards, biometrics and a basket of support services, FINO enables financial institutions to conceptualize develop and operationalize projects to support sector initiatives in microfinance and livelihoods.

Entrepreneurship Development Institute of India - Entrepreneurship Development Institute of India (EDII), an autonomous body and not-for-profit society, was set up in 1983, by the erstwhile apex financial institutions like IDBI ICICI, IFCI and SBI with the support of the Government of Gujarat as a national resource organization committed to entrepreneurship development, education, training and research.

North Eastern Development Finance Corporation - North Eastern Development Finance Corporation (NEDFI) was promoted by national level financial institutions like ICICI Ltd in 1995 at Guwahati, Assam for the development of industries, infrastructure, animal husbandry, agri-horticulture plantation, medicinal plants, sericulture, aquaculture, poultry and dairy in the North Eastern states of India. NEDFI is the premier financial and development institution for the North East region.

Asset Reconstruction Company India Limited - Following the enactment of the Securitization Act in 2002, ICICI Bank together with other institutions, set up Asset Reconstruction Company India Limited (ARCIL) in 2003, to create a facilitative environment for the resolution of distressed debt in India. ARCIL was established to acquire non-performing assets (NPAs) from financial institutions and banks with a view to

enhance the management of these assets and help in the maximization of recovery. This would relieve institutions and banks from the burden of pursuing NPAs, and allow them to focus on core banking activities.

Institutional Investor Advisory Services India Limited (IIAS) - ICICI Bank has indirectly invested in Institutional Investor Advisory Services, through ICICI Prudential Life Insurance Company, in IiAS is a voting advisory firm aka proxy firm, dedicated to providing participants in the Indian market with data, research and commentary. It provides recommendations on resolutions placed before shareholders of over 300 companies.

➢ **GROWTH OF ICICI BANK:**

FIGURE 11. ICICI OFFICIAL LOGO

ICICI Bank is India's largest private sector bank. The bank has a network of 1,308 branches and 3,950 ATMs as well as robust Internet banking. The Bank is present in 19 countries, including India. ICICI Bank offers a wide range of banking products and financial services to corporate and retail customers through a variety of delivery channels a0-nd through its specialized subsidiaries and affiliates in the areas of investment banking, life and non-life insurance, venture capital and asset management.

Previously, the bank was dependent on its DW from Teradata. With dramatic growth in its users, amount of data, and source stations, etc., the increasing cost of scaling and maintenance and mounting system unavailability posed difficulties for the bank. To resolve these recurring problems, the bank undertook a migration of the enterprise **data warehouse** from Teradata to Sybase IQ. The success of this project provides the bank with an always available system, visibly increased query performance, and lower TCO among a host of many other benefits. Applauding the strength of Sybase IQ, Pravir Vohra, Group Chief Technology Officer, says, "Our business requirements were addressed well with minimum infrastructure. Sybase IQ is an excellent product."

ICICI Bank has its equity shares listed in India on Bombay Stock Exchange and the National Stock Exchange of India Limited. Overseas, its American Depositary Receipts (ADRs) are listed on the New York Stock Exchange (NYSE). As of December 31, 2008, ICICI is India's second-largest bank, boasting an asset value of Rs. 3,744.10 billion and profit after tax Rs. 30.14 billion, for the nine months, that ended on December 31, 2008.

Internet is a vast network of individual computers and computer networks connected to and communicate with each other using the same communication protocol – TCP/IP (Transmission Control Protocol / Internet Protocol). When two or more computers are connected a network is created; connecting two or more networks create 'internetwork' or Internet. The Internet, as commonly understood, is the largest example of such a system. Internet is often and aptly described as 'Information Superhighway', a means to reach innumerable potential destinations. The destination can be any one of the connected networks and host computers.

In March 2013, Operation Red Spider showed high-ranking officials and some employees of ICICI Bank involved in money laundering. After a government inquiry, ICICI Bank suspended 18 employees and faced penalties from the Reserve Bank of India in relation to the activity.

PRODUCTS /POCKETS BY ICICI BANK:

In September 2013, ICICI Bank launched a one of its kind app on Facebook '**Pockets by ICICI Bank'** to enable customers to carry out a wide range of financial transactions on Facebook Customers can access the ICICI Bank app by logging into their Facebook account and then going to the official ICICI Bank Facebook page, and clicking on the tab for Pockets by ICICI Bank. The customer then registers online with their debit card number and PIN, and selecting a new four-digit PIN for subsequent logins. Through the app, customers can make payments to friends, recharge prepaid mobile and book movie tickets. One can also carry out non-financial transactions such as accessing a mini statement of their savings bank account, getting demat holding statements, opening fixed or recurring deposit, order a cheque book, stop a cheque payment, upgrade debit card, among others.

Some of the key features of 'Pockets by ICICI Bank' are:

Split n share: It allows customers to split and track group expenses and share them with friends on Facebook. The app also gives the customer the option of sending messages to remind friends on pending payments.

Pay a friend: It allows customers to transfer funds to their friends without knowing their bank account details like account number, bank branch, branch IFSC code etc. Through this facility, customers can create electronic coupons that can be redeemed by their friends on the bank website icicibank.com

My Savings Rewards

ICICI Bank has rolled-out the programmer 'My Savings Rewards' from 1 September 2012, where reward points are offered to individual domestic customers for a variety of transactions done through the savings bank account. Reward points are offered automatically to customers for activating Internet banking, shopping online/ paying utility bills with Internet banking and auto-debit from savings account towards equated monthly installments for home/ auto/ personal loan/ recurring deposit. Customers are required to maintain a monthly average balance of ₹15,000 or more.

I Wish- the flexible recurring deposit

I Wish is a flexible recurring deposit product launched by ICICI Bank for its savings account customers. Unlike a traditional recurring deposit, I Wish allows customers to save varying amounts of money at any time of their choice. Customers can create several goals and track their progress on an online interface.

FIGURE 12. I-WISH

ICICI Bank has developed this product in collaboration with Social Money.

Go Green Initiative

The Go Green Initiative is an organization wide initiative that moves beyond moving people processes and customers to cost effective automated channels to build awareness and consciousness of our environment, our nation and our society.

FIGURE 13. G GREEN INITIATIVE

Instabanking

It is the platform that brings together all alternate channels under one umbrella and gives customers the option of banking through Internet banking, i-Mobile banking, IVR Banking.

FIGURE 14.

CRM IN ICICI BANK:

CRM is an acronym for "customer relationship management". it's a set of strategies, process, metrics, oxidational culture and technology solution that enhance an organization's ability to see difference in its present and prospective customers, track new opportunities to better serve customers and instant and profitability on those differences and opportunities. recently CRM has taken a center stage in the business world with business concentrating on saving money and increasing profits by redefining internal process and procedure. it cost a company dramatically less to retain and grow an existing client, than it does to court new ones. the aim of crm is optimize the use of technology and human resources.

CRM at ICICI bank involves increased communication between the bank and its present and prospective customers. it philosophy focus on each and every customer's satisfaction.

CRM facilitated coordinating of multiply business function and multiple channels of communication with the customer to carry out customer management more efficiency. it

also automated the process and helped generate customized report's and promote cross selling.

The typical components of a CRM strategy at ICICI as follows: -

Understand and differentiate: -

understanding customer is important in order to develop a sound relationship with them. customer profile is done in order to understand demographics, purchase pattern and channel preference. CRM also helped ICICI in valuation of its customers to understand customer profitability and customer's life time value

[CLV]

Develop and customize: -

In a customer centric business environment, the product and processes have to be according to customer's need and performance ICICI has always focused on developing channels of services delivery according to customer need and service expectation.

Interact and deliver: -

To faster a strong customer relationship ICICI ensured that all areas of the bank have easy access to relevant actionable customer information and employees should be trained on how to use customer information to tailor interaction based on both customer need and potential customer value.

Acquire and retain: -

CRM helped ICICI to figure out valuable customers and made it easy to formulate retention strategies for them it also helped it to cope up with the change in customer like cycle and offer services accordingly.

1.2 LIMITATIONS

E-banking is facing following challenges in ICICI bank:

- The most serious threat faced by e-banking is that it is not safe and secure all the time. There may be loss of data due to technical defaults.
- E-banks are facing business challenges. For the transactions made through internet, the service charges are very low. Unless a large number of transactions are routed over the Web the e-banks cannot think of profit.
- There is lack of preparedness both on part of banks and customers in the adoption of new technological changes.
- There is lack of proper infrastructure for the installation of e-delivery channels.

- With a chain of more than 65,000 branches, Indian Banking system is one of the largest banking networks in the world.
- Continuous deregulation has made the banking market extremely competitive with greater autonomy, operational flexibility and decontrolled interest rate and liberalized norms for foreign exchange.
- Marketplace has been redefined with new rules.

- Investing in state-of-the-art technology as the backbone to ensure reliable service delivery.
- Innovating products to capture customer 'mind share' to begin with and later the wallet share.

- The banks need some transformation initiatives in various fields for the emerging challenges. These initiatives include areas like; Strategy, Brand, Organization Restructuring, Re-engineering of the key business processes, Cost efficiency, Right Sizing and matching of skills, creating a high performing organization, change management and creating a new mind set.

1.3 RESEARCH METHODOLOGY

Survey Method has been followed for the study. Both primary and secondary sources of data were used. W ell structured questionnaire was designed to elicit necessary data and details

from the customers of ICICI Bank. The secondary data were collected from the books, journals, web portals, etc. The primary data was collected through the well structured questionnaire consists of optional type. The questionnaire consists of purpose of using internet banking, reasons for availing internet banking facility and satisfaction with internet banking. ICICI Bank was purposively selected on familiarity and it had unique performance compared with the other private sector banks in India. The Convenient Sampling Method was adopted to select the customers of internet banking of ICICI Bank in Erode. The sample sizes constituted 50 customers of ICICI Bank. The data collected from the respondents were coded

and tabulated to suit the requirements of the study.

FIGURE 15.

E-BANKING

- A bank customer can perform non-transactional tasks through online banking, including -
- viewing account balances
- viewing recent transactions
- Downloading <u>bank statements</u>, for example in <u>PDF</u> format
- viewing images of paid <u>cheques</u>
- ordering cheque books
- Download periodic account statements
- Downloading applications for M-banking, E-banking etc.

FIGURE 16.E-Banking System.

Bank customers can transact banking tasks through online banking, including -

- <u>Funds transfers</u> between the customer's linked accounts
- Paying third parties, including <u>bill payments</u> (see, e.g., <u>BPAY</u>) and third party <u>fund transfers</u>(see, e.g., <u>FAST</u>)

- Investment purchase or sale

- Loan applications and transactions, such as repayments of enrollments

- Credit card applications

- Register utility billers and make bill payments

- Financial institution administration

- Management of multiple users having varying levels of authority

- Transaction approval process

Some financial institutions offer unique Internet banking services, for example:

- Personal financial management support, such as importing data into personal accounting software. Some online banking platforms support aggregation to allow the customers to monitor all of their accounts in one place whether they are with their main bank or with other institutions.

Account Details: View your bank account details, account balance, download statements and more. Also view your Demat, Loan & Credit Card Account Details too all in one place.

Fund Transfer: Transfer fund to your own accounts, other Axis Bank accounts or Other Bank account seamlessly.

Request Services: Give a request for Cheque book, Demand Draft, Stop Cheque Payment, Debit Card Loyalty Point Redemption etc.

Investment Services: View your complete Portfolio with the bank, Create Fixed Deposit, Apply for IPO etc.

Value Added Services: Pay Utility bills for more than 160 billers, Recharge Mobile, Create Virtual Cards, pay any Visa Credit Card bills, register for   e-statement and SMS banking etc.

FIGURE 17. FEATURES OF E-BANKING

Types of E-Banking

❖ **PHONE BANKING: -**
   a) Interactive voice response
   b) Mobile banking

Is the provision of banking services using a classic telephone line A bank client can obtain the necessary information on dialing a telephone number specified in advance Before the requested banking service information is provided, the client's identity is determined using contractually agreed terms. Using this banking service enables bank clients to obtain information concerning active and passive banking products, but a client can also actively use the bank payment system and request, for example, a payment order or a collection order, open or cancel a term deposit or a current account. In this case a fax connected to the telephone serves as an output communication channel.

FIGURE 18.

The client advisor or so-called telephone banker is a bank employee capable of providing any information about products and services and, following verification that he is speaking with an authorized person, can also perform any passive or active operation. He can provide advice to the client and offer further banking products. One advantage of this service is that it requires no additional technical equipment apart from a telephone. As a rule, bank telephone center (call center) operators work 24 hours a day nonstop and it is thus possible to use their services from any place at any time.

A client advisor is a bank employee; the bank pays his salary thus increasing its costs and fees for this service. Banks there for sometimes establish automated telephone systems.

MAIL BANKING: -

Mail banking is another electronic banking service that makes it possible to communicate with the bank by electronic mail or e-mail. The most frequently used service is sending account statements at agreed periodicity to the client's mailbox. E-mail is not used for more complex operations. This service uses the public communications network, the internet. Its aim is to provide the client prompt information on operations realized on his/her account in electronic form.

FIGURE 19.

You can receive an electronic account statement in the form of a:

Daily statement - will be send to you for each day when there is at least one movement on your account. The file is sent as standard in a <u>text</u> format. If you are interested in using an electronic

Signature for automated processing - for example importing into your accountancy, we can provide you also with another format to suit your need - <u>HB</u>, <u>ABO</u>, <u>CC</u> or <u>MT940</u>,

Monthly statement - which you will obtain on the first day of each month with a complete summary of movements on your account for the preceding month. We will send you an electronic statement for any current account administered in Slovak koruna or for foreign currency.If you already have the Mail banking service activated, you can adjust the statement (layout, change to the definition or termination of its sending) by means of the Internet banking service or sported.

HOME BANKING: -

The practice of conducting banking transactions from home rather than at branch locations. Home banking generally refers to either banking over the telephone or on the internet. The first experiments with internet banking started in the early 1980s, but it did not become popular until the mid-1990s when home internet access was widespread. Today, a variety of internet banks exist which maintain few, if any, physical branches.

FIGURE 20.

Home banking is a service that enables a bank client to handle his accounts from a computer from a place selected in advance, at home or in the office. The main features of home banking systems are the high level of security, comfort, simplicity of use, openness of the system, wide communication possibilities, networking, definition of users and their rights, automated data transmission and the option to define a combined signature specimen. A home banking system usually consists of two parts: a bank computer program and a program in the client's computer. The bank program works as a communication server. It receives calls from clients, verifies their identity, receives data from them, authenticates digital signatures, generates digital receipts and sends data to clients. A home banking computer system is a multi-user application, meaning that several of

INTERNET BANKING: -

Internet banking can be used from the home or the office, as well as an internet café, although the latter is not recommended for security reasons. In order to handle his account a user just needs an internet browser (such as MS Explorer or Netscape Navigator). A client cannot avoid visiting the bank though, because he must first ask for an identification code. After opening the bank's web site, the client simply selects internet banking and, further to proper identification, can perform passive or active operations. Good internet banking should provide a maximum of services.

Internet has enabled banking at the click of a mouse. Internet banking is all poised to emerge as the most profound electronic channel in the near future. internet banking reduces bank's operating expenses mainly due to savings on prohibitive estate costs and expensive staff salary. It is estimated that the cost per transaction in internet banking will be only one-tenth of a regular branch transaction.

FIGURE 21. INTERNET BANKING

Internet banking is a platform for electronic delivery of banking services to the customers. In internet banking, customers of a bank with a pc and a browser, can have access to his bank's website, and therefore perform various banking function. Thus, he can avail of the bank's services from anywhere and at any time.

With the drastic fake in cell phone tariff and emergence of seamless connectivity between fixed and mobile lines, telebanking or mobile banking is set to emerge as one of the cost-

effective delivery channels in the near future. The toll-free number would also gain popularity as an important delivery channel. Successful adoption of wireless technology would help banks to offer not only anytime, anywhere banking but also any device banking.

AUTOMATED TELLER MACHINE (ATM):

ATM is designed to perform the most important function of bank. It is operated by plastic card with its special features. The plastic card is replacing cheque, personal attendance of the customer, banking hours restrictions and paper-based verification. There are debit cards. ATMs used as spring board for Electronic Fund Transfer. ATM itself can provide information about customers account and also receive instructions from customers - ATM cardholders. An ATM is an Electronic Fund Transfer terminal capable of handling cash deposits, transfer between accounts, balance enquiries, cash withdrawals and pay bills. It may be on-line or 0ff-line. The on-line ATN enables the customer to avail banking facilities from anywhere. In off-line the facilities are confined to that particular ATM assigned. Any customer possessing ATM card issued by the Shared Payment Network System can go to any ATM linked to Shared Payment Networks and perform his transactions.

FIGURE 22. ATM

Biometric ATMs and solar powered ATMs have been introduced in recent times to boost micro financing initiative and financial inclusion.

Biometric ATMs:

ATMs are equipped with biometric identification of the user so that even the illiterate masses can use ATMs. Biometric identification is nothing but using the body as a password. It refers to the technique of verifying a person by a physical characteristic or personal trait. for e.g., if a fingerprint scan is used for authentication, a customer is required to set his finger on the fingerprint scanner when he inserts (or stripes) his card in a biometric-enabled ATM. So, there is no need to remember the personnel identification number (PIN). A company's biometric ATM interface solution (BAIS) meet the requirements by performing the requisite message transactions as well as confirming authorization.

Solar powered ATMs:

It is an ATM designed to enable a low-cost model in delivering banking services in rural areas by using the solar energy. These ATMs are easy to use since they employ biometric system and moreover, they are eco-friendly. It is less power hungry and cheaper. It requires only one-fourth of the cost of a conventional ATM.

White label ATMs:

With a view to encouraging the growth and penetration of ATMs, non-banking entities have been permitted to enter into the space of ATM operations. ATMs opened under such categories are called white Label ATMs. so far, 12 non-banking entities have been granted approval to launch white label ATMs.

Credit Cards/Debit Cards:

FIGURE 23. DEBIT/CREDIT CARDS

The Credit Card holder is empowered to spend wherever and whenever he wants with his Credit Card within the limits fixed by his bank. Credit Card is a postpaid card. Debit Card, on the other hand, is a prepaid card with some stored value. Every time a person uses this card, the Internet Banking house gets money transferred to its account from the bank of the buyer. The buyer's account is debited with the exact number of purchases. An individual has to open an account with the issuing bank which gives debit card with a Personal Identification Number (PIN). When he makes a purchase, he enters his PIN on shops PIN pad. When the card is slurped through the electronic terminal, it dials the acquiring bank system - either Master Card or VISA that validates the PIN and finds out from the issuing bank whether to accept or decline the transactions. The customer can never overspend because the system rejects any transaction which exceeds the balance in his account. The bank never faces a default because the amount spent is debited immediately from the customer's account.

SMARTCARD:

Banks are adding chips to their current magnetic stripe cards to enhance security and offer new service, called Smart Cards. Smart Cards allow thousands of times of information storable on magnetic stripe cards. In addition, these cards are highly secure, more reliable and perform multiple functions. They hold a large amount of personal information, from medical and health history to personal banking and personal preferences.

FIGURE 24.

The smart card technology is also widely used by bankers to market their products. Smart card, which is a chip- based card, is a kind of an electronic purse. Embedded in the smart card is microchip which will store a monetary value. When a transaction is made using the card, the value is debited and balance comes down automatically. Once the monetary value comes down to nil, the balance is to be restored all over again so that the card becomes operational as usual. It is more secure that ATM, debit and credit cards because card related frauds and crimes cannot take place in a smart card. It provides communication security as it verifies whether the signature is genuine or not. The card also recognizes different voice and compares with the recorded original voice. It is used for making purchase without the necessity of requiring the authorization of personal identification number (PIN) as in a debit card. It does away with all problems associated with the traditional currency.

In fact, a smart card is a truly powerful token which carries out all the functions of magnetic strips cards like ATM card, credit and debit cards etc.

NSS – NATIONAL SETTLEMENT SYSTEM: -

National settlement system is a system established by reserve bank of India through which the clearing houses/clearing organizations can settle the net position of the participating banks at the national level.

The Federal Reserve Banks provide the National Settlement Service (NSS), which allows participants in private-sector clearing arrangements to exchange and settle transactions on a multilateral basis through designated master accounts held at the Federal Reserve Banks. There are approximately 17 NSS arrangements that have been established by financial market utilities, check clearinghouse associations, and automated clearinghouse networks.

NSS provides an automated mechanism for submitting settlement files to the Federal Reserve Banks and reduces settlement risk to participants by granting settlement finality on settlement day. NSS also enables the clearing arrangements to manage and limit settlement risk by incorporating risk controls that are as robust as those used in the Fedwire Funds Service. Participants generally submit settlement files online, by initiating an electronic message. The NSS business day begins at 8:30 a.m. and ends at 5:00 p.m. eastern time (ET), Monday through Friday, excluding designated holidays. Files submitted earlier than 8:30 a.m. ET are queued for processing beginning at 8:30 a.m. ET.

RTGS AND NEFT: -

Electronic payment system initiated by RBI is Real Time Gross Settlement. RTGS is a fund transfer system where transfer of money takes place from one bank to another on a real time basis. this is the fastest mode of funds transfer available in India through banking channel. RTGS is an electronic payment system in which payment instruction between banks are processed and settled individually and continually, on a real time basis, throughout the day.

NEFT stands for 'National Electronic Funds Transfer' and the funds transfer takes place within the same day if it is within the cut-off time and the next working day if it is beyond the cut-off time prescribe. it is a batch settlement mode. funds are transfer to the credit account with the other participating bank using RBI's NEFT service. RBI acts as the service provider and transfers the credit to the other bank's account. it is a nation – wide system that facilities individuals to electronically transfer funds from any bank branch to any other bank branch in the country.

It is an electronic payment system in which payments instruction between banks are processed and settled on deferred net settlement [DNS] basis at fixed times during the day.

DIGITAL TV AND TELEBANKING: -

The Television Banking enables customers to conduct banking business with television and TV set-top box as the terminal and remote control for the operational tool based on the cable TV broadband network. Compared with online banking, television banking is closer to the life of everyone. Customers of television banking do not need to purchase a computer or bear the internet "jam"; compared with telephone banking, television banking has a more direct trading interface and all-inclusive information display. Television banking enables customers to complete banking transactions through the television, have access to financial products and industry information, and experience a more fashionable and convenient wealth management approach.

Using the standard digital reception equipment [set top box and remote control], users can access their bank account. abbey national and HSBC services are available via digital TV providers. one of its main selling points is that no account details are transmitted via the world wide web.

Telephone banking is a service provided by a <u>bank</u> or other <u>financial institution</u>, that enables <u>customers</u> to perform <u>financial transactions</u> over the telephone, without the need to visit a <u>bank branch</u> or <u>automated teller machine</u>. Telephone banking times can be longer than branch opening times, and some financial institutions offer the service on a 24-hour basis. From the bank's point of view, telephone banking reduces the cost of handling transactions by reducing the need for customers to visit a bank branch for non-cash withdrawal and deposit transactions.

Telebanking is increasingly used as a delivery channel for making banking services. A customer can do entire non-cash-related banking over the phone anywhere and at any time. Automatic voice recorders (AVR) or ID number are used for rendering telebanking services which have added convenience to customers.

Services, Attack, Security, Countermeasure

Security:

FIGURE 25.

One of the biggest attractions of Internet as an electronic medium is its openness and freedom. It is a public domain and there is no restriction on who can use it as long as one adheres to its technical parameters. This has also given rise to concerns over the security of data and information transfer and privacy. These concerns are common to any network including closed user group networks. But over the Internet, the dimensions of risk are larger while the control measures are relatively fewer. It will be sufficient to say here that the key components of such concern are,

Authentication, viz., assurance of identity of the person in a deal,

Authorization, viz., a party doing a transaction is authorized to do so,

The privacy or confidentiality of data, information relating to any deal,

Data integrity, viz., assurance that the data has not been altered

Non repudiation, viz., a party to the deal cannot deny that it originated the communication or data.

Security of a customer's financial information is very important, without which online banking could not operate. Financial institutions have set up various security processes to reduce the risk of unauthorized online access to a customer's records, but there is no consistency to the various approaches adopted. The use of a secure website has become almost universally adopted.

The PIN/TAN system where the PIN represents a password, used for the login and TANs representing one-time passwords to authenticate transactions. TANs can be distributed in different ways, the most popular one is to send a list of TANs to the online banking user by postal letter. Another way of using TANs is to generate them by need using a security token. These token generated TANs depend on the time and a unique secret, stored in the security token (two-factor authentication or 2FA).

More advanced TAN generators (chip TAN) also include the transaction data into the TAN generation process after displaying it on their own screen to allow the user to discover man-in-the-middle attacks carried out by Trojans trying to secretly manipulate the transaction data in the background of the PC.

Another way to provide TANs to an online banking user is to send the TAN of the current bank transaction to the user's (GSM) mobile phone via SMS. The SMS text usually quotes the transaction amount and details, the TAN is only valid for a short period of time. Especially in Germany, Austria and The Netherlands, many banks have adopted this "SMS TAN" service.

Usually online banking with PIN/TAN is done via a web browser using SSL secured connections, so that there is no additional encryption needed.

Signature based online banking where all transactions are signed and encrypted digitally. The Keys for the signature generation and encryption can be stored on smartcards or any memory medium, depending on the concrete implementation.

Attacks:

Attacks on online banking used today are based on deceiving the user to steal login data and valid TANs. Two well-known examples for those attacks are phishing and pharming. Cross-site scripting and key logger/Trojan horses can also be used to steal login information.

A method to attack signature based online banking methods is to manipulate the used software in a way that correct transactions are shown on the screen and faked transactions are signed in the background.

FIGURE 26. Attacks.

A 2008 U.S. Federal Deposit Insurance Corporation Technology Incident Report, compiled from suspicious activity reports banks file quarterly, lists 536 cases of computer intrusion, with an average loss per incident of $30,000 That adds up to a nearly $16-million loss in the second quarter of 2007. Computer intrusions increased by 150 percent between

the first quarter of 2007 and the second. In 80 percent of the cases, the source of the intrusion is unknown but it occurred during online banking, the report states.

Another kind of attack is the so-called Man in the Browser attack, where a Trojan horse permits a remote attacker to modify the destination account number and also the amount.

As a reaction to advanced security processes allowing the user to cross check the transaction data on a secure device there are also combined attacks using malware and social engineering to persuade the user himself to transfer money to the fraudsters on the ground of false claims (like the claim the bank would require a "test transfer" or the claim a company had falsely transferred money to the user's account and he should "send it back"). Users should therefore never perform bank transfers they have not initiated themselves.

Countermeasures:

There exist several countermeasures which try to avoid attacks. Digital certificates are used against phishing and pharming, in signature based online banking variants (HBCI/FinTS) the use of "Secoder" card readers is a measurement to uncover software side manipulations of the transaction data.[11] To protect their systems against Trojan horses, users should use virus scanners and be careful with downloaded software or e-mail attachments.

In 2001, the U.S. Federal Financial Institutions Examination Council issued guidance for multifactor authentication (MFA) and then required to be in place by the end of 2006.

In 2012, the European Union Agency for Network and Information Security advised all banks to consider the PC systems of their users being infected by malware by default and therefore use security processes where the user can cross check the transaction data against manipulations like for example (provided the security of the mobile phone holds up) SMS TAN where the transaction data send along with the TAN number or standalone smartcard readers with an own screen including the transaction data into the TAN generation process

while displaying it beforehand to the user (see chip TAN) to counter man-in-the-middle attacks..

FIGURE 27. Security Measures

E-Banking technological structure & components

E-BANKING STRUCTURE: -

Internet is a vast network of individual computers and computer networks connected to and communicate with each other using the same communication protocol – TCP/IP (Transmission Control Protocol / Internet Protocol). When two or more computers are connected a network is created; connecting two or more networks create 'internetwork' or Internet. The Internet, as commonly understood, is the largest example of such a system. Internet is often and aptly described as 'Information Superhighway'   means to reach innumerable potential destinations. The destination can be any one of the connected networks and host computers.

E-banking systems differ in their structure depending in the following factors:
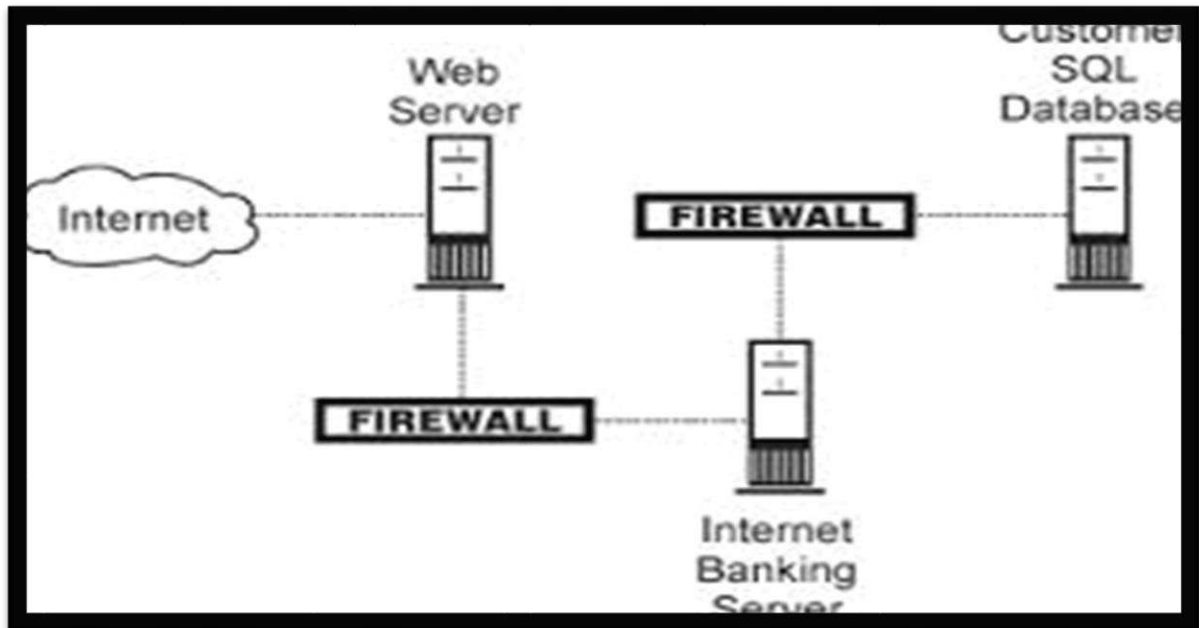
FIGURE 28.E-banking Structure.

E-banking server

The objectives of banks for e-banking.

The technological expertise required and the relevant capacity of the banks in affording such technology.

The level of operations-it is based on the scope and complexity, systems, and planned activities of the banking institutions.

Hardware- the hardware requirements include:

    i.   servers

    ii.   storage device and database

    iii.   communication channels and lines

    iv.   Gateways and remotely located devices [e.g., thin clients or internet appliance] serving as interface between users and computers.

The software requirements and the limit that the bank can afford- including up gradation in future.

the software requirements include:

    i.   operating system

    ii.   firewalls

    iii.   database management systems

    iv.   security application programs

Security application programs

Technology for security – this is based on the internal control requirements. it includes the authentication of customers such as passwords etc.

Training required to administer at the institutional level and the resultant cost elements.

E-BANKING COMPONENTS: -

E-banking systems can vary significantly in their configuration depending on a number of factors. Financial institutions should choose their e-banking system configuration, including outsourcing relationships, based on four factors:

Automated decision support systems

programming support

core processing system

Internal network services

e-banking application

website design and hosting

firewall configuration and management

intrusion detection system network administration

security management

internet banking server.

Financial institutions may choose to support their e-banking services internally. Alternatively, financial institutions can outsource any aspect of their e-banking systems to third parties. The following entities could provide or host (i.e., allow applications to reside on their servers) e-banking-related services for financial institutions:

Another financial institution,

Internet service provider,

Internet banking software vendor or processor,

Core banking vendor or processor,

Managed security service provider,

Bill payment provider,

Credit bureau, and

Credit scoring company.

E-banking systems rely on a number of common components or processes. The following list includes many of the potential components and processes seen in a typical institution:

Website design and hosting,

Firewall configuration and management,

Intrusion detection system or IDS (network and host-based),

Network administration,

Security management,

Internet banking server,

E-commerce applications (e.g., bill payment, lending, brokerage),

Internal network servers,

Core processing system,

Programming support, and

Automated decision support systems.

These components work together to deliver e-banking services. Each component represents a control point to consider.

Through a combination of internal and outsourced solutions, management has many alternatives when determining the overall system configuration for the various components of an e-banking system. However, for the sake of simplicity, this booklet presents only two basic variations. First, one or more technology service providers can host the e-banking application and numerous network components as illustrated in the following diagram. In this configuration, the institution's service provider hosts the institution's website, Internet banking server, firewall, and intrusion detection system. While the institution does not have to manage the daily administration of these component systems, its management and board remain responsible for the content, performance, and security of the e-banking system.

FIGURE 29. **Third-Party Provider Hosted E-Banking Diagram**

This diagram illustrates the transaction flow for one possible configuration where the bank relies on a technology service provider to host its Internet banking application.

Internet banking customer sends an e-banking transaction through their Internet Service Provider (ISP) via a phone, wireless, or broadband connection.

The customer's ISP routes the transaction through the Internet and sends it to the e-banking service provider's ISP, which routes it to the provider.

The transaction enters the provider's network through a router, which directs the e-banking transaction through a firewall to the application running on the Internet banking server.

The website server and Internet banking server may have host-based intrusion detection system (IDS) software monitoring the server and its files to provide alerts of potential unauthorized modifications.

Network IDS software may reside at different points within the network to analyze the message for potential attack characteristics that suggest an intrusion attempt.

The Internet banking application processes the transaction against account balance data through a real time connection to the core banking system or a database of account balance data, which is updated periodically from the core banking system.

The Internet banking server has a firewall filtering Internet traffic from its internal network.

Second, the institution can host all or a large portion of its e-banking systems internally. A typical configuration for in-house hosted, e-banking services is illustrated below. In this case, a provider is not between the Internet access and the financial institution's core processing system. Thus, the institution has day-to-day responsibility for system administration.

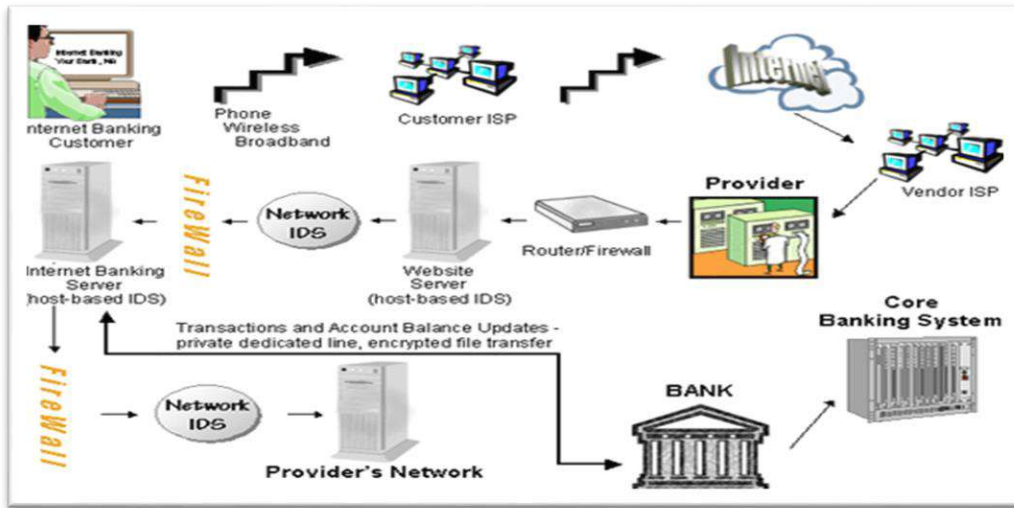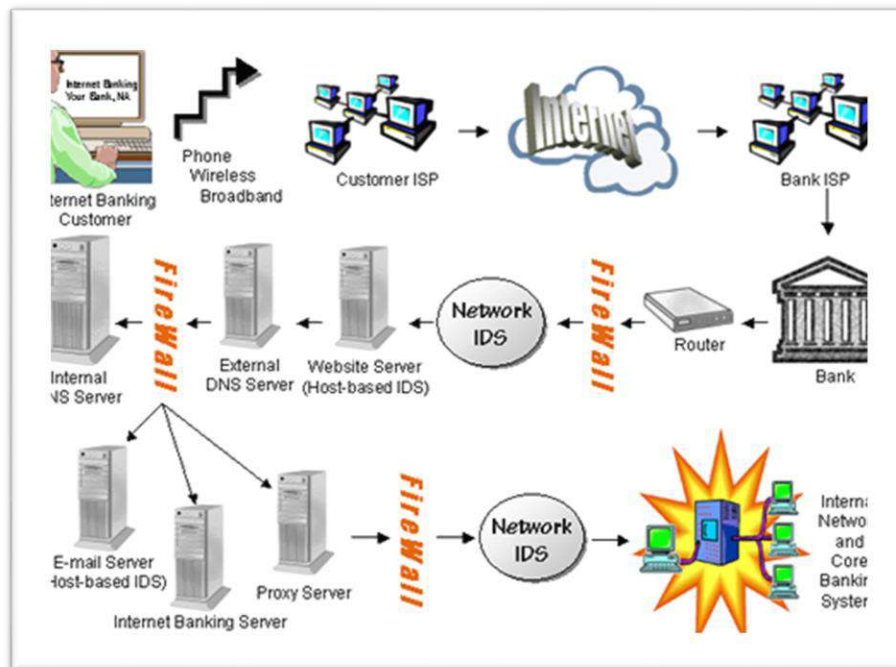**FIGURE 30. In-House E-Banking Diagram**

This diagram illustrates the transaction flow for one possible configuration in which the bank hosts the Internet banking application. Internet banking customer sends an e-banking transaction through their Internet Service Provider (ISP) via a phone, wireless, or broadband connection.

The customer's ISP routes the transaction through the Internet and sends it to thee-banking service bank's ISP, which routes it the provider.

The transaction enters the bank's network through a router, which directs the Internet-banking transaction through a firewall to the application running on the Internet banking server.

The bank typically has several Internet application servers that could include a website server, e-mail server, proxy server, and domain name server (DNS) in addition to the Internet banking application server.

The router will typically send the transaction around the other application servers directly to the Internet banking server unless it is a non-banking transaction.

The website server and Internet banking server may have host-based intrusion detection system (IDS) software monitoring the server and its files to provide alerts of potential unauthorized modifications.

Network IDS software may reside at different points within the network to analyze the message for potential attack characteristics that suggest an unauthorized intrusion attempt.

The Internet banking application processes the transaction against account balance data through a real time connection to the core banking system or a database of account balance data, which is updated periodically from the core banking system.

The Internet banking server has a firewall filtering Internet traffic from the bank's internal network.

E-Banking Technology Cycle

Once the most aggressive users of IT, financial institutions have learned to make do with less. But few can go on cost-cutting indefinitely. Computer- and telecoms-makers could soon be feasting again.

WAS it merely three years ago that the entire financial world was moving everything it could on to the internet as rapidly as possible? People were going to bank and trade shares as well as get insurance and loans all through a browser, preferably the one on a mobile phone. No one would write cheques ever again.

Some of that actually came to pass—albeit in parts of Europe and East Asia. But for the rest of the world, banks, securities firms and insurers have too many pressing problems on their hands to think about implementing grand online schemes. All their technological developments now focus on cost-cutting, improved system integration and (believe it or not) the revival of old-fashioned branch networks.

For makers of computers, storage devices and high-speed networks, that is grim news. The fact is that no other sector of the global economy drives capital spending on information technology (IT) as much as the financial-services business does. Until that recovers, the IT slump will continue.

By and large, financial-services firms get good returns from IT. In the hoary debate over whether IT improves productivity, even naysayers agree that, at least in financial services, it demonstrably does so. That has been particularly true for investment banks, where program trading has been moving markets since the mid-1980s. So effective were the buy/sell software suites developed by a handful of American stock broking firms those Japanese authorities hurried out new regulations to prevent the foreigners from cleaning up. Since then, technology for speeding access to share prices, trading volumes or even the latest market-shifting rumors has contributed handsomely to Wall Street profits.

But the three-year economic downturn has cooled even Wall Street's ardor for fancy new IT gear. Retail and investment banks, as well as insurers, have been forced to take

stock. Across the board, few financial-services firms have been spending on IT projects that do not guarantee short-term results. The problem is that most IT projects are lengthy affairs and notoriously "back-loaded", delivering their pay-off only after a number of years in use. "The field of dreams has been folded up and taken away," observes Mark Sieve right of Tower Group, a Reuters subsidiary in Needham, Massachusetts. Still, Mr. Sieve right notes that financial-services firms continue to spend heavily on technology. He expects to see worldwide spending top $337 billion in 2003, a 2.3% increase over 2002. The increase is led by a 2.8% rise in America, which overshadows an expected 1.1% drop in Europe (mostly in Germany).
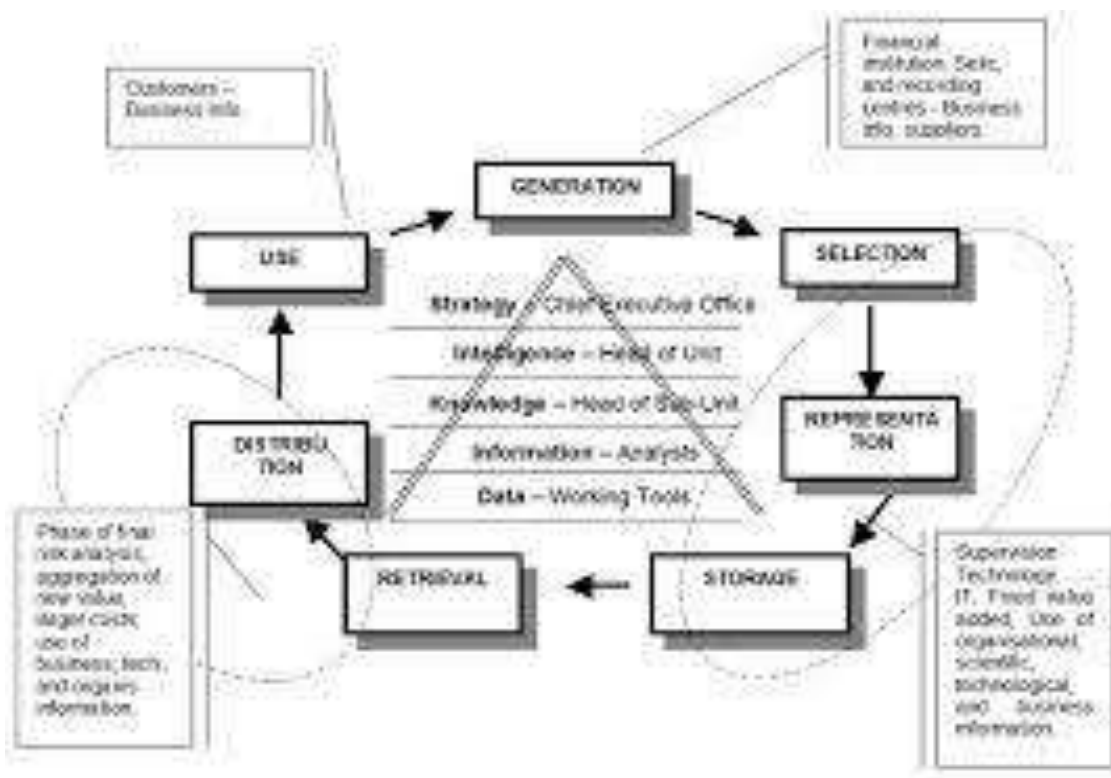

FIGURE 31.E-Banking Technology cycle

For the institutions, penny-pinching is paying off. Once, investment banks had pricey workstations from the likes of Sun, Hewlett-Packard and IBM on every desk. These used proprietary versions of the Unix operating system. Most of these have since been replaced by scrappy Intel-based PCs running the free Linux operating system. The same goes for

the proprietary servers, which have likewise been replaced by Intel-based machines costing a fifth as much to own. In addition, financial-services firms have become more aggressive about out-sourcing parts—in some cases, all—of their IT operations. Tower Group has tracked 20 such deals worth at least $1 billion apiece over the past 12 months. The biggest was a $4.5 billion deal signed by Bank of America to outsource just the network part of its operations. Add the trend towards moving costly software development projects offshore, first to India and now to China as well, and programming costs can be reduced by nearly two-thirds.

But such belt-tightening can only go so far. Firms have to maintain the systems they have already deployed. Indeed, of Tower Group's forecast $337 billion, nearly $250 billion will go on maintenance and upgrades of existing equipment, such as the mainframe computers at the core of many large systems. While that leaves some $88 billion for new projects, financial-services firms have a number of urgent needs.

Many of these needs are similar around the globe. For instance, securities firms need to carry on spending so their "quants" (quantitative research analysts) can concoct yet cleverer algorithms for beating the market. Some firms are also looking at new computing concepts, such as grid and utility computing, which promise to make better use of existing resources. But most of what they will do falls into the category of make-do-and-mend. The continuing organizational shifts following mergers and rationalization measures, for instance, create horrendous systems issues that have to be addressed immediately.
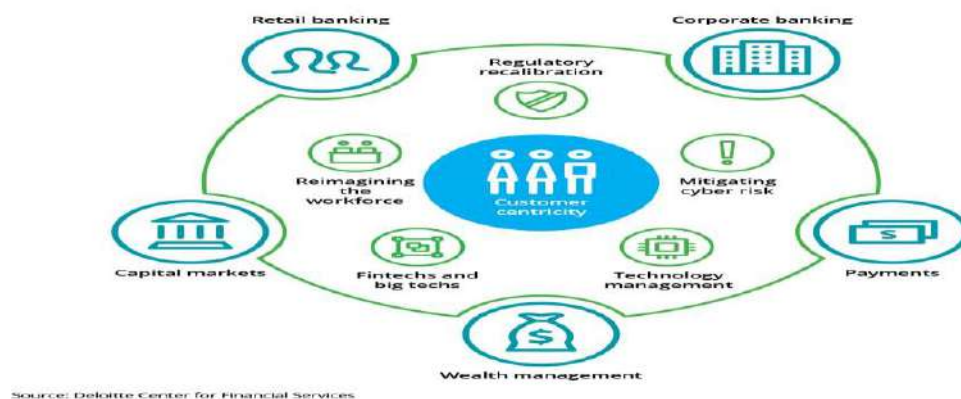
FIGURE 32. CUSTOMER CENTRACITY

E-Banking process / strategy

PROCESS/ PROCEDURE OF E-BANKING:

E-banking process can be explained with the help of following diagram and explanation as under:
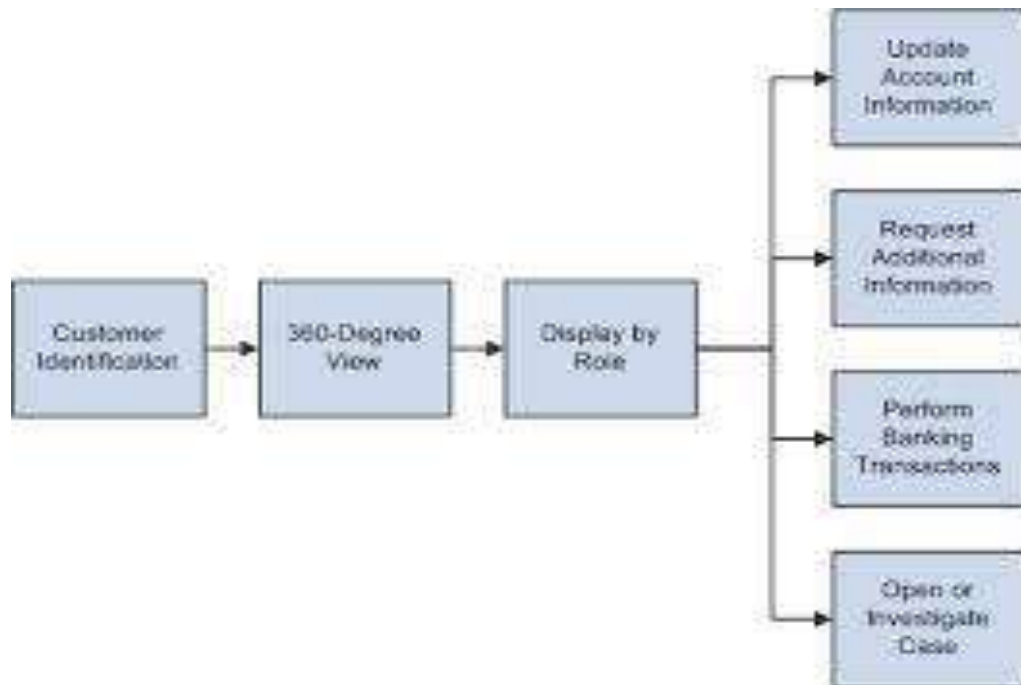
FIGURE 33.Procedure of E-BANKING.

To make the use of e-banking user has to go to the world wide web and log on to the website.

Next step follows verification of user ID and password by the website server.

As soon as pasword is approved on the server, then processing of information will start on the web.

In this step, credit card number will be demanded for online transaction.

If all security measure are completed then the transaction is approved accordingly.

E-BANKING STRATEGY :-

Financial institution management should choose the level of e-banking services provided to various customer segments based on customer needs and the institution's risk assessment considerations. Institutions should reach this decision through a board-approved, e-banking strategy that considers factors such as customer demand, competition, expertise, implementation expense, maintenance costs, and capital support. Some institutions may choose not to provide e-banking services or to limit e-banking services to an informational website. Financial institutions should periodically re-evaluate this decision to ensure it remains appropriate for the institution's overall business strategy. Institutions may define success in many ways including growth in market share, expanding customer relationships, expense reduction, or new revenue generation. If the financial institution determines that a transactional website is appropriate, the next decision is the range of products and services to make available electronically to its customers. OTS-regulated institutions must send a notice in conformance with 12 CFR 555, "Electronic Operations" prior to establishing a transactional website. To deliver those products and services, the financial institution may have more than one website or multiple pages within a website for various business lines.

Based on Porter (1980) generic strategies, Citibank opted for a differentiation strategy for its home banking service by offering a superior web banking option with powerful and relevant functionalities wherein customers can access/operate their banking accounts on the net with full confidence and ease.

In the year 2000, there were only four local banks offering simple home banking solutions, Citibank wanted to be the first multinational bank to launch a multifunctional home banking service and own the category before competition becomes fierce in the field. Online banking and identifies the strategies banks need to execute to expand   adoption and increase usage of this low-cost channel. This report recommends that banks adopt a more aggressive strategy that will give them a competitive advantage with internet savvy and younger consumers who will fuel banks' profits in the decade ahead.Focuses on human, operational, managerial, and strategic organizational issues in e-banking. A

cutting-edge reference source written by a collaboration of international experts, this book provides new theoretical constructs currently underpinning research and practices within the field. In addition, this Premier Reference Source covers significant key elements, relevant perspectives and ideas, and leading theories involving the field of e-banking management.

Risk Management of E-Banking Activities:

The practice of holding a check at the institution at which it was deposited (or at an intermediary institution) and electronically forwarding the essential information on the check to the institution on which it was written. A truncated check is not returned to the writer.

As noted in the prior section, e-banking has unique characteristics that may increase an institution's overall risk profile and the level of risks associated with traditional financial services, particularly strategic, operational, legal, and reputation risks. These unique e-banking characteristics include:

- Speed of technological change,
- Changing customer expectations,
- Increased visibility of publicly accessible networks (e.g., the Internet),
- Less face-to-face interaction with financial institution customers,
- Need to integrate e-banking with the institution's legacy computer systems,
- Dependence on third parties for necessary technical expertise, and
- Proliferation of threats and vulnerabilities in publicly accessible networks.

Management should review each of the processes discussed in this section to adapt and expand the institution's risk management practices as necessary to address the risks posed by e-banking activities. While these processes mirror those discussed in other booklets of the IT Handbook, they are discussed below from an e-banking perspective. For more detailed information on each of these processes, the reader should review the corresponding booklet of the IT Handbook.

Risk management challenges:

The speed of change relating to technological and customer service innovation in e-banking is unprecedented. Historically, new banking applications were implemented over relatively long periods of time and only after in-depth testing. Today, however, banks are experiencing competitive pressure to roll out new business applications in very compressed time frames – often only a few months from concept to production. This competition intensifies the management challenge to ensure that adequate strategic assessment, risk analysis and security reviews are conducted prior to implementing new e-banking applications.

Transactional e-banking web sites and associated retail and wholesale business applications are typically integrated as much as possible with legacy computer systems to allow more straight-through processing of electronic transactions. Such straight-through automated processing reduces opportunities for human error and fraud inherent in manual processes, but it also increases dependence on sound systems design and architecture as well as system interoperability and operational scalability.E-banking increases banks' dependence on information technology, thereby increasing the technical complexity of many operational and security issues and furthering a trend towards more partnerships, alliances and outsourcing arrangements with third parties, many of whom are unregulated. This development has been leading to the creation of new business models involving banks and nonbank entities, such as Internet service providers, telecommunication companies and other technology firms.

The Internet is ubiquitous and global by nature. It is an open network accessible from anywhere in the world by unknown parties, with routing of messages through unknown locations and via fast evolving wireless devices.
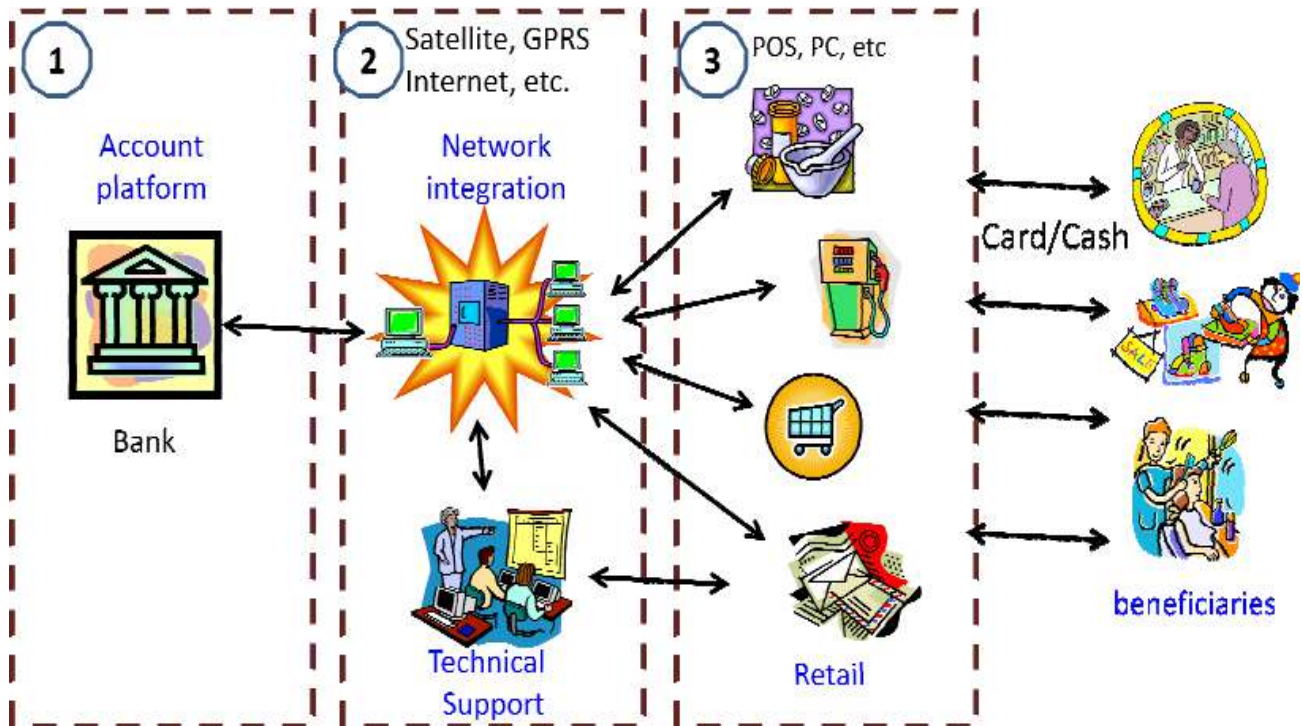
FIGURE 34. Risk Management Challenges.

Benefits, problems & constraint of E-Banking

For Banks:

Price- In the long run a bank can save on money by not paying for tellers or for managing branches. Plus, it's cheaper to make transactions over the Internet. Customer Base- the Internet allows banks to reach a whole new market- and a well off one too, because there are no geographic boundaries with the Internet. The Internet also provides a level playing field for small banks who want to add to their customer base. Efficiency- Banks can become more efficient than they already are by providing Internet access for their customers. The Internet provides the bank with an almost paper less system. Customer Service and Satisfaction- Banking on the Internet not only allow the customer to have a full range of services available to them but it also allows them some services not offered at any of the branches. The person does not have to go to a branch where that service may or may not

be offer. A person can print of information, forms, and applications via the Internet and be able to search for information efficiently instead of waiting in line and asking a teller. With better and faster options, a bank will surely be able to create better customer relations and satisfaction. Image- A bank seems more state of the art to a customer if they offer Internet access. A person may not want to use Internet banking but having the service available gives a person the feeling that their bank is on the cutting image.

The first benefits for the banks offering Internet banking services is better branding and better responsiveness to the market. Those banks that would offer such services would be perceived as leaders in technology implementation. Therefore, they would enjoy a better brand image.

This form of electronic banking is for transacting inter-bank transaction such money-at-call etc. this type of e-banking is driving extranets, which is restricted banks only. Hence, it is well secured and unauthorized access is less.

For Customers:

The main benefit from the bank customers' point of view is significant saving of time by the automation of banking services processing and introduction of an easy maintenance tools for managing customer's money.

Bill Pay: Bill Pay is a service offered through Internet banking that allows the customer to set up bill payments to just about anyone. Customer can select the person or company whom he wants to make a payment and Bill Pay will withdraw the money from his account and send the payee a paper check or an electronic payment

Other Important Facilities: E- banking gives customer the control over nearly every aspect of managing his bank accounts. Besides the Customers can, Buy and Sell Securities, Check Stock Market Information, Check Currency Rates, Check Balances, see which checks are cleared, Transfer Money, View Transaction History and avoid going to an actual bank. The best benefit is that Internet banking is free. At many banks the customer doesn't have to maintain a required minimum balance. The second big benefit is better interest rates for the customer.

Any time banking: E-banking provides 24 hours, 365 days services to customer.

Online purchase: customer can buy product of bank or invest in any scheme without actually insisting the bank branch but only through online.

Saving in time: with the help of e-banking there is no need for bank customers to stand in queue for hours to complete financial transaction.

You can do almost everything from the comfort of your own home. You don't need to queue up in a branch to be served. You don't need transport or have to waste time driving to the bank and trying to find a parking place You can get instant statements for your account(s). the savings rate offered are often better than the High Street as online Banks pass on their cost savings. It is easy to compare deals between banks and special offers. You can apply for a loan or a mortgage directly from the web site and get an answer very quickly.

E-banking is basically internet-based. Banking products and services such as deposits, remittance, credit card, etc. as well as all important banking information can be made available with easy access to customers on internet. customer can make use of these services with no restricted office hours, no queues, no tellers and no waiting. Several network innovation foe e-banking can be visualized such as smart card, electronic data interchange, etc. of course, the banking operations have to be guarded against unauthorized access by intruders.

To Government:

The contribution of the use of information communication technology to growth of output in the Finnish market sector has increased from 0.3 percentage points in early 1990s to 0.7 points in late 1990s. bank customers use bank office services on average 1.235 times per month, and wait in queue in bank office on average for 0.134 hours. Simple calculation shows, that making payments via e-banking facilities (for instance using Internet bank) rather than in the bank offices create overall economy savings in the amount of 0.93% of GDPS

Transparency in transaction: e-banking provides transparency in transaction i.e., access to information is possible easily.

Lack of awareness: another great hindrance is lack of awareness because effective and wide media efforts in publishing internet banking need to be emphasized.

Under this E-central banking, all banks within the purview of a central bank are interconnected on extranet to facilitate clearing of cheques, management of cash reserves, open market operations, discounting of bills, etc. in fact the central bank has to be connected with the government treasury on extranet to carry out its functions as an agent of the government. again, the central banks on all countries can be interlinked with the IMF, world bank and other international financial institutions through extranets.

INTRANET PROCUREMENT: -

For the transaction that are internal to a bank, between he banks and its branches and subsidiaries, intranet procurement of banking is required. On the other hand, extranet permits a bank to have full control over the users of intranet and the information to be transmitted.

Extensive work is required to integrate internal and external communication of banking-related information through banking internet and intranet for the development of the financial sector.

PROBLEM IN E-BANKING: -

Customer support - banks will have to create a whole new customer relations department to help customers. Banks have to make sure that the customers receive assistance quickly if they need help. Any major problems or disastrous can destroy the banks reputation quickly and easily. By showing the customer that the Internet is reliable you are able to get the customer to trust online banking more and more.

Laws - While Internet banking does not have national or state boundaries, the law does. Companies will have to make sure that they have software in place software market, creating a monopoly.

Security: customer always worries about their protection and security or accuracy. There is always question whether or not something took place.

Other challenges: lack of knowledge from customers end, sit changes by the banks,

etc.

Internet banking seems like an obvious choice to leave the hassles of traditional money management behind in exchange for it. However, there are potential problems associated with banking over the internet of which customers may not be aware. Some of the disadvantages of internet banking:

Bank relationship:

A traditional bank provides the opportunity to develop a personal relationship with that bank. Getting to know the people at your local branch can be an advantage when a customer needs a loan or a special service that is not normally offered to the public. A bank manager usually has some discretion in changing the terms of customer's account if the customer's personal circumstances change. They can help customers solve problems such as reversing an undeserved fee. The banker also will get to know the customer and his unique needs. If the customer has a business account, this personal relationship may help if the customer

needs capital to expand. It's easier to get the bank's support if there is someone who understands customer's business and vouch for his operating plan.

Transaction issues

Sometimes a face-to-face meeting is required to complete complex transactions and address complicated problems. A traditional bank can host meetings and call-in experts to solve a specific issue. Moreover, international transactions may be more difficult (or impossible) with some direct banks. If a customer deposits cash on a regular basis, a traditional bank with a drive-through window may be more practical and efficient.

Service issues

Some direct banks may not offer all the comprehensive financial services such as insurance and brokerage accounts that traditional banks offer. Traditional banks sometimes offer special services to loyal customers such as preferred rates and investment advice at no extra charge. In addition, routine services such as notarization and bank signature guarantee are not available online. These services are required for many financial and legal transactions.

Security

Direct banks are subject to the same laws and regulations as traditional banks and accounts are protected by the FDIC. Sophisticated encryption software is designed to protect your account information but no system is perfect. Accounts may be subject to phishing, hacker attacks, malware and other unauthorized activity. Most banks now make scanned copies of cleared checks available online which helps to avoid and identify check fraud. It enables verification that all checks are signed by the customer and that dollar or euro amounts have not been changed. The timely discovery of discrepancies can be reported and investigated immediately.

CONSTRAINTS IN E-BANKING:

With the obvious benefits emerging out of e-banking mentioned above, the following factors contribute as major impediments in the smooth implementation of e-banking:

Start-up cost:

Many banks have expressed their concern about the huge initial start-up cost for venturing into e-banking. The start-up cost includes:

a) The connection cost to the internet or any other mode of electronic communication. The network should be robust, secured, efficient and scalable with inbuilt redundancy.

b) The cost of sophisticated hardware and other related components including modem, routers, bridges, network management systems, etc.

c) The cost of maintenance of all equipment's, website, skill level of employees, etc.

d) The cost of setting up organizational activities to implement e-banking.

For a successful e-banking, bankers need to develop a coherent perspective of the role of network technologies and advancement of their EFT departments with competitive introspection of their banking business.

Training and maintenance:

The introduction of e-banking involves 24-hour support environment, quality service to end- users and other partners which would necessitate a well-qualified and robust group of skilled people to meet external and internal commitments. Hence, the bank has to spend a lot on training. What is more important is their retention in the organization after necessary training. Moreover, the bank has to outsource certain functions and services to maintain the level of standards and state of readiness. The training and retaining of skilled manpower are a major cause of concern.

Lack of skilled personnel:

It is a well- known fact that there is an acute scarcity of web developers, content providers and knowledgeable professionals to route banking transactions through internet. In a fast-changing technological scenario, the obsolescence of technology is fast and hence, there is always shortage of skilled personnel.

Security:

In a paperless banking transaction, many problems of security are involved. A security threat is defined as a circumstance's decision or event with potential to cause economic hardship to data or network resources in the form of destruction, disclosure, modification of data, denial of services, fraud, waste and abuse. There are chances that documents such as cheque, pass book, etc. can be modified without leaving any visible trace. Distortion of information are also possible. Providing appropriate security may require a major initial investment in the form of application encryption techniques, implementation of firewalls, etc. in spite of implementation of several security measures, the possibility of a security breach cannot be ruled out.

Legal issues:

Legal framework for recognizing the validity of banking transactions conducted through the 'Net' is still being put in place. Through initial legal framework has been devised for e-banking activities, it is uncertain as to what possible legal issues may pop up in future as banking on internet progresses. What may happen if a customer's sensitive data falls into the hands of a stranger or if his account shows a 'Nil' balance all in a sudden without his knowledge? The legal issues should cover unauthorized access, and unauthorized modification of data, wrongful communication, punishment. to be meted out to combat computer crimes. To prevent computer crimes, the country's banking legislation need to make suitable provisions with a thorough consultation and discussion among the legal as well as technical experts.

Restricted clientele and technical problems:

The user of e-banking needs a computer and time log on to the site. It means that the target clientele is restricted to those who have a home pc or can access the 'Net' through the office or cybercafés. Moreover, phone connections are not always perfect and, on a home pc, the modern connection often breaks off, requiring another tedious log on. Navigating around websites on home computers is often slow and frustrating. Moreover, local calls are not free generally and so the customer has to pay every time he checks his balance.

Restricted Business:

Not all transactions can be carried out electronically. Many deposits and some withdrawals require the use of postal services. Some banks have automated their front-end process for the customers, but still largely depends upon manual process at the back-end. For example, the internet customers receive their statements online, but paper statements are also sent by mail. Mail and distribution costs are still necessary, as the statements, cheques, etc. are still mailed to customer.

Destruction of pricing mechanism:

The internet may also destroy the basic business pricing models. The internet creates perfect market conditions where prospective consumers have access to more information and can more readily compare rates and financial products offerings. Now, players in the field have lower costs than old banks. Hence, they can undercut the prices and provide stiff competition to established banks.

Moreover, banks marketing programmers and product are generally based on product or physical location. The web allows customers to easily compare all the products and their prices and sign up for the product irrespective of location.

E-CHEQUE

Electronic cheque:

The negotiable instrument amendment act has introduced another new concept called "Electronic cheque "to facilitate e-banking.

Under the new section 6(a) of the negotiable instruments act as follows:

"A cheque in the electronic form means a cheque which contains the exact mirror image of a paper cheque, and is generated, written and signed in a signature {with or without biometrics signature} and a symmetric crypto system."

Essential features of E-cheque:

The above section lays down the following features of an electronic cheque:

- It is the exact mirror image of a paper cheque. In other words, it is the electronic image of a paper cheque.
- It is generated, written and signed in a secured manner using digital signature which has been legally recognized.
- It may or may not have biometric signature.
- Digital signature of the drawer is compulsory.
- There should be minimum safety standards like asymmetric crypto system. elp of a specialized software

Process of preparing E-cheque:

For an easy understanding, the process of preparing an e-cheque has been described in the form of steps here under:

- **First step:** prepare a physical paper cheque as usual with all detail like date, name of the payee, amount, signature, etc.
- **Second step:** scan the paper cheque so prepared and create an electronic image of the cheque.
- **Third step:** Add digital signature to the e-cheque.
- **Fourth step:** Make it secure under the asymmetric crypto system by using the private key of the drawer.
- **Fifth step:** Add biometric signature to the e-cheque if desired.
- **Sixth step:** Forward the e-cheque to the payee through e-mail or internet.
- **Seventh step:** The drawee bank is bound to honors it after verifying the digital signature.
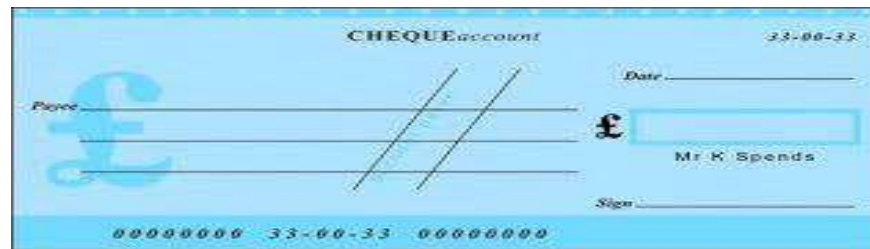
FIGURE 35. E-CHEQUE

Mechanism of e-cheque:

The operation of e-cheque mechanism for the operation of e-cheque is as follows:

The drawer prepares the e-cheque in his computer with the help of a specialized software.

He enters all the particulars like name of the drawee bank, date, payee, amount, signature etc. and fills them up.

He signs the same with his digital signature.

It is then forwarded to the payee through e-mail or internet.

The payee, upon receiving the email, opens the e-cheque with a specialized software.

After verifying the authenticity of the drawer's signature, he endorses it as usual for getting payment. He also writes out a deposit slip and signs the same with his digital signature.

Then, the payee's bank verifies the signature of the drawer and the payee and then forwards it to the drawer's bank, i.e., the paying banker.

The paying banker verifies the signature of the drawer and honors' it by debiting the account of the drawer and effecting payment to the payee's bank by crediting its account.

ADVANTAGES OF E-CHEQUE:

Offers more convenience:

We need not carry physical cheque with himself always for transacting banking business. A specimen cheque can be prepared on an electronic mode and stored in the computer itself. Whenever a cheque has to be drawn, the drawer has to simply fill up the particulars and send it immediately through e-mail. He can sit leisurely and prepare it in his house.

Anytime cheque:

E-cheque can be drawn and banking business can be transacted at any time during the day. But physical cheque has to be transacted only during the banking hours.

Less expensive:

In these days, the cost of producing, issuing and maintaining paper cheque is going up like anything. The physical handling of paper cheque involves more labor also. On the other hand, the cost of producing an e-cheque is practically nil. The handling cost is also considerably low.

Avoids loss in transit, bad delivery, etc.:

There is every possibility of the physical cheque being lost in transit. There may be bad deliveries also. The question of loss in transit, bad delivery, etc. does not arise in the case of an e-cheque.

More protection:

Alterations unauthorized by the drawer can take place easily on a paper cheque. The signature can be forged skillfully and payment can be obtained by unscrupulous person. They cannot take place on an e-cheque. More authenticity and security have been provided to e-cheque by means of digital signature.

Avoids delay in payment:

A paper cheque sent for collection requires a long period for its realization. But a physical cheque can be converted into a truncated cheque and it can be credited to the payee banker's account instantly and there is no delay in encasings that e-cheque.

TRADITIONAL BANKING V/S E-BANKING

In traditional banking, the customer has to visit the branch of the banks in person to perform the basic banking operations, viz, account enquiry, funds transfer, cash withdrawals, etc. the brick-and-mortar structure of bank is essential for performing the banning function.

On the other hand, E-banking enables the customers to perform the basic banking transactions by sitting at their office or at homes through viewing their account details through pc or laptop. The customers can access the bank's website for viewing their account details and perform the transactions on account as per their banking requirements. With e-banking, the brick-and-mortar structure of the traditional banking gets converted into a click and portal model, thereby giving a concept of virtual banking a real shape. Thus, today's banking is no longer confined to branches. Customers are being provided with additional delivery channels which are more convenient to customers and are cost-effective to the banks. These delivery channel include ATM, telebanking, internet banking, mobile banking, home banking, etc. thus,

e-banking facilitates banking transactions by customers round-the-clock globally.

Conventional banking is an art. But e-banking is more of a science than art. E-banking is knowledge- based and mostly scientific in using the electronic devices of the computer revolution. When most corporate tend to become internetworking organizations, banking has to be e- banking in the new century.

Most people are very familiar with how a bank operates. The concept is very simple; you take your money to the bank and they will keep it safe for you and you can collect it later. There are other uses of a bank, such as loans and interest. But with nearly everything going digital, including money transfers, paychecks, bill payments and debit cards, cash is practically becoming obsolete. And while some might be slightly nervous to make the switch to an online-only bank, there are some terrific benefits to online banking. Some of the best online banking services are Flagstar Direct, iGoBanking and E-Trade.

You are probably very comfortable walking into your local bank and depositing a check or making a withdrawal. However, you are also probably very familiar with the lines associated with doing even the most basic tasks. And in order to get into the building, you'll have to keep in mind all the federal holidays and other banking days when the bank won't be open. And if you need to visit the bank past regular business hours, forget it, it'll just have to wait until the next day. Traditional banking has some serious flaws in hours of operation and convenience, which is why online banking can be so appealing.

With online banking, you won't ever have to worry about full access to your account. You'll have quick and easy 24-hour access from anywhere in the world. The online bank won't ever be closed for a holiday or for maintenance. You won't ever have to rush over to the bank after work and fight lines because with online banking, you can access your account from any computer with an internet connection. Also, because online banking services don't have to rent a building, they often offer higher interest rates with their savings accounts.

FIGURE 36. TRADITIONAL BANKING VS E-BANKING

Chapter No .2:

Review of Literature.

Daniel (Date: -29th April 1999- E-banking in banks, Institute of banking studies, Uk)

According to his research, e-banking as the newest delivery channel offered by the retail banks in many developing countries. The researcher through a questionnaire found that 25% banks in the UK were those already providing e-banking services, 50% banks were testing or developing such services while 25% were not providing any e-banking services. To make services more adaptable, customers should be providing   maximum choice and convenience.

Neeli S Prameela (Date: - 6th December 2012- E-Banking Loyalty –Assistant Professor Lotus Institute of Management studies)

According to her research, Service quality is an input of customer trust which becomes satisfaction and lead to loyalty as an output. But This paper attempts to accumulate literature in order to understand the overall structure of the formation of e-loyalty. The literature reviewed provide underlying patterns of relationships between e –banking loyalty and its influencing factors. Such understanding is relevant for academicians and researchers for furthering the work in this field.

Mr. Talwar (Date: 10th march 1999- IT Revolution in banking sector IT Sector, India)

According to his research, IT Revolution in banking sector which had not only provided improved service to the customer, but also reduced the operational cost. The author brought out that computerization of banks, introduction of Real Time Gross Settlement System, setting up of Infinite, Electronic Payment Products (such as Electronic Clearing Service) had ensured better resource management, systematic efficiency and substantially reduced inter-branch reconciliation entries. However, fear of hacking, tampering of data, secrecy maintenance were certain issues which pose threats on usage 44 of electronic banking. The

challenges in banking sector were manifold but still the constitution of National Payment Council by RBI and development of the integrated payment and settlement system was a step in this direction to remove the obstacles coming in the way of using electronic banking.

Unninthan (Date: - 18th July 2001- Impact of e-banking adaption on Australian and Indian banking sector)

According to author described the impact of e-banking adaptation on Australian and Indian banking sectors with the help of qualitative and quantitative analysis. The researcher found that Australia had a strong platform for e-banking growth with 37.7 per cent of population willing to engage in e-banking mostly in urban areas due to literate young working population with discretionary income. However, India by comparison was played by weak infrastructure, low PC penetration and consumer reluctance in rural sector. But the professionals are compelling the government and bureaucracy in the country to support and develop new initiatives at a faster speed of internet banking. However, in both the countries, e-banking was a successful strategic weapon for banks to remain profitable in a volatile and competitive market place.

Singh and Malhotra (Date: 12th September 2007 -Adopt internet banking in India)

According to his research made an attempt to discover factors affecting a bank's decision to adopt internet banking in India. The study was based on 88 banks comprising of public, private and foreign banks covering financial years from 1997 to 2005. The results of the study showed that large banks having high fixed expenses, high income and expenditure tend to use more technology. Banks had used internet banking as complementary channel to existing branch network. However, the private and foreign banks were quick adopter to internet banking than public sector banks. The adoption of this innovation by other banks increases the probability that a decision to adapt will be made as it has increased the profitability and productivity of banks.

Nitin, Vikas and Nancy (2003)

Explored the factors that influence the adoption behavior of Mobile banking services by Indian consumers. This study also discusses the various steps that Mobile banking providers should take to increase their Mobile banking services user's database. The study found that trust, perceived ease of use and perceived cost are some of the important factors that influence the adoption behavior of Mobile banking services by Indian consumers. The study further suggested that banks should create awareness about the Mobile banking services through Advertisements, Pamphlets, Demo Fares, and Campaigning etc. To create interest among them. The study also found that customers will adopt Mobile banking if they understand and find it easy to use.

Deva Devan (2005)

In his study identifies the mind-set and analyses the security issues in Mobile banking among the banking customers in India. Primary data was collected from 65 respondents using online questionnaire in this study. Secondary data was also used from the website of Telecom Regulatory Authority of India (TRAI). The findings indicate that most of the respondents are using online banking facility from their respective banks. However, around 25per cent of customers are using Mobile banking and remaining 75per cent are not. The majority of the online banking users are comfortable without using the Mobile banking facility and they are also interested to test the facility. The rapid technology development in Mobile technology like 2G, 3G, and 4G has become major challenges for banks and it was found that customers also feel there are chances of misuse in Mobile banking due to mobile handset theft.

Sudhakar A. M., Suryanarayana, (2007)

In their study have said that common man's life has gone through a sea change due to mobile penetration which has is turn put a major thrust on banking service sector of India. The status of mobile banking in India and other countries with emphasis on data standards and security and its implication on banking sector has been discussed in detail. Further they have also said that a revolutionary approach to banking transactions is witnessed with the launch of Mobile banking services that has created a strong connectivity between the banks and the customers in terms of minimal time and transaction cost.

CHAPTER NO. 3:

DATA ANALYSIS

- **Gender**

Name	Number
Female	**27**
Male	**23**
Total	**50**

Table No. 1

Gender

23

27
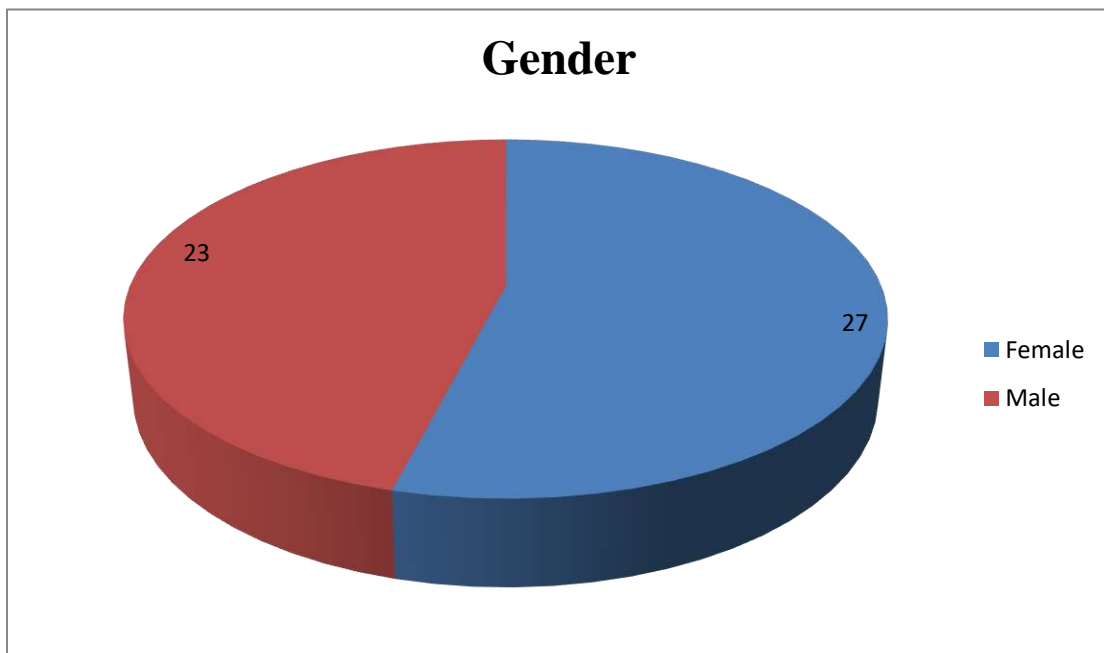
- Female
- Male

FIGURE 37

Interpretation: - The result shows that majority of respondents i.e., 27% are females were using the E-banking services and 23% are the male are using E-banking services. male is not using more this service because they have less knowledge about the internet and they

trust face to face interaction more. So, it shows that E-banking is more famous among female.

- **Age group**

Age Group	Number
18-30 years	**21**
31-50 years	**16**
Above 50 years	**13**
Total	**50**

Table No. 2
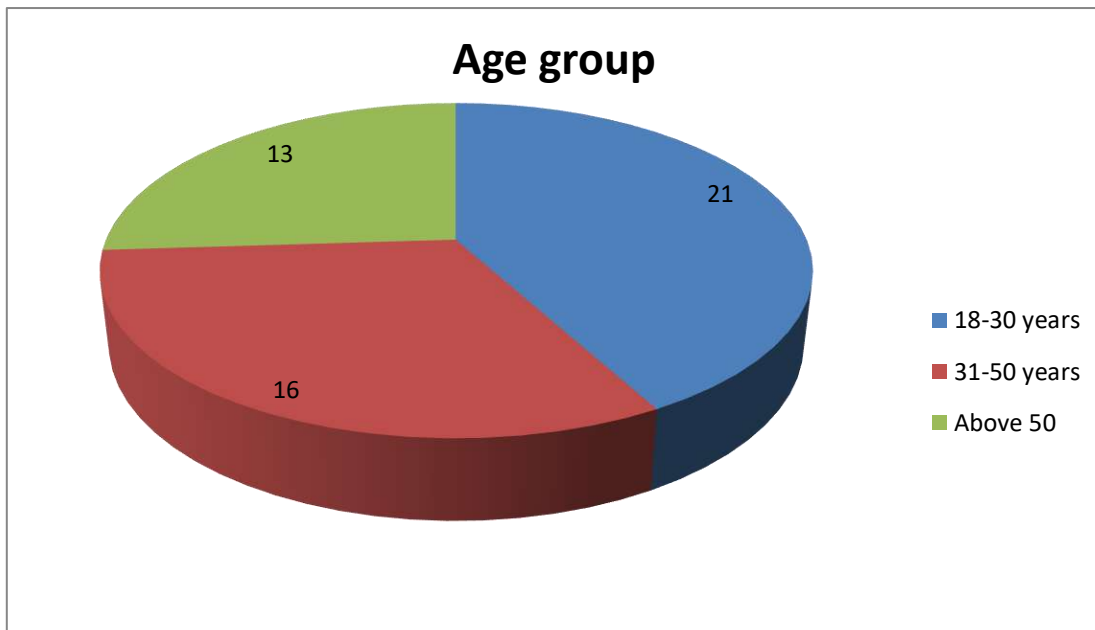
FIGURE 38

Interpretation: - The result shows that majority of respondents i.e., 21% falls under the category of 18-30 years and 16% falls under age 31-50 years and 13% fall in above 50 years it shows that E-banking is mainly famous among youngsters as they are the major users of E-banking and least comes under above 50years.

Which of the following bank you have account in?

Bank name	Number
ICICI	23
HDFC	10
SBI	11
Any other bank	06
Total	50
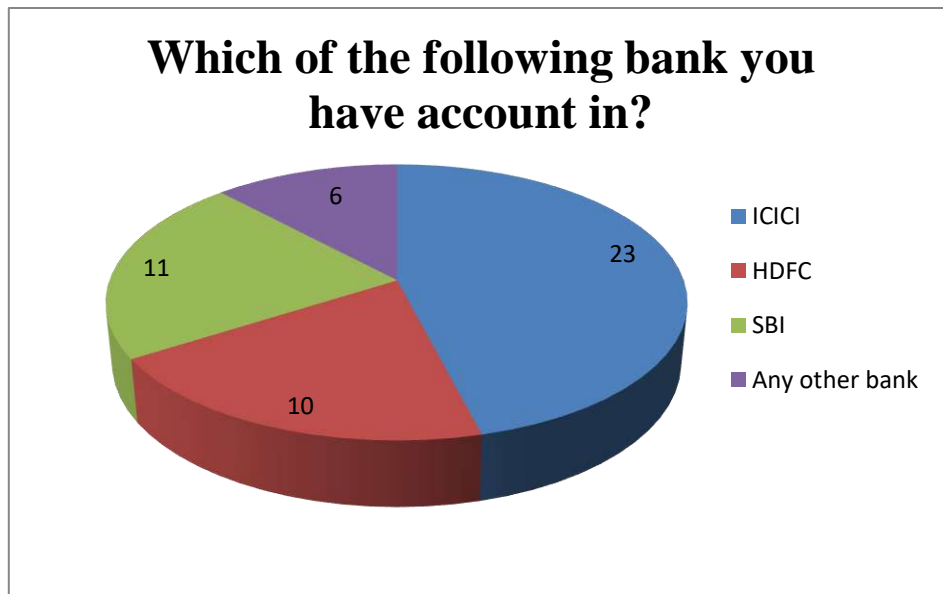
FIGURE 39

Interpretation: -According to this study majority of respondents i.e., 23% have their accounts in ICICI bank and 10% respondents have their account in HDFC Bank and 11% have their account in SBI bank. And 06 % respondent have their account in other bank so it means a large no. of respondents have experience of ICICI banks.

Do you have any idea about e-banking services / you are user of?

e-banking services?

Yes	46
No	04
Total	50

Table No. 4
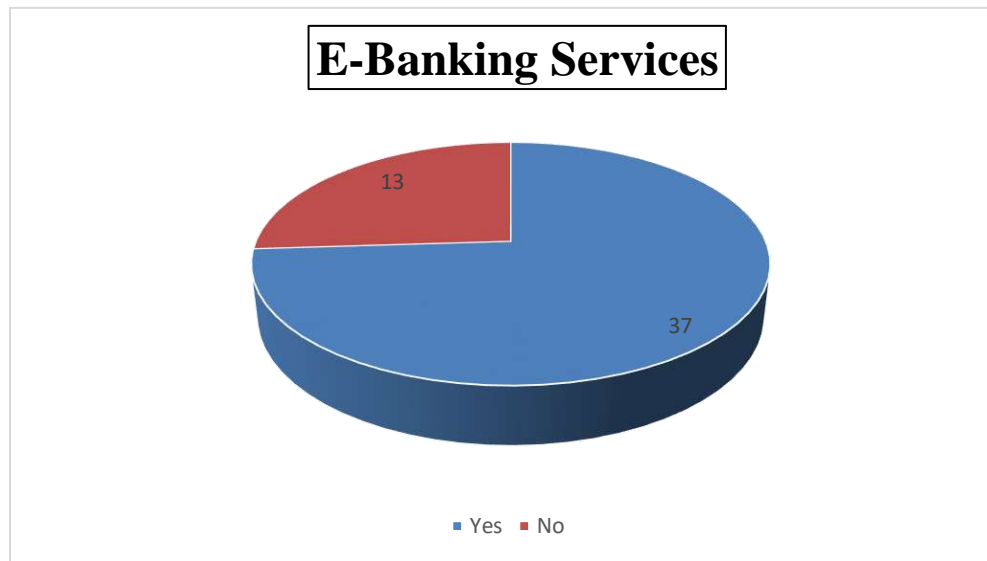
FIGURE 40

Interpretation: - According to majority of respondents i.e46% were aware about E-banking services provided by their bank and 04% of respondents were not aware about the E-banking services provided by their bank at the time of opening up of their account because of lack of awareness and some are using banking services from last so many years at that time bank was not offering E-banking service so they were not aware at that time but now they are aware.

- **Which e-banking services are you availing?**

Bank Name	Number
ICICI	23
HDFC	10
SBI	11
Not Aware	06
Total	50

Table No. 5
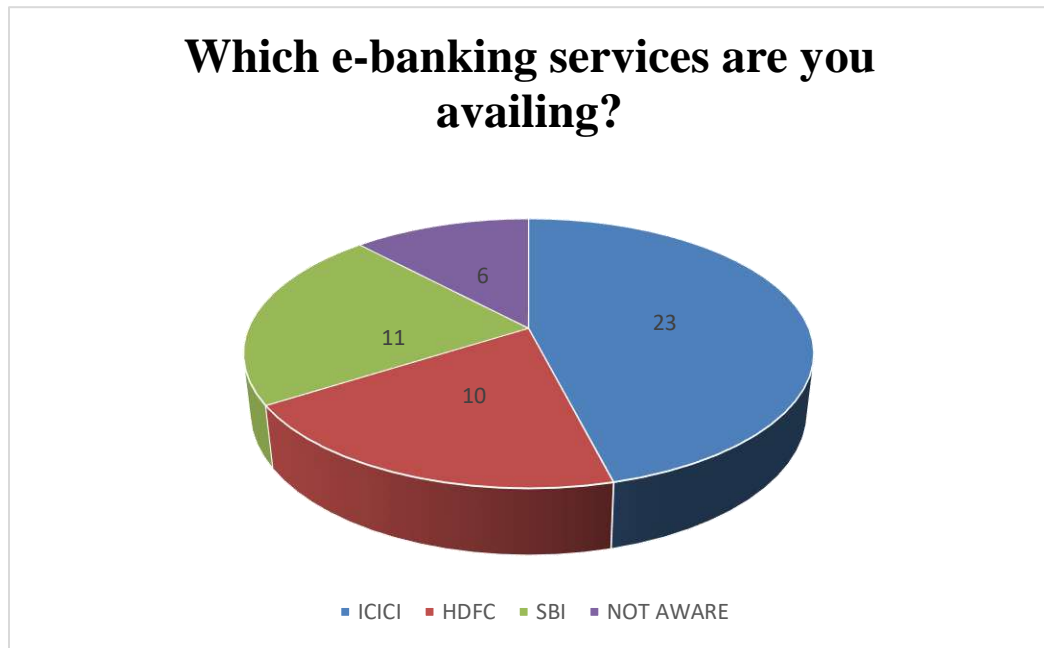
FIGURE 41

Interpretation: - The results show that 23% respondents who are aware of ICICI E-banking services and 10% respondent are aware of HDFC and11% OF SBI and 06% respondent not availing E-banking services yet they are aware of E-banking the reason is that they still have faith in traditional banking.

- **Which kind of e-banking services you prefer mostly in ICICI bank?**

Transfer of money from 1 account To other.	12
Payment of utility bills.	13
Transfer of funds.	13
Viewing checking and saving Account balance.	12
Total	50

Table No. 6
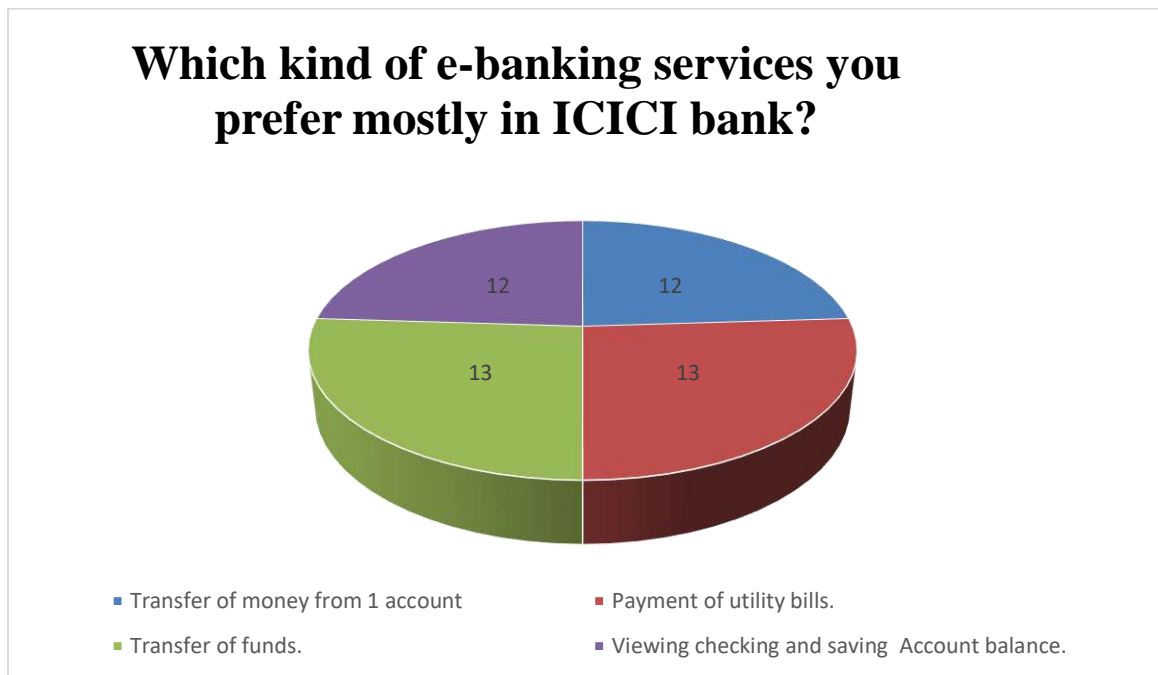
FIGURE 42

Interpretation: - The result show that 12% of responded use e-banking services for transfer of money from 1 account to other and viewing checking and saving account balance. And 13% responded use e-banking services for payment of utility bills and transfer of fund.

Which bank provide better e-banking services?

HDFC	10
ICICI	23
SBI	11
Any other bank	06
Total	50

Table No. 7
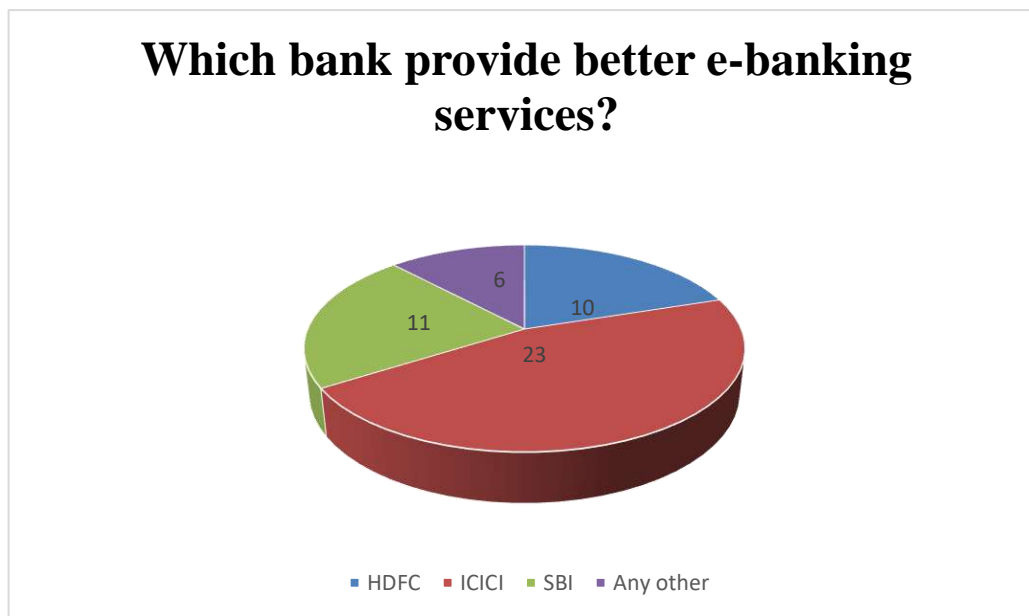
FIGURE 43

Interpretation: -According study the 23% responded think that ICICI bank provide better e-banking service and least 06 % responded say other bank provide better service.

- **Do you feel e-banking is safe?**

Yes	37
No	13
Total	50

Table No. 8

Do you feel e-banking is safe?

13

37

■ YES ■ NO
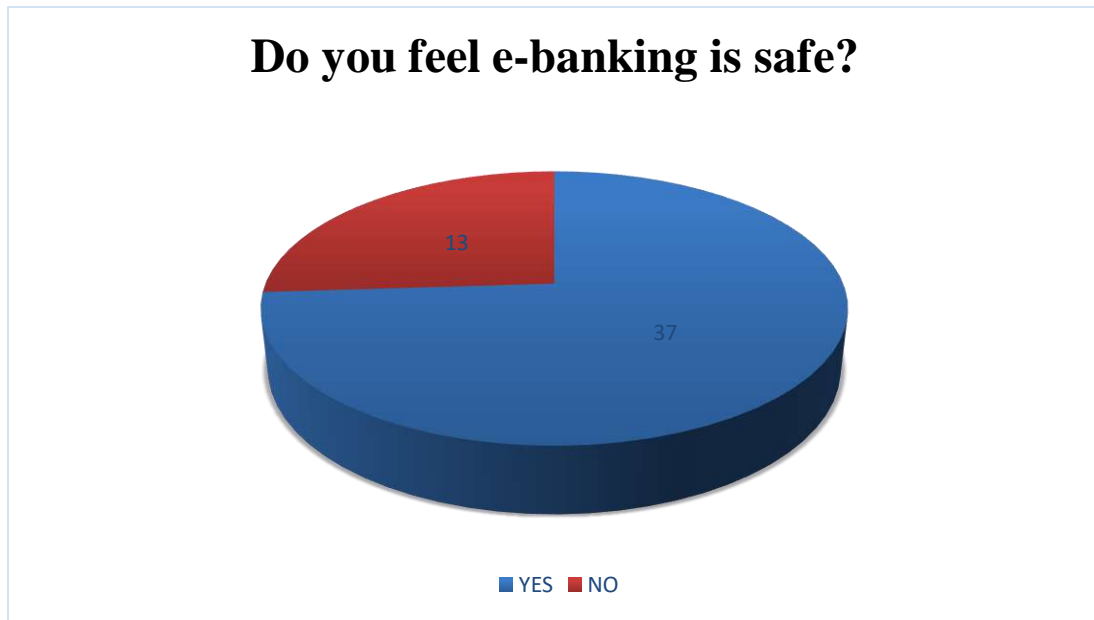
FIGURE 44

Interpretation: - The result show that 37% users feel that e-banking services are safe .and 13% users feel that e-banking services are not safe. Because of the technology attack like hacker, virus etc.

- **How frequently you use e-banking services per month?**

1-3 times	03
3-8 times	18
8-12 times	25
Over 12 times	04
Total	50

Table No. 9

How frequently you use e-banking services per month?

Legend: ■ 1-3 times ■ 3-8 times ■ 8-12 times ■ Over 12 times
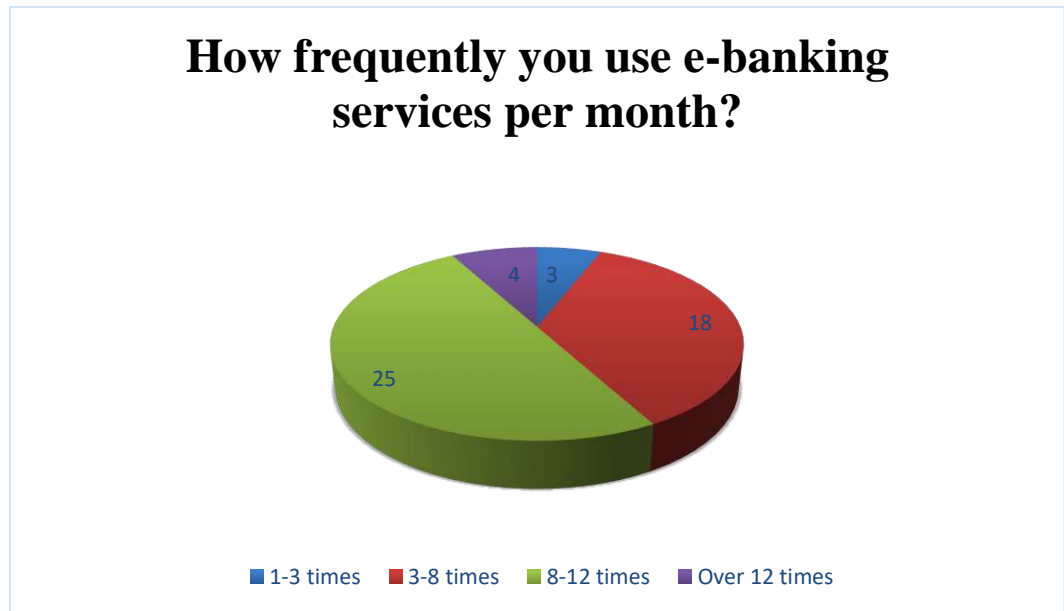
FIGURE 45

Interpretation: - The result shows that 03% responded use for 1-3 times, 18% responded use for 3-8 times. And most 25% responded use for 8-12 times and over 12times 04 % responded use e-banking services per month.

- **How frequently you visit your bank branch per month?**

1-3 times	24
3-8 times	12
8-12 times	09
Over 12 times	05
Total	50

Table No. 10

How frequently you visit your bank branch per month?

- 1-3 times
- 3-8 times
- 8-12 times
- Over 12 times
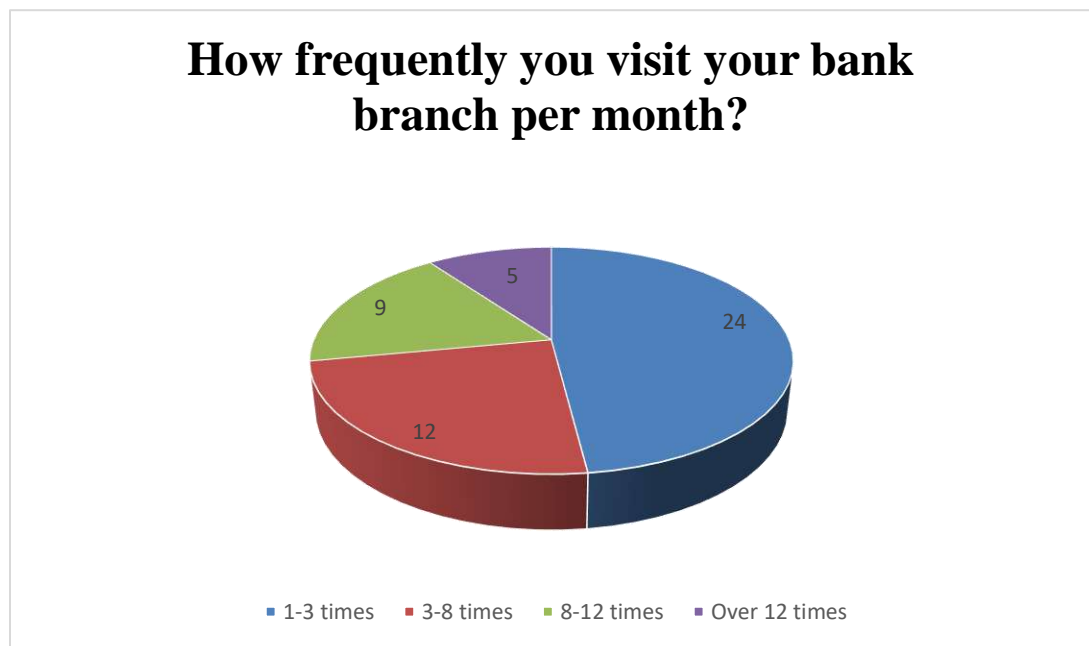
FIGURE 46

Interpretation: - The result show 24% responded visit branch for 1-3 times, 12% responded visit their branch for 3-8 times, 09% responded visit the branch for 8-12 times and 05% responded visit there bank over 12times the users visit there branch less time because they are aware about e-banking services.

- **What is reason for choosing e-banking services?**

Convenience	10
To save time	14
24-hour access to account	23
Other	03
Total	50

Table No. 11

What is reason for choosing e-banking services?
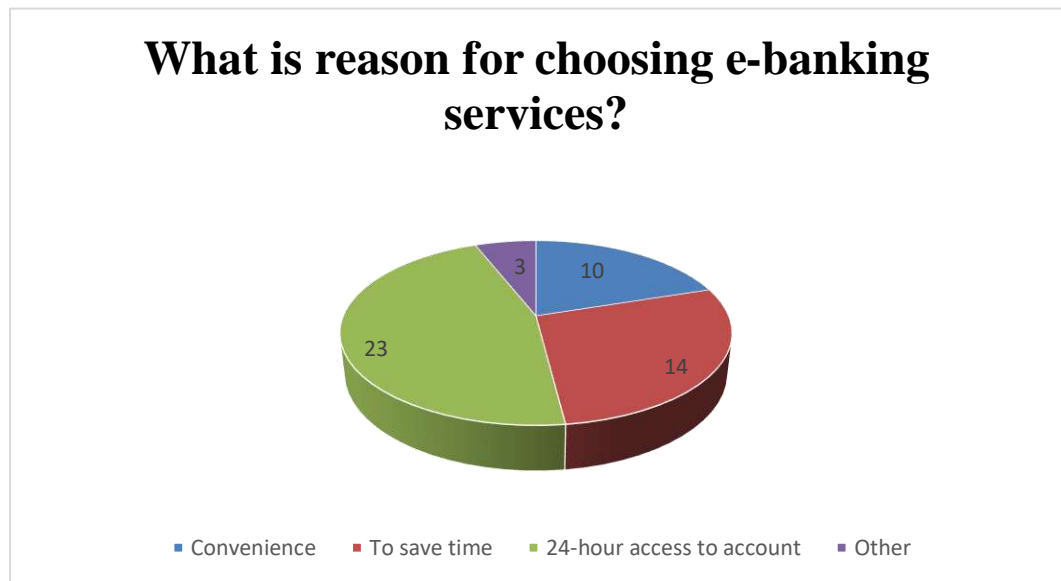
FIGURE 47

Interpretation: - According to study 23% user choose e-banking services because of 24-hour access to account, 14% user choose to save time and 10% users choose e-banking because of it is convenience to all.

- **Do you think that ICICI bank is offering innovative e-banking services?**

Yes	32
No	18
Total	50

Table No. 12

Do you think that ICICI bank is offering innovative e-banking services?

18

32

■ Yes ■ No
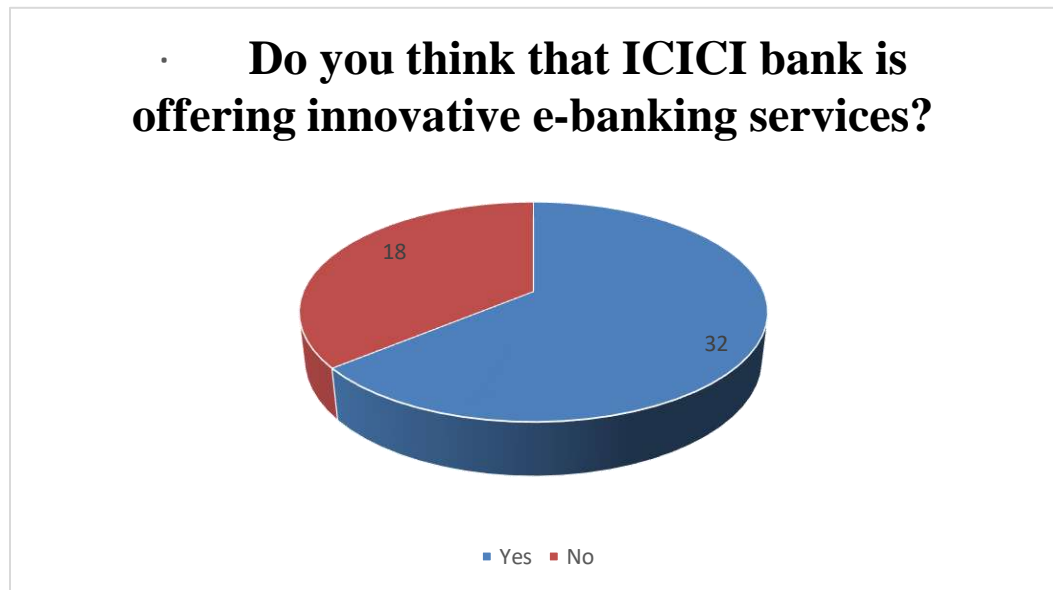
FIGURE 48

Interpretation: - the study shows that most of 32% responded think that ICICI bank provide more innovative service. Were as 18% responded feel that ICICI bank will not offer innovative services to customers.

- **Rate your bank e-banking services provided by ICICI?**

Excellent	23
Good	14
Average	09
Blow average	4
Total	50

<p align="center">**Table No. 13**</p>
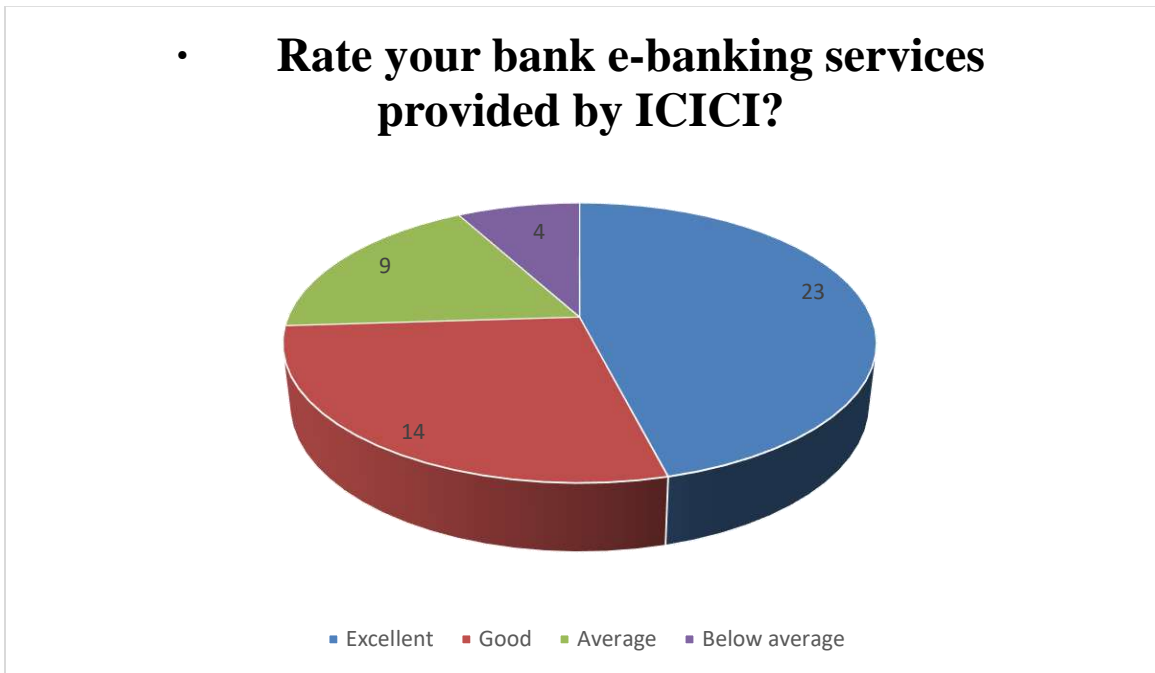
<p align="center">**FIGURE 49**</p>

Interpretation: - According to study 23% users are rate excellent to ICICI, bank.14% users rate good to SBI and 09% responded rate HDFC as average.

The more people give excellent because of the new innovative offers of e-banking product provide by the ICICI bank.

- **Would you change your bank because of poor quality of e-banking services?**

Yes	04
No	29
Can't say	17
Total	50

Table No. 14

Would you change your bank because of poor quality of e-banking services?

- Yes ■ No ■ Can't say
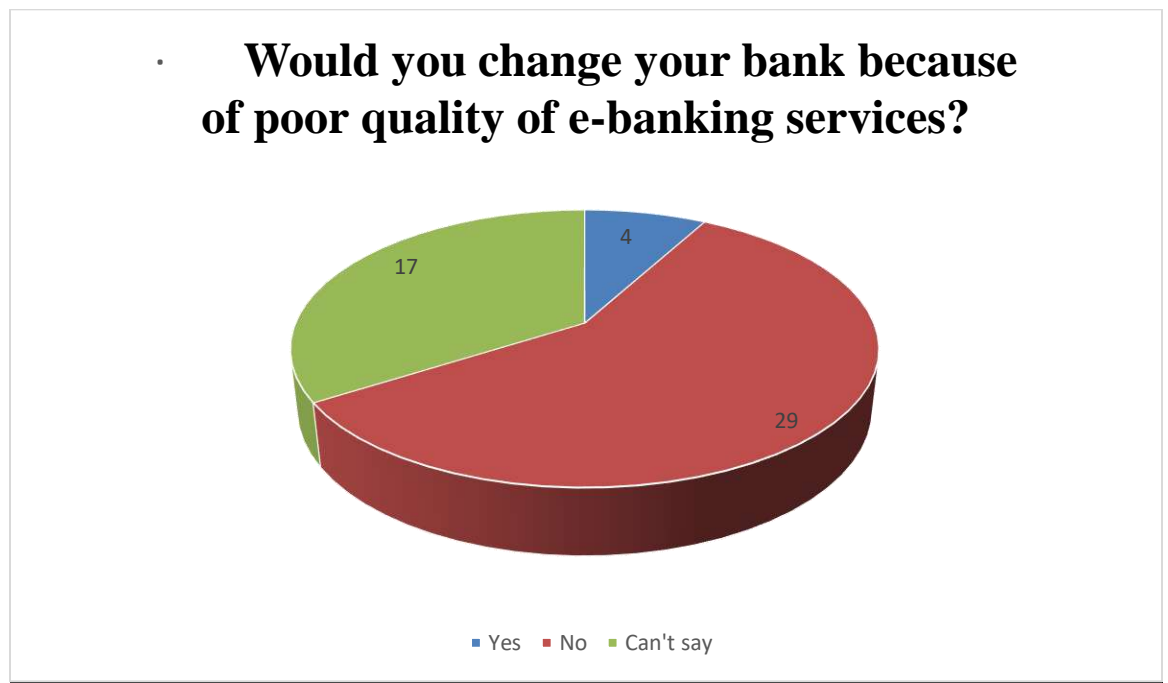
FIGURE 50

Interpretation: - According to study 29% responded don't want to change their bank. Because of better/ good services. 17% responded were thinking to change their bank because of poor knowledge or bad services. And 04% responded changing their bank.

Chapter NO.4:

FINDING

The contours of banking business have been changing across the globe and the rippling effect of the same can be expressed in the Indian banking sector as well. The process of liberalization, privatization, globalization and deregulation has opened new vistas for banks to increase their revenues by diversifying in to universal banking, investment banking, bank assurance, mortgage financing, depository services, securitization, personal banking etc. An inevitable result of globalization is that it increases the soundness of financial system as a whole and facilitates global competition. To survive in this competition the information and communication technology significantly contributed to the exponential growth and profit of financial institutions worldwide Technology is the key to move towards providing integrated banking services to customers.

Indian banks have been late starter in the adoption of technology for automation of processes and the integrated banking services. Further the banking sector reforms and introduction of e-banking has made very structural changes in service quality, managerial decisions, operational performance, profitability and productivity of the banks. There are various factors which have played vital role in the Indian banking sector for adoption of technology. Firstly, the economic reforms introduced by the government almost 15 years back which resulted in opening up of new vistas for banks outside the world Government relaxed rules and regulations and simplified the processes for the FII to make investment in the banking and various sectors. This resulted in inflow of large funds in the economy there by improving the economy as a whole and banking sector in particular. Due to this reason banks need to provide such services, which satisfy the urge of foreign investors. Secondly, as a part of reforms, Indian banking was opened for private sector by which old and new private sector came in to limelight. They give a big boost to technology and created a platform to use it for back side and front side operations. When they started adopting it, this put a tremendous pressure on the nationalized and public sector banks. Thirdly for the economic development of a country, infrastructure plays a vital role. In the last few years with the development of telecom sector, communication infrastructure,

BPO's; the entire country became a single hub for transmitting the information and the major cities got connected with each other, which helped in the reduction of total cost. This had directly helped banks; during the same period banks were busy in connecting their branches with centralized database and core banking solution by offering anywhere anytime services. Fourthly Indian software Industry has also impacted the Indian banking sector. To provide excellent services to the customers, banks do need to have web-based portals wide area network (WAN), local area network, internet etc. and all these services are provided by the Software industry to Indian banking at reasonable prices and at the right time. E-banking is one of the emerging trends in the Indian banking and is playing a unique role in strengthening the banking sector and improving service quality the banking sector in India has introduced e-banking in a phased manner, foreign banks are the pioneers in e-banking private bank introduced in big way and public sector banks are in the process of transformation from traditional banks to e-banking, impinges on operational of banking in a number of different ways. It has enabled the banks to handle the payments electronic and interbank settlement faster and in large volume. There is increase in customer satisfaction level, reduction in cost of banking operation, e-banking services which could enhance their competiveness. Further new technology has rapidly altered the traditional ways of customer can view the account, get account statement, phone banking, internet banking, mail banking transfer to large extent avoid customers gains to branch premises and has provided a wide range of services to the customer There is a degree of variation in the services provided by the banks with the emergence of E-banking services. So, it becomes necessary to study the nature, growth and extent of E-banking services and their impact on the operational performance and service quality. Despite the increasing importance of E-banking services, the research pertaining to e-banking in Indian context has been limited. So, the present study is a modest attempt to ascertain the changes taking place after e-banking, to evaluate the banks performance, and to know about customers' perceptions regarding e-banking.

Chapter No.5:

CONCLUSION

E-Banking may be cost- effective, but it's unlikely to replace branch banking because of security concerns. In the early days of the dotcom revolution there was much hypo about emergence of online banking as the future of retail banking and gradual obsolescence of branch banking. However, with the passage of time, through online banking has changed the delivery landscape, it has so far been more of an evolution rather than a revolution. Consumers banking online have not altogether banded the conventional branch banking. Many consumers use online banking primarily for relatively simple transaction such as accessing account statement and account balance and interaction for opening accounts.

Every employee of ICICI who interacts with the customer is involved in services delivery. Whatever they do or don't do becomes part of the customer experience. services to be provided helps your employees understand what is expected of them and how they are to engage with customers. It ensures that services delivery is consist, regardless of which employee delivers the services.

From a e-banking perspective, there has been a renewed vigor towards innovations for improving branch banking operations. However, from the customer perspective, the whole feeling of comfort, confidentiality and security in branch banking is as important as it ever was and likely to remain so in the future. Even if they never set foot in a branch, most customers want to know that a banker is nearby if they need to speak to someone in person about their account. Over a period of time branch banking has gone through a metamorphosis of its identify as the human face of e-banking the place where customers go for information and advice on new financial products and on managing their existing accounts.

Innovation in product includes e-banking, ATM, debit card, credit cards mobile banking etc. whereas innovation in branches includes, universal banking. Offshore banking, retail banking wholesale banking

The project report summarizes about the facilities of accounts and deposits and also provides the different product. This information is based on the primary and secondary data available from different sources.

Chapter 6:

ANNEXURE

> **GENDER**
> - male
> - female

> **AGE GROUP**
> - 18-30 years
> - 31-50 years
> - Above 50 years

1. **DO YOU HAVE ANY BANK ACCOUNT?**
   - yes
   - no

2. **IF YES, WHICH OF THE FOLLOWING BANK YOU HAVE ACCOUNT IN?**
   - HDFC
   - ICICI
   - SBI
   - Any other

3. **DO YOU HAVE ANY IDEA ABOUT E-BANKING SERVICES?**
   - yes
   - no

4. **ARE YOU A USER OF E-BANKING SERVICES?**

   o yes

   o no

5. **WHICH E-BANKING SERVICES YOU ARE AVAILING?**

   o HDFC

   o ICICI

   o SBI

   o Any other

6. **WHICH KIND OF E-BANKING SERVICES YOU PREFER MOSTLY IN ICICI BANK?**

   o Transfer of money from 1 account to other

   o payment of utility bills

   o transfer of funds

   o viewing checking and saving account balance.

7. **WHICH BANK PROVIDE BETTER E-BANKING SERVICE?**

   o HDFC

   o ICICI

   o SBI

   o Other bank

8. **DO YOU FEEL E-BANKING IS SAFE?**

   o Yes

   o No

9. **HOW FREQUENTLY YOU USE E-BANKING SERVICES PER MONTH?**

   o 1-3 times

   o 3-8 times

   o 8-12 times

   o over 12 times

10. **HOW FREQUENTLY YOU VISIT YOUR BANK BRANCH PER MONTH?**

   o 1-3 times

   o 3-8 times

   o 8-12 times

   o over 12 times

11. **What is reason for choosing e-banking services provided by ICICI?**

   o convenience

   o to save time

   o 24-hour access to account

   o Other

12. **Do you think that ICICI bank is offering innovative e-banking services?**

   o yes

   o no

13. **Rate your E-banking services provided by ICICI?**

   o Excellent

   o Good

   o Average

   o Below average

14. **Would you change your bank because of poor quality of e-banking service?**
    - o yes
    - o no
    - o can't say

BIBLIOGRAPHY

Books:

- Research and Methodology – C.R. Kothari 2nd edition – New Age International
- Journal of banking and finance – carol alexander
- Banking on knowledge- - stone, D – the genesis of the global development network
- E- commerce in Indian banking – basin
- Banking theory, law and practice- e. gorden, k. Natarajan- himalya publishing house.
- All content on this page was uploaded by Vasan M. on 29 December 2017. Vidushi June-2014-2015.

Websites

www.icicibank.com

www.studymode.com

www.commbank.com.au

www.ijtemt.org

www.shodhganga.inflibnet.ac.in

www.businessdictionary.com

www.icici.co.in

References

- Daniel (1999)- E-banking in banks, Institute of banking studies, Uk
- Neeli S Prameela (2012)- E-Banking Loyalty –Assistant Professor Lotus Institute of Management studies
- Mr. Talwar (1999)- IT Revolution in banking sector IT Sector, India
- Unninthan (2001)- Impact of e-banking adaption on Australian and Indian banking sector.
- Singh and Malhotra (2007) -Adopt internet banking in India.
- Nitin, Vikas and Nancy (2003) Explored the factors that influence the adoption behavior of Mobile banking services by Indian consumers.
- Deva Devan (2005) identifies the mind-set and analyses the security issues in Mobile banking among the banking customers in India.
- Sudhakar A. M., Suryanarayana, (2007) In their study have said that common man's life has gone through a sea change due to mobile penetration which has is turn put a major thrust on banking service sector of India.

PROJECT REPORT ON

A STUDY ON E-BANKING PRACTICES AND CONSUMER

SATISFACTION WITH RESPECT TO STATE BANK OF INDIA.

SUBMITTED BY

ROHIT MANE

TYBBI SEMESTER – VI 2021-2022

UNDER THE GUIDANCE OF

PROF. SWAPNA KADAM

VIDYALANKAR SCHOOL OF INFORMATION

TECHNOLOGY

(AFFILIATED TO UNIVERSITY OF MUMBAI)

VIDYALANKAR MARG,

WADALA (E), MUMBAI 400 037.

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY
(Affiliated to Mumbai University)

ℭertificate

This is to certify that

Mr. ROHIT RAVINDRA MANE *of B.Com. in Banking & Insurance*

Markets Semester **VI** *has undertaken & completed the project work*

titled **E-banking practices and consumer satisfaction with respect to State Bank of India**, *during the academic year* **2021-2022** *under the guidance of Ms* **Prof. Swapna Kadam** *submitted on _____ to this college in fulfilment of the curriculum of B.Com. in Banking & Insurance /Bachelor in Management studies/ B.Com. in financial Markets University of Mumbai.*

This is a Bonafede project work & the information presented is True & original to the best of our knowledge and belief.

PROJECT GUIDE   **COURSE CO-ORDINATOR**   **EXTERNAL EXAMINER**   **PRINCIPAL**

2

ACKNOWLEDGEMENT

I hereby acknowledge all those who directly or indirectly helped me in drafting of this project report. It would not have been possible for me to complete the task without their help and guidance.

First, I would like to thank my guide Ms. Swapna Kadam for the valuable guidance in completion of my project. I thank the Head of the Department Ms. Sindhu Krishnan and department faculty members for the moral support to complete the project. I thank our project in charge Ms. Khushboo Jhulka for updating me with university guidelines during my project work. My heartfelt gratitude to the principal Dr. Rohini Kelkar and the Vice-Principal Mr. Vijay Gawde, for the opportunity given to do the project work. Finally, I thank our library staff for assisting me in getting the right source of information.

Last but not the least, I am thankful to the University of Mumbai for offering the project in the syllabus. I must mention my hearty gratitude towards my family, other faculties and friends who supported me to go ahead with the project.

DECLARATION

Vidyalankar School of Information Technology

(Affiliated to University of Mumbai),

Vidyalankar Marg, Wadala (E),

Mumbai 400 037

I **ROHIT MANE**, student of Bachelor in Banking and Insurance Semester VI, Vidyalankar School of Information Technology, hereby declare that I have completed the project on E-banking practices and consumer satisfaction with respect to State Bank of India in academic year 2021-22.

This information submitted is true and original to the best of my knowledge.

Signature of the Student

(ROHIT MANE)

EXECUTIVE SUMMARY

E-Banking is web-based Banking. Now a day due to emerging global economy, e-commerce and e-business have increasingly become a necessary component of business strategy and a strong catalyst for economic development. As a third world developing country, Bangladesh is far behind to reach the expected level of global banking system. At present the banks in Bangladesh are using the limited electronic banking services. E-banking product and services include wholesale products for corporate customers as well as retail and fiduciary products for individual customers. Foreign commercial banks and private commercial banks are relatively in a better position to provide on line banking services. Dutch bangle bank is acting as a pioneer in this sector. Customers who are habituated with online banking thinks that online banking services are relatively good then manual system, but they not satisfied with the quality of services and bank personnel behaviour to that extent. Although E banking activities are experiencing lots of limitation and constraints such as lack of awareness and human capital, inadequate infrastructure, this sector has a high prospective. People are now getting interested in online transaction and government has laid out some plans for developing ICT infrastructure. Bangladesh bank take some major initiative in this regard and nationalized bank should concentrate in improving their online services spread and quality.

INDEX

CHAPTER:- 1

INTRODUCTION

The banking scenario in India in the post liberalization and deregulated environment has witnessed sweeping changes. The tremendous advances in technology and the aggressive infusion of information technology had brought in a paradigm shift in banking operations. For the banks, technology has emerged as a strategic resource for achieving higher efficiency, control of operations, productivity and profitability. For customers, it is the realization of their 'Anywhere, Anytime, Anyway' banking dream. This has prompted the banks to embrace technology to meet the increasing customer expectation.

Technology to start with is a business enabler and now has become a business driver. The banking institutions cannot think of introducing a financial product without information technology support be it customer service, transactions, remittances, audit, marketing, pricing or any other activity in the banks. Information Technology plays an important role not only to complete the activity with high efficiency but also has the potential to innovate and meet the future requirements. Information Technology has therefore introduced new business paradigms and is increasingly playing a significant role in improving the services in banking industry.

In the above backdrop it becomes imperative to dwell on the evolution of Information Technology in banks before embarking on the various aspects of e-banking. Information Technology came into picture as early as in the 1980's in banking industry through the Rangarajan Committee recommendations and banks have given utmost importance to the technology since the last 25 years. The Reserve Bank of India is constantly pursuing the banks from 1980's to introduce

computerization at branch level and to improve the quality of customer service through technology.

E-Banking implies performing basic banking transaction by customers round the clock globally through electronic media. Alternatively electronic banking can be defined as "delivery of bank's services to a customer at his office or home by using electronic technology and this has resulted in conceptualization of virtual banking". In traditional banking, the customer has to visit the branch of the bank in person to perform the basic banking operations viz., account enquiry, fund transfer and cash withdrawal. The brick and mortar structure of a bank is essential to perform the banking functions.

On the other hand, E-Banking enables the customers to perform the basic banking transactions by sitting at their office or at homes through PC or LAPTOP. The customers can access the bank's website for viewing their account details and perform the transactions on account as per their requirements. Thus, today's banking is no longer confined to branches. Customers are being provided with additional delivery channels which are more convenient and are cost effective to the banks. This has resulted in shrinking of geographical boundaries, easy reach to the clientele, reliable and secure services. The E-Banking services include Automated Teller Machine, Plastic Card Currency, Internet Banking and Electronic Clearing Services.

State Bank of India is the largest bank with network of over 15000 branches and 5 associate bank located even in the remote part of India. SBI offers a wide range of banking products and services to corporate and retail customers.

Now a day's information technology plays a vital role in banking sector. Day- by- day increasing change in technology world, it leads to improve e-banking services of various banks. Traditional branch model of bank is now changing into new form of e-banking services like kiosk marketing machine, coin vending machines of SBI etc. It provides various advantages to customers.

Today people are educated more than olden days, human lives becomes machine oriented and they don't have enough time to visit bank branch than ever before. E-Banking means providing banking products and services through electronic delivery channels like ATM, Internet banking, Telephone banking and other electronic delivery channels. SBI has over 4500 ATM centres in India approximately. Automated Teller Machine (ATM) is electronic computerised telecommunication device that allows a customer to directly use a secured method of communication to access their bank accounts or make cash withdrawals and other services. Internet banking highly useful to the customer one who have computer with internet connection, they need not visit bank branch for their business transactions. Simply they can transact anywhere, anytime if they have internet connection. By dialling the telebanking number customer can get various facilities like cheque book request, balance inquiry etc.

In this research paper, main emphasis has been made towards concept of E-banking, awareness of E- banking , most preferred E- banking services among different age groups . In this study we include mobile banking , internet banking ,tele banking and plastic money .Data has been collected from multiple sources of evidence to understand the customer awareness on E-banking services of SBI.

Electronic banking (e-banking) is defined as the automated delivery of new and traditional banking products and services directly to customers through electronic, interactive communication channels. E-banking includes the systems that enable financial institution, customers, individuals or businesses, to access accounts, transact business, or obtain information on financial products and services through a public or private network, including the Internet. E-Banking is also called Internet banking, on-line banking or PC banking. E-banking includes ATMs, wire transfers, telephone banking, electronic funds transfers and mobile transfer using various banking apps and credit cards. Nowadays, internet banking sites process customer service inquiries, allow transactions from one account to another, take loan

applications, open new accounts etc. In addition to the rapid use of electronic bank branches an entire financial community has suddenly offering most and financial service. As customers are visiting banks, more and more are using ATMs, home banking terminals and the internet to do their financial business. It is supported by speed of telecommunications, powerful, inexpensive computers and secured encryption. This charge to the internet is increasing the number of competitors in the market. Technology has introduced new ways of delivering banking to the customer, such as ATMs and internet banking.

Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value added products and services. The delivery channels include direct dial – up connections, private networks, public networks etc and the devices include telephone, Personal Computers including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), Internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as Internet Banking. The tremendous advances in technology and aggressive use of information technology has brought paradigm shift in banking operations. The banking technology has emerged as a strategic resource for achieving higher efficiency, control of operations, productivity and profitability. For customers, it is the realization of their anywhere and anytime banking dream. This has promoted the banks to embrace the technology to meet the increasing customer expectation. Today, banks are already loosing enormous amounts through cheques and credit card fraud. The security solutions of the future are the major concern for banks. If customers distrust the security it may create multiple problems. Banks will find it hard to launch Internet banking services if demand is low because of security doubts. Though the banks themselves believe that the security levels for bank transactions over the

internet are sufficient, they also believe that their customers distrust existing security solutions, primarily because they are software based.

SBI began to look at e-banking as a means to replace some of their traditional bank functions. This study involves the study of Nepal SBI bank. This research study considers two main factors: electronic banking and customer satisfaction. The paper includes an analysis of customers' awareness towards e-banking services, the quality of e-banking services provided by the SBI and the hurdles in achieving customer satisfaction. Here we can assume independent variable as electronic banking and the dependent variable as customer satisfaction. It is presumed that e-banking preference is affected by factors such as occupation type and age group and these factors are considered important to and are linked to e-banking to determine whether they really do have an impact on e-banking.

Customer service is the provision of service to customers before, during and after a purchase. According to Turban et al. (2002), "Customer service is a series of activities designed to enhance the level of customer satisfaction – that is, the feeling that a product or service has met the customer expectation." Its importance varies by products, industry and customer; defective or broken merchandise can be exchanged, often only with a receipt and within a specified time frame.

Retail stores often have a desk or counter devoted to dealing with returns, exchanges and complaints, or will perform related functions at the point of sale; the perceived success of such interactions being dependent on employees "who can adjust themselves to the personality of the guest," according to Micah Solomon quoted in Inc. Magazine. From the point of view of an overall sales process engineering effort, customer service plays an important role in an organization's ability to generate income and revenue. From that perspective, customer service should be included as part of an overall approach to systematic improvement. A customer service experience can change the entire perception a customer has of the organization.

"Customer satisfaction" is measured at the individual level, but it is almost always reported at an aggregate level. It can be, and often is, measured along various dimensions. A hotel, for example, might ask customers to rate their experience with its front desk and check-in service, with the room, with the amenities in the room, with the restaurants, and so on.

Customer satisfaction, a term frequently used in marketing, is a measure of how products and services supplied by a company meet or surpass customer expectation. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals." In a survey of nearly 200 senior marketing managers, 71 percent responded that they found a customer satisfaction metric very useful in managing and monitoring their businesses. "Customer satisfaction provides a leading indicator of consumer purchase intentions and loyalty. "Customer satisfaction data are among the most frequently collected indicators of market perceptions. Customer service is the provision of service to customers before, during and after a purchase. According to Turban et al. (2002), "Customer service is a series of activities designed to enhance the level of customer satisfaction – that is, the feeling that a product or service has met the customer expectation." Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service. The state of satisfaction depends on a number of both psychological and physical variables which correlate with satisfaction behaviours such as return and recommend rate. The level of satisfaction can also vary depending on other options the customer may have and other products against which the customer can compare the organization's services. The origin of the State bank of India goes back to the first decade of the nineteenth century with the establishment of the Bank of Calcutta in Calcutta on 2 June 1806. Three years later the bank received its charter and was re-designed as the Bank of Bengal (2 January 1809). A unique institution, it was the first

joint-stock bank of British India sponsored by the Government of Bengal. The Bank of Bombay (15 April 1840) and the Bank of Madras (1 July 1843) followed the Bank of Bengal. These three banks remained at the apex of modern banking in India till their amalgamation as the Imperial Bank of India on 27 January 1921.

Primarily Anglo-Indian creations, the three presidency banks came into existence either as a result of the compulsions of imperial finance or by the felt needs of local European commerce and were not imposed from outside in an arbitrary manner to modernise India's economy. Their evolution was, however, shaped by ideas culled from similar developments in Europe and England, and was influenced by changes occurring in the structure of both the local trading environment and those in the relations of the Indian economy to the economy of Europe and the global economic framework. The establishment of the Bank of Bengal marked the advent of limited liability, joint-stock banking in India. So was the associated innovation in banking, viz. the decision to allow the Bank of Bengal to issue notes, which would be accepted for payment of public revenues within a restricted geographical area. This right of note issue was very valuable not only for the Bank of Bengal but also its two siblings, the Banks of Bombay and Madras. It meant an accretion to the capital of the banks, a capital on which the proprietors did not have to pay any interest. The concept of deposit banking was also an innovation because the practice of accepting money for safekeeping (and in some cases, even investment on behalf of the clients) by the indigenous bankers had not spread as a general habit in most parts of India. But, for a long time, and especially upto the time that the three presidency banks had a right of note issue, bank notes and government balances made up the bulk of the investible resources of the banks.

The three banks were governed by royal charters, which were revised from time to time. Each charter provided for a share capital, four-fifth of which were privately subscribed and the rest owned by the provincial government. The members of the board of directors, which managed the affairs of each bank, were mostly proprietary

directors representing the large European managing agency houses in India. The rest were government nominees, invariably civil servants, one of whom was elected as the president of the board. Commercial Banks have accounts with SBI. When the banks face financial shortage, the SBI provides assistance to them as it is considered a big brother in the banking industry. It discounts the bills of the other commercial banks. Due to the functions on this line the SBI is considered in a limited sense as the banker's bank.

The SBI functions as the banker to the central and state governments. It receives and pays money on behalf of the governments. Especially it renders the following functions as directed by the RBI in this regard. Collection of charges on behalf of the government e.g. collection of tax and other payments,Grants loans and advances to the governments, provides advises to the government regarding economic conditions, etc., The state Bank of India was established in 1955, its predecessor, the Imperial Bank

of India, was established in 1921, as a result of the amalgamation of the three banks including Bank of Bengal, Bank of Bombay and Bank of Madras. Since 1973, the bank has been involved in a non-profit activity called commodity service banking. All the branches and administrative offices throughout the country sponsor and participate in a large number of welfare activities and social causes. State Bank of India opened its first offshore banking unit (OBU) in 2003. The bank entered into an agreement with western union's Kouni Travels to offer inward remittance facilities in 2005. During2006, the bank faced huge disruptions in its services on account of a week long strike by over 200,000 employees, demanding upward revision of their pension benefits. Later the same year, the bank announced that it would securitize 25-30% of its loan assets over the next few years as an alternative source of funds. The bank also announced that it would increase its overseas presence and would set up 60 new overseas offices in two years. SBI entered into wealth management and financial planning services to clients who have INR0.5million or more in their

accounts. SBI announced plan to roll out banking services in 50,000 unbanked villages by March 2010. In2009, the bank announced that got a full banking license from the regulator, the Dubai Financial Services Authority. State Bank of India has often acted as guarantor to the Indian Government, most notably during Chandra Shekhars tenure as Prime Minister of India. With 11,448 branches and a further 6500+ associate bank branches, the SBI has extensive coverage. State Bank of India has electronically networked all of its branches under Core Banking System (CBS). The bank has one of the largest ATM networks in the region. More than 8500 ATMs across India. The State Bank of India has had steady growth over its history, though it was marred by the Harshad Mehta scam in 1992. In recent years, the bank has sought to expand its overseas operations by buying foreign banks. It is the only Indian bank to feature in the top 100 world banks in the Fortune Global 500 rating and various other rankings .

The business of the banks was initially confined to discounting of bills of exchange or other negotiable private securities, keeping cash accounts and receiving deposits and issuing and circulating cash notes. Loans were restricted to Rs.one lakh and the period of accommodation confined to three months only. The security for such loans was public securities, commonly called Company's Paper, bullion, treasure, plate, jewels, or goods 'not of a perishable nature' and no interest could be charged beyond a rate of twelve per cent. Loans against goods like opium, indigo, salt woolens, cotton, cotton piece goods, mule twist and silk goods were also granted but such finance by way of cash credits gained momentum only from the third decade of the nineteenth century. All commodities, including tea, sugar and jute, which began to be financed later, were either pledged or hypothecated to the bank. Demand promissory notes were signed by the borrower in favour of the guarantor, which was in turn endorsed to the bank. Lending against shares of the banks or on the mortgage of houses, land or other real property was, however, forbidden. Indians were the principal borrowers against deposit of Company's paper, while the business of discounts on private as

well as salary bills was almost the exclusive monopoly of individuals Europeans and their partnership firms. But the main function of the three banks, as far as the government was concerned, was to help the latter raise loans from time to time and also provide a degree of stability to the prices of government securities. "Customer satisfaction" is measured at the individual level, but it is almost always reported at an aggregate level. It can be, and often is, measured along various dimensions. A hotel, for example, might ask customers to rate their experience with its front desk and check-in service, with the room, with the amenities in the room, with the restaurants, and so on.

Customer satisfaction, a term frequently used in marketing, is a measure of how products and services supplied by a company meet or surpass customer expectation. Customer satisfaction is defined as "the number of customers, or percentage of total customers, whose reported experience with a firm, its products, or its services (ratings) exceeds specified satisfaction goals." In a survey of nearly 200 senior marketing managers, 71 percent responded that they found a customer satisfaction metric very useful in managing and monitoring their businesses.

 "Customer satisfaction provides a leading indicator of consumer purchase intentions and loyalty.‖ "Customer satisfaction data are among the most frequently collected indicators of market perceptions.

Customer service is the provision of service to customers before, during and after a purchase. According to Turban et al. (2002), "Customer service is a series of activities designed to enhance the level of customer satisfaction – that is, the feeling that a product or service has met the customer expectation." Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service. The state of satisfaction depends on a number of both psychological and physical variables which correlate with satisfaction behaviors such as return and recommend rate. The level of satisfaction can also vary depending on other options the customer

may have and other products against which the customer can compare the organization's services.

Indian merchants in Calcutta established the Union Bank in 1839, but it failed in 1848 as a consequence of the economic crisis of 1848-49. The Allahabad Bank, established in 1865 and still functioning today, is the oldest Joint Stock bank in India.(Joint Stock Bank) A company that issues stock and requires shareholders to be held liable for the company's debt) It was not the first though. That honour belongs to the Bank of Upper India, which was established in 1863, and which survived until 1913, when it failed, with some of its assets and liabilities being transferred to the Alliance Bank of Shimla.

When the American Civil War stopped the supply of cotton to Lancashire from the Confederate States, promoters opened banks to finance trading in Indian cotton. With large exposure to speculative ventures, most of the banks opened in India during that period fey and lost interest in keeping deposits with banks. Subsequently, banking in India remained the exclusive domain of Europeans for next several decades until the beginning of the 20th century.

Foreign banks too started to arrive, particularly in Calcutta, in the 1860s. The Comptoired' Escompte de Paris opened a branch in Calcutta in 1860, and another in Bombay in 1862; branches in Madras and Pondicherry, then a French colony, followed. HSBC established itself in Bengal in 1869. Calcutta was the most active trading port in India, mainly due to the trade of the British Empire, and so became a banking center.

The first entirely Indian joint stock bank was the Oudh Commercial Bank, established in 1881 in Faizabad. It failed in 1958. The next was the Punjab National Bank, established in Lahore in 1895, which has survived to the present and is now one of the largest banks in India. Around the turn of the 20th Century, the Indian economy was passing through a relative period of stability. Around five decades had elapsed since the Indian Mutiny, and the social, industrial and other infrastructure had

improved. Indians had established small banks, most of which served particular ethnic and religious communities.

 The presidency banks dominated banking in India but there were also some exchange banks and a number of Indian joint stock banks. All these banks operated in different segments of the economy. The exchange banks, mostly owned by Europeans, concentrated on financing foreign trade. Indian joint stock banks were generally undercapitalized and lacked the experience and maturity to compete with the presidency and exchange banks. This segmentation let Lord Curzon to observe, "In respect of banking it seems we are behind the times. We are like some old fashioned sailing ship, divided by solid wooden bulkheads into separate and cumbersome compartments.

"The period between 1906 and 1911, saw the establishment of banks inspired by the Swadeshi movement. The Swadeshi movement inspired local businessmen and political figures to found banks of and for the Indian community. A number of banks established then have survived to the present such as Bank of India, Corporation Bank, Indian Bank, Bank of Baroda, Canara Bank and Central Bank of India. The fervour of Swadeshi movement lead to establishing of many private banks in Dakshina Kannada and Udupi district which were unified earlier and known by the name South Canara (South Kanara) district. Four nationalised banks started in this district and also a leading private sector bank. Hence undivided Dakshina Kannada district is known as "Cradle of Indian Banking". During the First World War (1914–1918) through the end of the Second World War (1939–1945), and two years thereafter until the independence of India were challenging for Indian banking. The years of the First World War were turbulent, and it took its toll with banks simply collapsing despite the Indian economy gaining indirect boost due to war-related economic activities.

State bank of India is an Indian multinational public sector banking and financial service company. It is a *Govt.* owned corporation with headquarters in Mumbai,

Maharashtra. As of 2014-15 it had the asset of 20.480 trillion and more than 14000 branches including 191 foreign offices spread across 36 countries. SBI is formed by renaming the Imperial Bank in the 1955.SBI has 54 branches in Palakkad District. The main business of a company is to satisfy the customer needs and wants. Customer is one who purchase a product or services either for his own consumption or for others. Without them a company can neither survive nor thrive. In their absence an organisation does not have a business or purpose. Today business organisations are more customer focused than ever before since customer satisfaction is a competitive advantage which is sustainable over the long term .Business organisation should always focus on listening to customer expectation, requirements complaints and needs to create healthy customer satisfaction relationship. When the expectations of customer is matched, the resultant feeling is satisfaction and when expectation doesn't match then the resultant feeling is dissatisfaction. Customer satisfaction in the banking industry plays a vital role to create a healthy business status. In any service based industry customer service is at highest priority. In banking industry customers are more directly linked with the banks, personnel for any kind of services or products. Therefore the bank should always focus on training the front desk staff to provide quality service by knowing their expectations and wants. Like all other banks, SBI also provides quality service to their customer to make them satisfied. Customer satisfaction is the key to not only the organisational success but also for existence. So it becomes essential to analyse the customer satisfaction of the organisations. That is why the research topic "customer satisfaction on selected banking products of SBI Namakkal branch is selected for study There was a time when customers were less critical and vocal if not totally satisfied while dealing with a business. This is not the case today. Today, Customers are becoming increasingly more demanding, less tolerant and very critical when not having their expectations met. There was a time when the choices available on where and who to deal with was limited. The power belonged to the business owner, customers had nowhere else to go and therefore customer satisfaction was not so important. In a competitive

marketplace where businesses compete for customers, customer satisfaction is seen as a key differentiator and increasingly has become a key element of business strategy. Organizations need to retain existing customers while targeting non-customer. Measuring customer satisfaction provides an indication of how successful the organization is at providing products and/or services to the marketplace. Customer satisfaction is an abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service. The state of satisfaction depends on a number of both psychological and physical variables which correlate with satisfaction behaviors such as return and recommend rate. The level of satisfaction can also vary depending on other factors such as other products against which the customer can compare the organization's products Banks are in the business of maturity transformation. They lend for longer time periods, as borrowers normally prefer a longer time frame. But their liabilities are typically short term in nature, as lenders normally prefer a shorter time frame (liquidity preference). This results in long-term interest rates typically exceeding short-term rates. Hence, the incentive for banks for performing the function of financial intermediation is the difference between interest receipt and interest cost which is called the interest spread. It is implicit, therefore, that banks will have a mismatched balance sheet, with liabilities greater than assets in short term, and with assets greater than liabilities in the medium and long term. These mismatches, which represent liquidity risk, are with respect to various time horizons. Hence, the concern of a bank is to maintain adequate liquidity. Liquidity risk is the potential inability to meet the bank's liabilities as they become due. It arises when banks are unable to generate cash to cope with a decline in deposits or increase in assets. It originates from the mismatches in the maturity pattern of assets and liabilities. Measuring and managing liquidity needs are vital for effective operation of commercial banks. By assuring a bank's ability to meet its liabilities as they become due, liquidity management can reduce the probability of an adverse situation developing Analysis of liquidity risk involves the measurement of, not only the liquidity position of the bank on an ongoing basis but also examining

how funding requirements are likely to be affected under crisis scenarios. Net funding requirements are determined by analyzing the bank's future cash flows based on assumptions of the future behavior of assets and liabilities that are classified into specified time buckets and then calculating the cumulative net flows over the time frame for liquidity assessment. Future cash flows are to be analyzed under "what if" scenarios so as to assess any significant positive/ negative liquidity swings that could occur on a day to-day basis and under bank specific and general market crisis scenarios. Factors to be taken into consideration while determining liquidity of the bank's future stock of assets and liabilities include: their potential marketability, the extent to which maturing assets /liability will be renewed, the acquisition of new assets/liability and the normal growth in asset/liability accounts. Factors affecting the liquidity of assets and liabilities of the bank cannot always be forecast with precision. Hence, they need to be reviewed frequently to determine their continuing validity, especially given the rapidity of change in financial markets. "Customer satisfaction is measured at the individual level, but it is almost always reported at an aggregate level. It can be, and often is, measured along various dimensions. A hotel, for example, might ask customers to rate their experience with its front desk and check-in service, with the room, with the amenities in the room, with the restaurants, and so on. Additionally, in a holistic sense, the hotel might ask about overall satisfaction 'with your stay.

'The usual measures of customer satisfaction involve a survey with a set of statements using a Likert Technique or scale. The customer is asked to evaluate each statement and in term of their perception and expectation of performance of the organization being measured. Their satisfaction is generally measured on a five-point scale.

Customer satisfaction is an ambiguous and abstract concept and the actual manifestation of the state of satisfaction will vary from person to person and product/service to product/service. The state of satisfaction depends on a number of both psychological and physical variables which correlate with satisfaction behaviors

such as return and recommend rate. The level of satisfaction can also vary depending on other options the customer may have and other products against which the customer can compare the organization's products.

1.1: OBJECTIVES OF THE STUDY

➢ To evaluate the awareness of E-Banking among the customers of SBI.

➢ To study the most preferred E-Banking service offered by SBI.

➢ To know which age group of customers is using different e-banking facilities.

➢ To analyse the customer satisfaction towards the selected banking products and services of SBI.

➢ To examine the expectations and the level of satisfaction of the customers towards the service rendered by SBI

1.2: SCOPE OF THE STUDY

With the modernization and globalization the bank has adopted all the changes and now all the banks have started adopting the technologies in banking. So, it becomes necessary to study the nature, growth and extend of E-banking services provided by SBI. The present study is a modest attempt to know about customers' awareness regarding E-banking services provided by SBI. So the findings will help to know the effective awareness towards the E-banking services.

In India, there is a smaller number of studies being conducted to identify how effectively the online channels are used by banking industry to increase customer satisfaction. Hence, this study throws light on the e-banking services provided by the banks in the study area and this research study makes an attempt to analyse how banks are attracting the various customers and how the customers are satisfied with the e-banking services provided by the banks. This study will be helpful to draw up further policy for improving customer satisfaction with e-banking practices and act as a secondary data for further research.

1.3: LIMITATIONS OF STUDY

In any research conducted there shall be some limitations associated with it. Hence ,for the proper understanding of the project it is inevitable to specify the limitation of the study.

➢ The study was done in SBI bank and sample size of 50, the credibility of the project is not assured.

➢ Personal bias and prejudice of the respondents could have affected the result of the study.

➢ Only certain statistical test could be applied to validate the result of the study.

➢ The study is based on quality and originality of secondary data taken through the official website of SBI is considered as another limitation of study.

1.4: RESEARCH METHODOLOGY

In a view to precede the research in a systematic way the following research methodology has been used. By means of obtaining detailed opinion of the customers, this research falls under the category of descriptive research. This study was conducted as a survey that examined customers' satisfaction with e-banking services in State Bank of India .

The methodology adopted in the study is both descriptive and analytical .

SAMPLE SIZE   :   113 respondents

SAMPLE UNIT   :   Customers of State bank of India.

DATA COLLECTION METHOD

- PRIMARY DATA:

    In order to gather necessary data and also to provide profound insight into the topic 'Customer awareness on E- banking services of SBI' , the researcher considered the use of questionnaire for consumers in most suitable way.

- SECONDARY DATA:

    Secondary data was collected from the existing data sources, catalogues, internet ,magazine, case studies, newspapers , journals , articles ,etc. The information so collected has been consolidated in a meaningful manner for the purpose.

CHAPTER 2:

REVIEW OF LITERATURE

There have been a lot of studies conducted in the field customer satisfaction towards banking services both at national and international level. Some of the previous related research studies are given below.

Abou-Robich, Moutaz (2005) studied how to analyse comfort levels and attitude of users towards online banking facilities. The findings resulted that there is a correlation between attitude towards e-banking and feeling of security with regard to their demographic variables.

Isern, Jennifer (2008) pointed out that a positive relationship between the level of financial infrastructure and the level of competition and a negative relationship between the degree of state ownership in a banking sector and the level of competition.

Reynolds, John (2007) said that 2006 e-banking technology services industry customer loyalty survey data results in order to improve marketing resource allocation for corporate e-banking products and services.

Huang, Haibo (2005) reveals that the successful introduction electronic money and e-banking services depends mainly on people acceptance. The major finding is that although e-banking customers more or less have some common characteristics, they differ across different types of e-banking services.

Taft, Jeanette (2007) pointed out that Technology Acceptance Model (TAM) as applied to a specific type of technology: e-banking. They suggested that e-banking – prior training, perceived ease of use of e-banking technology.

Jeon, Kiyong (2014) have said that consumer prefer larger banks in U.S. Because they has to reduce their transportation cost by way of larger banks have multiple ATM centre's across the country.

Lakshmi Narayana et.al (2013) in their study entitle "A Study on Customer Satisfaction towards Online Banking services with reference to Bangalore city" focuses on investigating the major factors that influence online customers' satisfaction with the overall service quality of their banks. Assessing the power of these factors in the context of Online (Internet) banking and would, therefore, help the bank management not only in improving the level of satisfaction but also strengthening the bond between the banks and their customers, thereby helping them to retain and expand their overall customer base. Further this study reveals that online banking, to make a customer's banking experience more convenient, efficient, and effective, it becomes even more important to ascertain the customers' perception of the overall service quality and their satisfaction with the current online banking services.

Vimala (2015) has attempted a study on "An Evaluative Study on Internet Banking Security among Selected Indian Bank Customers". This study shows that Internet banking is very convenient and fast, it is mired with several security issues. Banking institutions have taken several measures to ensure safety measures for their customers while performing various transactions online banking sector is one of the major

beneficiaries of the Internet revolution and the growth of banking technology products have been remarkably increasing. Internet banking system proves to be very versatile in completing transactions like balance inquiry, withdrawal, deposits, viewing the bank statement, and record of recent transaction. From this study rightly observed that, very few works have focused on the Internet banking, its usage, safety measures and its perceptions, attentiveness level, satisfaction levels, attitudes and behaviour of the internet banking, security issues, and financial frauds.

Reeta Clonia. (2016) has conducted study on "E-banking in India: Current and Future Prospects". Reeta has examined that E-banking is the most pioneering trend among the customers in the present era of thrust for more expeditious and secured financial services. The transfer from the traditional banking to E-banking has been an elevating amendment in banking dealings. Banking industry in India and additionally discussed the magnification rate and future prospects of the E-banking services provided by the Indian banks in this regard. Economic growth and development of any country is mainly influenced by the advancement of the banking sector in that particular nation. Khaled Bin Amir and Dr Hasina Shaikh (2017) in their study entitle "Analysis of Customer Satisfaction on Online Banking: A Case Study on "One Bank Limited" has stated that customers are asked about their satisfaction level on online banking. Online banking services of One Bank Limited, is quite good and satisfactory but customers were not aware and willing to take this services. But level of satisfaction is greater for some parameters and less for some parameters. Likewise, customers are satisfied with security and user friendliness of the website of the banks and somewhat neutral in perception with update frequency. For this reason, internet banking has become an important measurement tools to attract larger customer base.

Sunith C K (2019) has made an empirical study of customer satisfaction in E-banking services. This study stated that Electronic banking incorporates systems that enable individual customers to access their accounts, transact with speed and obtain current and updated information on latest financial products and services through public or private networks. It accommodates a variety of platforms such as internet banking, telephonic and television based banking, automated teller services, mobile phone banking as well as personal computer based and offline banking services. Customer is distinguished from a consumer in the sense that a customer pays for a product or service while a consumer is the end user who experiences a product or service.

Lee, Jihyun (2003) examined that to identify whether customer intention affecting to use online financial services. The effects of attitude toward behaviour, subjective norm were examined. Demographic variables were included as control variables.

Ding, Xin (2007) reveals that consider for research consumer behaviour on internet in the last years. The findings conclude that customer behaviour from self-service, Service quality and experience design perspectives.

Wamalwa, Tom (2006) said that whether internet banking strategies were aligned with the bank's core business based or not identified.

Featherman, Mauricio Sanchez (2002) studied that perceived risk inhibited consumer adoption intentions as well as perception of the usability, usefulness of online payment.

Bayles, Michelle Esther (2004) have said that investigating factor contribute their decision to bank online, frequency of banking activities.

Massad, Nelson (2003) contributed at a theoretical level by providing deeper understanding of the transactions between customers and service providers.

Nor, KhalilMd (2005) results indicate that the model provides a good understanding of factors that influence the intention to use internet banking.

Chen, Lisa (2012) studied that will increase our understanding in financial, accounting, management of information system, business administration and decision making related to the adoption of Internet banking in Mainland China.

Adham, Khairul Akmaliah (2000) indicated that Malaysian banks could be grouped into two in regard to their reasons for adopting the electronic delivery systems. M., Service quality in the banking sector: the impact of technology on service delivery, (1999) The study investigates role of technology on Australian banking sector and 300 customers were surveyed. The findings suggested that except from convenience/accuracy and efficiency e-banking services did not match with importance rating specified by customers.

Jamal, (2002) The study examined key drivers of customer satisfaction using 167 customers and it was found that core and relational performances had influence on pleasure of bank consumer and were consuming adverse association in-between

consumer proficiency along with consumer gratification. The research provides key points for the review of next generation of banking.

Chandar, (2002) Author in his research, inspected association in between qualities of services and fulfilment of banking consumers for banking domain in the country. Study results were proved that these factors were autonomous but tightly coupled. These factors paradigms vary meaningfully in essential facilities, man power, along with methodisation of provision services, tangibles and public accountability. The research provides key points for the review of next generation of banking.

Raja , Joe (2012) ,"Global e-banking scenario and challenges in banking system – to explore the various levels of internet banking services provided by banks using secondary data . it also compares the traditional banking system with net banking, list out various advantages and the successful security measures adopted by different banks for secured banking transactions . it also analyses hoe e-banking can be useful for banking industry during this global financial meltdown

Hartfeil (1996) in his article, "Determination of customer benefits and share of wallet in banking", says that the primary challenge of small banks is initial cost systems, while for large banks, the real challenge is to make a large number of existing diffuse systems compatible ones and to make all available new information usable. Information on profitability of customers is regarded as one of the most important types of customer satisfaction.

Hallowell Roger (1996) carried out a study on customer satisfaction in banks and suggested that banks should target service to only those who need it most.

By adopting this strategy customers will be retained for longer periods since the bank can satisfy customers better than competitors.

Gopal, K.S. (1997) in his article, stated that quality of services rendered by a bank could often be the single most important factor which can make customer shift loyalties and business to other banks.

Hayes B (1998) by clearly defining the key concepts and elements of satisfaction provides a template by which information can be gathered about what works and what does not work. This include both the hard measures which are more tangible and observable (i.e., number of complaints, average wait time) and the soft measures which are tangible aspects (i.e., friendliness, helpfulness, politeness).

Dr Sandip Goel (1998) conducted a study on "Financial Appraisal of Banking Industry – A comparative Insight of ICICI Bank and State Bank of India" with the objectives of appraising the profitability of the units in detail. And also to analyse the liquidity trend.

B. S. Bodla and RichaVerma (1999) conducted a study on "Earning Quality of Scheduled Commercial Banks in India: Bank-wise and Sector-wise Analysis"

Rao, N.V. (2001) in his article, explained that customer service was becoming an important aspect in gaining competitive edge for survival with growth and profits for banks. The key to success in the changed environment would be the bank's ability to reach the client at his door step.

Rao, N.V. (2001) in his article, explained that customer service was becoming an important aspect in gaining competitive edge for survival with growth and profits for banks. The key to success in the changed environment would be the bank's ability to reach the client at his door step.

Jyoti Saluja and Dr Rajinder Kaur conducted (2004)a study on "Profitability Performance of Public Sector Banks in India" .With the objective to identify the factors responsible for good or poor profitability performance of the public sector banks in India.

Dr. M.Selvakumar and P.G.Kathiravan (2008) conducted a study on "A Study of Profitability Performance of Public Sector Banks in India" with the objectives of analysing the profitability performance of PSCBs in India. And to compare the growth of income, expenditure and profit of PSCBs with Scheduled Commercial Banks (SCBs) in India. Sangeeta Arora and Shubpreet Kaur (2009) conducted a study on "Diversification in Banking Sector in India Determinants of Financial Performance" with the objective of analysing the financial performance of diversified banks.

Mahalakshmi and Sarvanaraj (2011) studied the customers' satisfaction towards the banking services in Trichy. This study showed the key factors influencing customer's selection of a bank are range of service, rates, fees and prices charged. It further showed that not only superior service is sufficient to satisfy customers but also excellent front office services, value added services,

deposit oriented services and providing innovative products will satisfy the clients' need

Mahadevan, S. and Dr. Balasubramanian (2012) in their article, explained that interest in the need and measurement of quality was understandably high and most important. The important relationship between service quality customer satisfaction and purchasing behaviour remain largely unexplored.

Naveen Kumar and V.K. Gangal (2012) examined customer satisfaction in new generation banks showing customers' expectations increasing rapidly in the banking industry of India. New customers looked the best services at a reasonable price. The result revealed that, the majority of Indian banks were not very diversified in terms of the product and services they offer. Further, it suggests that, in the competitive banking industry, banks have to implement strategic focus customer satisfying aspects for retaining as many customers as possible

CHAPTER 3:

INDRODUCTION TO THE TOPIC

EVOLUTION OF BANKING

The word Bank seen to have been derived from the Italian word 'Banco'. At the time of the establishment of the Bank of Venice (1157), the Germans were influential in Italy. 'Banck' was the German word for joint stock funds meaning a 'heap' or ' mound'. The Italians converted the word into 'Banco' which denotes an accumulation of either stock or money.

The record of the activities of money changing, lending and other banking functions reaches back to around 2000B.C, the Bablonian temples were in the banking business, lending at high rates of interest , gold and silver which had been left with them for safe keeping . 1500 years later Greek temples were also depositories and temple fund at interest.

HISTORY OF BANKING IN INDIA

Banking in India originated long ago. There are evidences of giving loans to others even during Vedic periods. Banking was synonymous with money lending. money lenders and indigenous bankers played an important part in Indian society as purveyors of money and credit from times immemorial .the money lenders provided loans to people in times of needed mainly for consumption purposes while the indigenous bankers extended credit for financing trade and industry. The indigenous bankers were for long the trusted

custodians of the deposits of the people and the royalty alike. Besides meeting the requirements of royal treasuries, they were the main source of finance for agriculture, industry and trade .but the importance of money lenders and indigenous bankers was reduced to some extend with the establishment of agency houses and presidency banks patronised by the East India Company towards the close of the 17th century. It was considered to be the birth of the modern banking.

STATE BANK OF INDIA

The origin of the State Bank of India goes backs to the first decade of the nineteenth century with the establishment of the Bank of Calcutta in 1806 in Calcutta . Three years later the bank received its charter and was re-designed as the Bank of Bengal on 2nd January 1809. A unique institution, it was the first joint-stock bank of British India sponsored by the Government of Bengal. The Bank of Bombay and Bank of Madras followed the Bank of Bengal. These three banks remained at the apex of modern banking in India till their amalgamation as the Imperial Bank of India on 27th January 1921.

Preliminary Anglo-Indian creations , the three presidency banks came into existence either as a result of the compulsions of imperial finance or by the felt needs of local European commerce and were not imposed from outside in any arbitrary manner to modernise India's economy . their evolution was, however , shaped by ideas culled from similar developments in Europe and England and was influenced by changes occurring in the structure of both the local trading environment and those in the relation of the Indian economy to the economy of Europe and the global economic framework.

The bank was actively involved since 1973 n non-profit activity called Community Services Banking. All branches and administrative offices throughout the country sponsor and participate in large number of welfare activities and social causes. Their business is more than banking because they ouch the life of people anywhere in many ways. State Bank of India (SBI) has received an approval from the Government of India (GOI) for acquisition of SBI Commercial and International Bank (SBICI).

In April 2014 State Bank of India launched three digital banking facilities for the convenience of SBI customers. Two at the customer's door step using TAB banking – one for customers Opening Savings Bank accounts and another for Housing Loan applicants. The third is e-KYC (Know Your Customer).

As a part of modernisation, SBI now has added another 7 digital products to their customer : SBI Digital village , SBI Mingle, State Bank Buddy, State Bank Crime , SBI Digi-voucher , SBI Video statement and SBI Smart watch. With these additions, SBI becomes the "leader of digital products", they claimed. All these SBI digital products are available for both rural and urban customers in India.

Mission

To retain the banks position as the premier Indian financial services group, with world class standards and significant global business, committed to excellence in customers, shareholder and employee satisfaction and to play a leading role in the expanding and diversifying financial services sector while continuing emphasis, on its development banking role.

SWOT Analysis of SBI

S - STRENGTH

- Greater reach to customers
- Quicker time to market
- Ability to introduce new products and services quickly and successfully
- Ability to understand its customer's needs
- Customers are given access to information easily across any location
- Greater customer loyalty
- Easy online application for all accounts , including personal loans and mortgage
- 24 hours account access
- Quality customer service with personal attention

W - WEAKNESSES

- Lack of awareness among the existing customers regarding internet banking

- Obsolesce of technology take place very soon specially in terms of security on internet
- Procedure for applying for id and password for using services related to internet banking takes time
- Lack of knowledge is found regarding internet banking in employees of SBI
- Implementation of newer technology is little bit complicated
- Employees needs training to obtain knowledge regarding internet banking.

O - OPPORTUNITIES

- Approximately 95% of customers are not using internet banking
- Core competency can be achieved in terms of banking if focus is made on awareness of internet banking
- Can become 1st virtual bank of India
- Concentration of various services should be made using internet banking

C - CHALLENGES

- Maintaining Business Edge over competitors in the context of sameness in IT infrastructure
- Multiple vendor support is necessary for working of highly complex technology
- Maintaining secured IT infrastructure for business operations
- Alternative must be there in case of failure of system.

Recent awards and recognitions

- ❖ SBI was ranked as the top bank in India based on tier 1 capital by The Banker magazine in a 2014 ranking.

- ❖ SBI was ranked 232nd in the Fortune Global 500 rankings of the world's biggest corporations for the year 2016.

- ❖ SBI was named the 29th most reputed company in the world according to *Forbes* 2009 rankings

- ❖ SBI was 50th Most Trusted brand in India as per the Brand Trust Report 2013,[1] an annual study conducted by Trust Research Advisory, a brand analytics company and subsequently, in the Brand Trust Report 2014, SBI finished as India's 19th Most Trusted Brand in India

- ❖ SBI has bagged the awards for " most preferred bank " and "most preferred brand" for home loan in CNBC Awaaz Consumer

Initiatives taken by government to promote e-banking in India:

Department of Expenditure, Ministry of Finance takes various initiatives to promote use of mobile banking/e-banking technology for cashless transactions and e-payments in Central Government Ministries/Departments; Redresses 4475 out of 4508 grievances successfully under CPGRAMS;

Takes various steps during the Current Financial Year 2016-17 to simplify and strengthen the Public Financial Management System (PFMS); Focuses on the development of 2nd version of the Generic Internal Audit Manual in association with the Institute of the Internal Auditors (IIA) India w.e.f. November, 2016; Has started Implementation of e-Office in a Mission Mode Project among others.

Year End Review – 2016

Department of Expenditure

Following are the major reform measures, policy initiatives and achievements of the Department of Expenditure (DOE), Ministry of Finance during the current Financial Year 2016-17:

Public Financial Management System (PFMS):

The Public Financial Management System (PFMS) is a web-based online software application, developed and implemented by the o/o CGA with technical support of NIC. The primary objective of PFMS is to facilitate a sound Public Financial Management System for Government of India (GoI) by establishing an efficient fund flow system as well as a Payment cum Accounting network. PFMS provides various stakeholders with a real time, reliable and meaningful Management Information System and an effective Decision Support System (DSS), as part of the Digital India initiative of GoI.

The biggest strength of PFMS is its integration with the banking network in the country. As a result, PFMS has the unique capability to push online payments to almost any beneficiary/vendor having account in any bank across the country.. At present, PFMS interface is completed with the Core Banking System (CBS) of all Public Sector Banks (26), Regional Rural Banks (54), major private sector banks (14), Reserve Bank of India, India post and Cooperative Banks (55).

The Government has emphasized the need for committeemproved financial management in implementation of Central government Schemes so as to facilitate Just-in-time releases and monitor the usage of funds including information on its ultimate utilization. In order to abide by the directions to implement Just-in-Time releases and monitor the end usage of funds, an action plan for universal roll-out of PFMS for Central Government schemes has been approved which inter alia includes mandatory registration of all Implementing Agencies on PFMS and mandatory use of Expenditure Advance and Transfer(EAT)module of PFMSW by all Ias.

Achievements under PFMS:

- PFMS has been fully implemented at the Central Government level for all Plan and Non Plan Scheme releases from Civil Ministries / Departments of the Central Govt.

- The Implementing Agencies are using the PFMS application for both transfer of funds to Agencies below and for e-payment to beneficiaries by direct credit to their accounts either in bank branches or in post offices.

- So far 18 lakh (46rovidi) Implementing Agencies are registered on PFMS (till 30th November, 2016).

- The total number of beneficiaries bank accounts registered in PFMS is 19.07crores (till 30th November, 2016).

- Total Central DBT payments have been made for 26.52 crore transactions amounting Rs. 33417.36 crores for 37 schemes (till 30th November 2016 in 2016-17).

- Total State DBT payments have been made for 2.88 crore transaction amounting Rs. 4363.28 crores for 27 schemes (till 30th November 2016 in 2016-17).

- Total UT DBT payments have been made for 2.98 crore transaction amounting Rs. 52.10 crores for 30 schemes (till 30th November 2016 in 2016-17).

- Pan-India roll out of MNREGS payments for Bank Account holders started from 1st April, 2015. 24.80 crore credits have been done for Rs. 24,571 crore through PFMS from 1.4.2016 to 30.11.2016.

- Pan-India roll out of Indira Awas Yojana (IAY) payments for Bank Account holders started from July, 2015. 19.10 lakh credits have been done for Rs. 5114 crore through PFMS from 1.4.2016 to 30.11.2016.

- E-IGAA i.e State Government payments through RBI advices have been started across Ministries.

- NTRP i.e Non Tax Receipts Portal has been started from 16th February, 2016 and this is a great step towards Hon'ble PM's Digital India Initiative. It facilitates online receipt of Non Tax Receipts for GoI Departments/Ministries. 24,277 credits have been received for Rs.77565.53 crores upto 30.11.2016.

- One stop Government e –Market place (GeM) which facilitates online procurement of common use Goods and Services required by various Govt. Departments/organizations/PSUs is integrated with PFMS for facilitating the e-payment of bills received online through GeM portal by the respective Pay and Accounts Offices.

- PFMS treasury integration is currently operational in 12 states and integration process has been initiated in other states also. It is expected to be completed by 31st March 2017.

New Initiatives/ Achievements under Internal Audit

- The Controller General of Accounts (CGA) has developed a risk based control framework in the form of Generic Internal Audit Manual to guide the internal audit engagements. The manual not only explain the complexities associated with the internal audit functions but also facilitates the entire process by providing audit process, templates and guidelines.

- The work of development of 2nd version of the Generic Internal Audit Manual in association with the Institute of the Internal Auditors (IIA) India has also been commenced in November, 2016. The revised Generic Internal Audit Manual will be developed as per International Professional Practices Framework (IPPF). The revised version will also include recommendations made by the Ministry of Women and Child

Development to include the guidelines on Gender Audit of Policies, Programmes and Schemes of the Government of India.

- A directional shift in the scope and approach of internal audit has been initiated by the organization by infusing two concepts- "Risk Assessment" and Performance Evaluation" for strengthening financial management and internal controls. The line Ministries are being encouraged to plan the audit assignments by adopting the Risk Based Auditing approach. Risk Based Audit in selected Ministries is being conducted on pilot basis.

- The organization is also focusing on the use of Computer Assisted Audit Tools for more transparency and accountability. Electronic Risk Assessment Software (e RAS), a diagnostic tool for internal audit has been developed in collaboration with NIC. This diagnostic tool [e RAS] is not only helpful to the audit in planning, sampling and conducting the audit efficiently but it is also helpful to the management / stakeholders to have a review of the functioning of their entities [PAOs only] in their offices instead of visiting these offices located at different places in different states.

- The organization is regularly reviewing the performance of the internal audit units of the line Ministries/Departments. The Annual Review on the performance of Internal Audit Wings of Civil Ministries depicts the information on different shortcomings of the Civil Ministries in the form of observations. The Annual performance reports of the different Ministries/Departments are analyzed and summarized by the Internal Audit Division for the purposes of brevity and ease of presentation. The outcome of Internal Audit through recoveries effected in pursuance to the observations of the Internal Audit is also included to reflect the impact of Internal Audit.

- The committee constituted by the organization to examine the draft Gender Audit Guidelines as circulated by the Ministry of Women & Child Development so as to recommend the framework / roadmap for the conduct of Gender Audit of Schemes of the Government of India has submitted its final report in October, 2016. The Committee examined the feasibility of including Gender Audit as one of the parameters for Risk Based Internal Audit of Schemes with an initial focus on 10% women specific schemes. The work of gender sensitization of the Generic Internal Audit manual based on the recommendations of the Ministry of Women & Child Development has been integrated with the project of up gradation of the Generic Internal Audit Manual by the Institute of Internal Auditors (IIA) – India.

- A Study Team headed by Joint Controller General of Accounts was constituted vide Ministry of Finance, Department of Expenditure OM. No. 2(2)PF-I/2010/Vol-II dated 14.1.2016, to visit North East States to understand the issues confronting utilization of Central funds implementations of Schemes and to get an overview of expenditure management. The Study Team visited four States viz. Mizoram, Tripura, Manipur and Nagaland. The main findings of the Study Team have been submitted to Ministry of Finance.

- A Memorandum of Understanding (MOU) has been signed between Office of Controller General of Accounts and Institute of Internal Auditors (IIA)-India. The MOU is made at New Delhi on the 14th day of September, 2016. The MoU is an expression of convergence between the Office of CGA and IIA-India to establish cooperative processes within committeeas of competence on the following:-

a) Sharing information and best practices, including those related to activities of internal auditors of government institutions and organization and their interaction;

b) Exchanging analytical materials in the field of improving the system of internal auditing, and other pertinent information of mutual interest; for this purpose. The parties will establish the structure, format and procedures for data and information sharing;

c) Exchanging initiatives with regard to the advancement of internal auditing in state institutions and organizations;

d) Co-operating in the field of professional education and training with the aim to have qualified internal auditors in civil ministries of Government of India.;

e) Developing proposals on making improvements to internal audit activities in Government institutions and organizations, including the process of encouraging internal auditors to attain recognized professional qualifications;

f) Exchanging experience in the field of audit methodology, including application of the international standards for the professional practices of Internal Auditing;

g) Co-operating within their areas of competence in other areas of mutual interest; and

h) Encouraging cross-country experiences through international exchanges.

- Based on the recommendations of the Seminar on 'Enhancing Effectiveness of Internal Audit: Issues & Challenges' which was organized by the organization on 24th November, 2015, an advisory has been issued by the Ministry of Finance to all Secretaries and Financial Advisers for carrying out a special drive for the clearance of the 1.18 lakh outstanding

internal audit paras. The organization has put in place a monthly monitoring system for clearance of these outstanding internal audit paras.

- The Ministry of Finance has been requested to consider issuing an Advisory to all civil ministries/departments to include settlement of Internal Audit Paras as a Part of the mandate of the Standing Audit Committees (SACs) constituted by Ministries/Departments to strengthen the effective of Internal Audit and settlement of the outstanding audit paras.

- The major constraints however continue to be the staff shortage in the Internal Audit. Consequently out of 5349 units due for audit in 2015-16, only 1955 units could actually be audited. The revised proposal for the augmentation of 475 posts for Internal Audit in line Ministries is awaiting approval of the Ministry of Finance.

E-BANKING

This has alias electronic banking or internet based banking web applications, at the same time it is also called by name of virtual banking as well. The services which allows bank consumers to retrieve their own information, carrying out various monetary dealings, and save money in to accounts, amount withdraw or pay number of bills via Internet without physical presence at the branch or bank counters. It was expediency of retrieving banking services from the comfort of their home or office. Now days E-banking has become buzz word.

The functionality of E-banking allows any one of consumer by having a personal computer attached to the network and browser which get associated to own banking online portal and execute anything of simulated bank transactions.

What do we understand by the term of e-banking? It is related to the carrying out bank related business with the help of the computers or telebanking. The beauty of the e-banking system is updated immediately after every transaction automatically and development of the country in the 18th Century.

At starting phase, creators had foreseen that this will be matter of time which decides a fore web-based banking entirely swapped out the manual method. On the other hand the realities has proven that this was an over positive calculation–lot of bank users were aligned to older method and having inborn disbelief on the online banking process. Number of consumers has chosen not to utilize multiple online banking facilities just because of nasty experience of scams and in capacity of usage of web-based banking applications.

OVERVIEW OF INTERNET BANKING IN INDIA

RBI had formed a committee for online banking portals, which was classified and separated total web-based banking services availed in India in three sub groups. Classification was grounded on allowed permission access stages. Detailed description as below:

10. Only Information based System

This assists to get the common info such as loan rate, location of branch centre, availed banking services and types were hosted on the banking portal. Significantly prevailing services could be availed to copy different process/applications form of used for day to day banking. E-mail has been used as the major way of communication among the users and others. The credentials of bank user are important parameters in order to operate online banking portal services. These credentials are provided by bank organization and assisted to end user in case of mismatch. Risk of unauthorized access and security of such applications are take care appropriately.

II. System for Electronic Information Transfer

These kinds of applications offer specific user data as an output which may be in style of balance sheet, minute information about banking transaction or account holding report. Most of the data still treated as a 'read only' presentation. Authentication and authorization of banking user carried out with the help of passwords based processes. Statistics is retrieved through online banking portal either offline or in batch process. These web-based systems are not connected via computer networks.

III. Complete E-Transaction Applications

These kinds of application are having capacity of both way communications for the e-transactions incurred using online banking portal. User may generate/initiate any banking operation on the web-based 20 applications. These applications are having very high degree of safety processes and governing mechanism.

Online banking portal is trying to settle down and is biz word as well. Regular banking consumers are gradually increasing which are working through web-based applications. Consumers are now able to perform task related with not only information about balance or rates but also to carry out various banking functions. Inappropriately, inadequacy of information about online banking portal is a challenge.

Adoption of Technology in Banking System:

The IT revolution had a great impact in the Indian banking system. The use of computers had led to introduction of online banking in India. The use of the modern innovation and computerization of the banking sector of India has increased many fold after the economic liberalization of 1991 as the country's banking sector has been exposed to the world's market. The Indian banks were finding it difficult to compete with the international banks in terms of the customer service without the use of the information technology and computers

The RBI in 1984 formed Committeee on Mechanis'tion in the Banking Industry (1984) whose chairman was Dr C Rangarajan, Deputy Governor, Reserve Bank of India. The major recommendations of this committee was introducing MICR Technology in all the banks in the metropolis in India. This provided use of standardized cheque forms and encoders.

In 1988, the RBI set up Committee on Computerisation in Banks (1988) headed by Dr C.R. Rangarajan which emphasized that the settlement operation must be computerized in the clearing houses of RBI in Bhubaneshwar, Guwahati, Jaipur, Patna and Thiruvananthapuram. It further stated that there should be National Clearing of inter-city cheques at Kolkata, Mumbai, Delhi, Chennai and MICR should be made Operational. It also focused on computerization of branches and increasing connectivity among branches through computers. It also suggested modalities for implementing on-line banking. The committee submitted its reports in 1989 and computerization began form 1993 with settlement between IBA and bank employees' association. In 1994, Committee on Technology Issues relating to Payments System, Cheque Clearing and Securities Settlement in the Banking Industry (1994)[10] zwas set up with chairman Shri WS Saraf, Executive Director, Reserve Bank of India. It emphasized on Electronic Funds Transfer (EFT) system, with the BANKNET communications network as its carrier. It also said that MICR clearing should be set up in all branches of all banks with more than 100 branches.

Committee for proposing Legislation On Electronic Funds Transfer and other Electronic Payments (1995) emphasized on EFT system. Electronic banking refers to DOING BANKING by using technologies like computers, internet and networking, MICR, EFT so as to increase efficiency, quick service, productivity and transparency in the transaction.

SERVICES:

- ONLINE TRADING

State Bank of India (SBI) now introduces you to a State-Of-Art broking predominantly to cater to every broking need and offers a truly world class experience of online investing –anyplace, anytime. Buying and selling of shares is now just a click away.

Our value proposition is based on Unmatched Expertise, State-Of-Art Technology And Operational Ease that will redefine the way India trades. With us you have the power of research expertise to aid you in making the right decisions, operational ease allowing you to seamlessly execute your transactions, timely advice that helps you pick the right opportunities and a customized trading experience to suit your needs and demands. So go ahead and enjoy your fast, easy and hassle-free trading experience with the India's largest bank.

State Bank of India in alliance with SBI Cap Securities Limited and Motilal Oswal Securities Limited now offers you an online trading account which will let you trade from the comfort of your home or office either through the internet. This service provides you with a 3-in1 account which is an integrated platform of savings bank a/c, demat a/c and an online trading a/c to give you a convenient and paper free trading experience under one roof.

ATM SERVICES:

STATE BANK NETWORKED ATM SERVICES

State Bank offers you the convenience of over 59000 ATMs in India, the largest network in the country and continuing to expand fast! This means that you can transact free of cost at the ATMs of State Bank Group (This includes the ATMs of State Bank of India as well as the Associate Banks – namely, State Bank of Bikaner & Jaipur, State Bank of Hyderabad, State Bank of Mysore, State Bank of Patiala, and State Bank of Travancore) and wholly owned subsidiary viz. SBI Commercial and International Bank Ltd., using the State Bank ATM-cum-Debit (Cash Plus) card.

KINDS OF CARDS ACCEPTED AT STATE BANK ATMs:

Besides all cards of State Bank of India, State Bank ATM-Cum-Debit Card and State Bank International ATM-Cum-Debit Cards following cards are also accepted at State Bank ATMs: - 1) State Bank Credit Card 2) Cards issued by other banks displaying Maestro, Master Card, Cirrus, VISA and VISA Electron logos 3) All Debit/ Credit Cards issued by any bank outside India displaying Maestro, Master Card, Cirrus, VISA and VISA Electron logos.

State Bank ATM-cum-Debit (State Bank Cash plus) Card:

India's largest bank is proud to offer you unparalleled convenience viz. State Bank ATM-cum-Debit (Cash Plus) card. With this card, there is no need to carry cash in your wallet. You can now withdraw cash and make purchases anytime you wish to with your ATM-cum-Debit Card.

INTERNET BANKING:

- WELCOME ABOARD

www.onlinesbi.com, the Internet banking portal of our bank, enables its retail banking customers to operate their accounts from anywhere anytime, removing the restrictions imposed by geography and time. It's a platform that enables the customers to carry out their banking activities from their desktop, aided by the power and convenience of the Internet. Using Internet banking services, you can do the following normal banking transactions online:

. Funds transfer between own accounts.

· Third party transfers to accounts maintained at any branch of SBI

· Group Transfers to accounts in State Bank Group

· Inter Bank Transfers to accounts with other Banks

· Online standing instructions for periodical transfer for the above

· Credit PPF accounts across branches

· Request for Issue of Demand Draft

· Request for opening of new accounts

· Request for closure of Loan Accounts

. Request for Issue of Cheque Book

FOREIGN INWARD REMITTANCE:

Sending remittances to India for credit to your account with our bank or for your family is very simple and convenient with our wide foreign offices network and correspondent banking arrangement with about 600 banks

worldwide. Wherever in the world you may be, there is our office or a bank having corresponding banking arrangement with our bank to provide facilities of remittances.

You could use any of the following ways to send the remittances.

SBI Express Remit Facility

Demand Drafts in Rupees

Telegraphic/wire transfers Personal cheques/ travellers cheque (in person only)/ DDs in foreign currency

SAFE DEPOSIT LOCKER:

For the safety of your valuables, we offer safe deposit locker facility at a large number of our branches. There is a nominal annual rent, which depends on the size of the locker and the centre at which the branch is located. The rent is payable in advance for the Financial Year. A copy of the locker agreement regarding operation of the locker can be provided to the locker hirer at the time of allotment of the locker.

It is always beneficial to avail the benefits of nomination facility/ survivorship clause provided to locker-hirers. The major advantage of availing these facilities is that in the event of unfortunate death of one of the joint locker-hirer, the right to the contents of the locker does not automatically devolve on the surviving joint locker-hirer/ nominee (s), unless there is a survivorship clause/ nomination.

E-BANKING SERVICES OF SBI

1. Internet Banking

2. ATM (Automatic Teller Machine)

3. Tele Banking

4. Mobile Banking

5. Payment Cards (Debits/Credit Card)

All the above mediums provide services, which can be, also known as "any time anywhere banking". This facilitates the customer of the bank to operate their account from any corner of the world, without visiting local or any subsidiary branch of their banks. Efforts are made by the bank not only to provide the facility to the customer, but also to reduce the operational cost of the bank by 60rovidingg e-banking services. So with this, banks have to employ less staff and still would be able to deliver service to the customer, round the corner.

INTERNET BANKING

Net banking is a web-based service that enables the banks authorized customers to access their account information. It allows the customers to log on to the banks website with the help of bank's issued identification and personal identification number (PIN). The banking system verifies the user and provides access to the requested services, the range of products and service offered by each bank on the internet differs widely in their content. Most banks offer net banking as a value-added service. Net banking has also led to the emergent of new banks,

which operate only through the internet and do not exists physically, Such banks are called "virtual" banks or "Internet Only" banks.

Services provided through Internet Banking:

 1. Account information

 2. E-cheques (Online Fund Transfer)

 3. Bill Payment Service

4. Requests And Intimations

5. Demat Account share trading

AUTOMATED TELLER MACHINES

Automated Teller Machines or 24-hour Tellers are electronic terminals that let the customer bank almost anytime. To withdraw cash, make deposits, or transfer funds between accounts, you generally insert an ATM card and enter your PIN. Some financial institution and ATM owners charge a fee, particularly to consumers who don't have accounts with transactions at remote locations. Generally, ATMs must tell the customer they charge a fee and its amount on or at the terminal screen before the customer completes the transaction.

ATMs of Indian provide following services.

 1. Cash Withdrawal
 2. Balance Enquiry
 3. Statement Enquiry (printing in some cases)
 4. PIN Change
 5. Cash Deposit
 6. Cheque Deposit
 7. Funds Transfer

8. Credit Card Payment

9. Utility Bill Payment

10. Cheque Book Request

11. Insurance Premium Payment

12. Mobile, DTH, etc recharges and top ups

13. NGO donations in some cases

14. Term deposit opening

15. User details updation

Know customer ledger balance and available balance Mini Statement Get a printout of your last 8 transactions and customer current balance. Deposit Cash / Cheques Available at all full function ATMs, customers can deposit both cash and cheques. Cash deposited in ATMs will be credited to the account on the same day (provided cash is deposited before the clearing) and cheques are sent for clearing on the next working day. Funds Transfer funds from one account to another linked account in the same branch. PIN Changes Change the Personal Identification Number (PIN) of ATM or Debit card. 77 Payments are the latest feature of ATMs is functionality can be used for payment of bills, making donations to temples / trusts, buying internet packs, airtime recharges for prepaid mobile phones and much more Others Request for a check book from the ATMs and concerned branch will dispatch it such that it reaches the customer within 10 working days.

TELEBANKING

The business of Tele-banking in general is carrying out financial transactions using telephones. It is a way through which individuals do business with a bank using a telephone. Tele-banking has been introduced by the banking and financial institutions for the benefit of the customers in such a complex

environment. These services in line with customer satisfaction and help line services, offer round the clock services to its customers world-wide. Many and simpler to complex services are now being offered to the customers and the same can be updated by the customers without visiting their branch or the bank.

These services can be availed by calling on the toll free number provided by the bank or special service numbers on which their data can be updated offering confidentiality of data without being compromised. To use tele-banking services from the bank or financial institution's telephone banking facility, a bank customer should registered at first level to allotted service, where consumer need to set up password for own verification. Post that for accessing telephone banking, consumer have to call 24 specific phone number assigned by financial institution.

Presently through Tele Banking following On-line & Off-Line Services are provided to our customers.

1. Balance Enquiry

2. Transactions History.

3. Cheque Related Services

4. Stop Cheque

5. Revoke Cheque

6. Funds Transfer (Intra Bank):

7. ATM Locator

8. Transaction Statement Request:.

9. Cheque Book Request

10. General Product Information.

MOBILE BANKING

Mobile banking is a service provided by a bank or other financial institution that allows its customers to conduct financial transaction remotely using a mobile device such as a mobile phone or tablet. It uses software, usually called an app, provided by the financial institution for the purpose. Mobile banking is usually available on a 24-hour basis. Some financial institutions have restrictions on which accounts may be accessed through mobile banking, as well as a limit on the amount that can be transacted.

Transactions through mobile banking may include obtaining account balances and lists of latest transactions, electronic bill payments, and funds transfers between a customer's or another's accounts. Some apps also enable copies of statements to be downloaded and sometimes printed at the customer's premises; and some banks charge a fee for mailing hardcopies of bank statements.
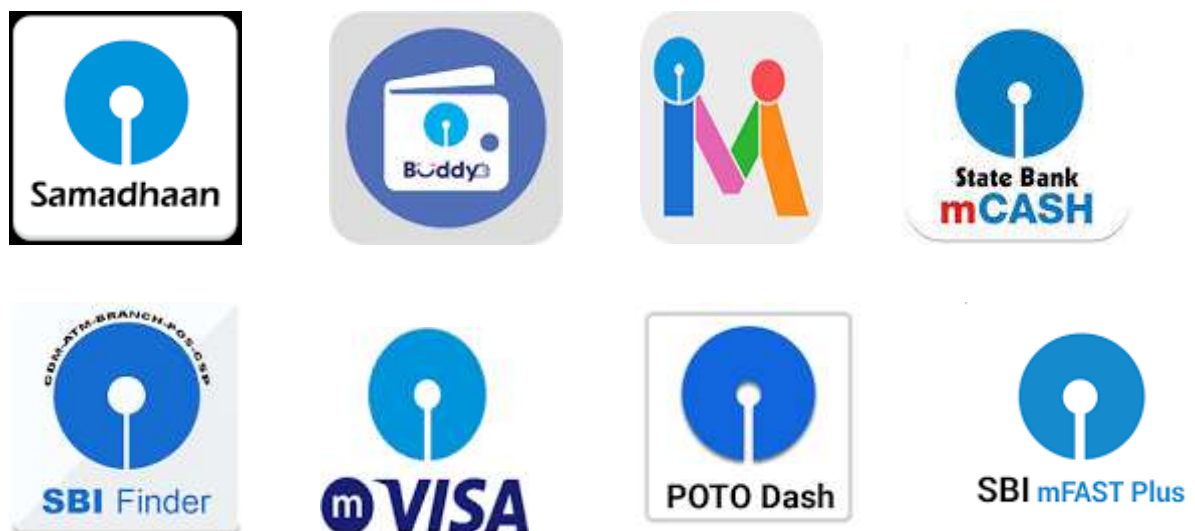
Various mobile banking apps are :

Figure 1.1

The following are the services provided by mobile banking :

1. Enquiry of balance in account(s)

2. Mini Statement – last five transactions

3. Transfer of Funds to accounts with SBI & other Banks

4. IMPS- Mobile to Mobile Transfer

5. Request for issue of Cheque Book

6. Enquiry regarding Demat account

7. Pay utility bills (Electricity bill, Telephone bill etc.,)

8. Merchandise payments

9. Mobile Top up

10. Top up of DTH connections

11. Payment of SBI Life Insurance premium.

PLASTIC MONEY

Plastic money is the alternative of cash or the standard 'money'. Plastic money is used to refer to the credit cards, debit cards that we use to make purchases in our everyday life. Plastic money is much more convenient to carry around as you do not have to carry a huge sum of money with you. It is also much safer to carry it along or to travel with it as if it is stolen one can consult the bank whose service you are using and get it blocked hence saving your money from getting stolen or even lost.

Plastic money or polymer money, made out of plastic, is a new and easier way of paying for goods and services. Plastic money was introduced in the 1950s and is now an essential form of ready money which reduces the risk of handling a huge amount of cash. It includes debit cards, ATMs, smart cards, etc.

Different Types of Plastic Money:

Cash Cards – A card that will allow you to withdraw money directly from your bank via an Authorized Teller Machine (ATM) but it will not allow the holder to purchase anything directly with it.

Credit Cards :

Again this card will permit the card holder to withdraw cash from an ATM, and a credit card will allow the user to purchase goods and services directly, but unlike a Cash Card the money is basically a high interest loan to the card holder, although the card holder can avoid any interest charges by paying the balance off in full each month.

Debit Cards:

This type of card will directly debit money from your bank account, and can directly be used to purchase goods and services. While there is no official credit facility with debit cards per se, as it is linked to the bank account the limit is the limit of what is in the account, for instance if an overdraft facility is available then the limit will be the extent of the overdraft.

Pre-paid Cash Cards:

As the name suggests the user will add credit to the card themselves, and will not exceed that amount. These are usually re-useable in that they can be 'topped up' however some cards, usually marketed as Gift Cards are not re-useable and once the credit has been spent they are disposed of.

Store Cards: These are similar in concept to the Credit Card model, in that the idea is to purchase something in store and be billed for it at the end of the month. These cards can be charged at a very high interest rate and can are limited in the places they can be used, sometimes as far as only the store brand that issued it.

Customer Satisfaction Is the Largest Competitive Advantage for Banks

The banking industry is a commoditized space. With everyone offering nearly the same products and services without much room to compete on price, the experience customers have with their banks is what gives one bank a competitive advantage over another. There are two areas where banks can really look to stand out by delivering an incredible customer experience.

Interpersonal Service

In our experience, the relationship between a bank and their customer has the biggest impact on customer satisfaction. People want to be treated as if they matter. They want to form a relationship with their bank, and they want their bank to make an effort to get to know them instead of just pushing a product.

Consistent Omni-Channel Experience

In modern banking, there are many ways for customers to interact with a bank, including online and mobile banking, at an ATM, and over the phone. One of the biggest things we've seen is that a consistent experience across channels matters to customers. Whether it's transferring information quickly between channels or making sure deposit times are consistent no matter how a deposit is made, these things matter. To provide a great customer experience, banks need to deliver on the expectations their customers have in all channels.

Effective Problem-Solving

Customers are reasonable. They know that an occasional problem or mishap is possible. But they also expect that their bank will make the situation right. This means fixing the problem quickly and effectively.

Mistakes that Lower Customer Satisfaction for Banks

With our extensive experience measuring customer satisfaction for banks, we've seen some common mistakes that can really have a negative impact.

Treating a Call Center Like a Cost Center

Your call centre is a safety net. A quality call center solution can really help to improve the customer experience. But when corners are cut to reduce costs, your call center can do more harm than good. By not giving your call center enough resources or outsourcing to the most affordable solution, you could risk providing a poor customer experience.

Avoiding Interpersonal Communication

Though this isn't as large a problem as it was in the recent past, banks that push customers out of branches and lean on digital space to reduce costs are missing the interpersonal communication and relationship building that is so important to banking customers. Having quality digital solutions is convenient for customers, but you still have to be committed to getting to know the people that bank with you.

The Result of Great Customer Satisfaction for Banks

Plain and simple, the result is better financial outcomes. Being incredibly involved with customer satisfaction in the banking industry, we've seen first hand how big of an impact it has for a bank's financial success.

The results are two-fold. First, your current customers are far more likely to open more accounts or use more services if they've had an overall positive experience. A client with just a checking account could add a savings account and use you for their mortgage when they buy a home.

How to Measure Customer Satisfaction

Because customer satisfaction is so important in the banking industry, measuring the customer experience and identifying ways to improve in this area is essential. This is our specialty. APECS, our comprehensive customer satisfaction measurement program, is designed to make understanding your strengths and weaknesses simple and makes taking action easy.

CHAPTER 4:

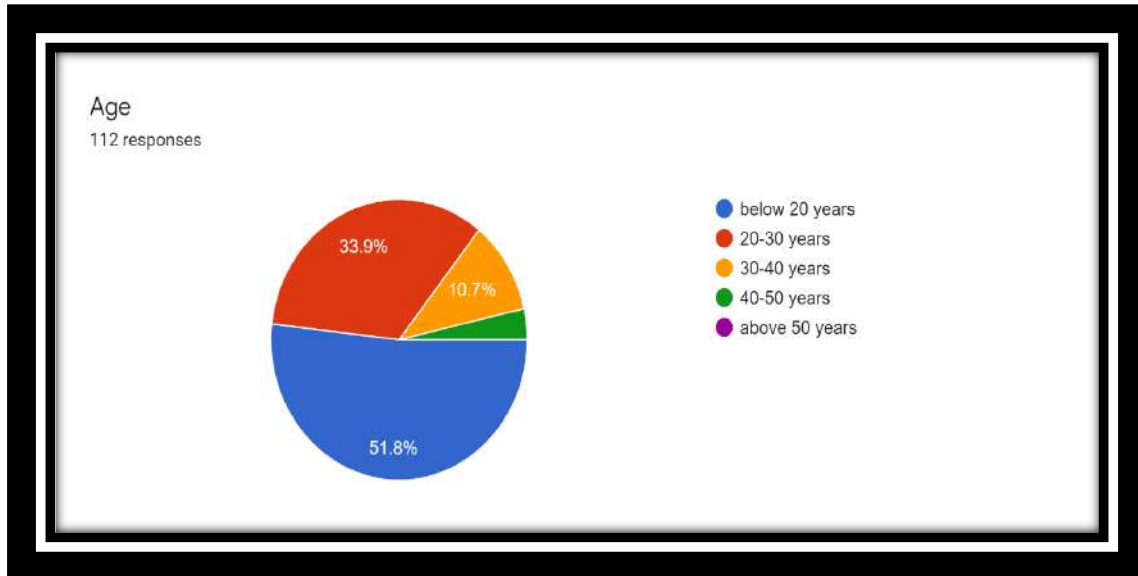# DATA ANALYSIS AND INTERPRETATION:

QUESTION 1:- AGE

Figure 1.2

Age Group	No. of Respondent
Below 20 years	58
20-30	38
30-40	12
40-50	4

Table 1.1

When we asked the respondents their age 51.8% (58) respondents belong to below 20 years category. 33.9% (38) of the respondents belong to below 20-30 years. 10.7% (12) of the respondents belong to 30-40 years. 3.6% (4) of the

respondents belong to 40-50 years. Majority of the respondents are below 40 age bracket. E-banking facility has been availed by most of the SBI bank account holders. The majority population belongs to adults.
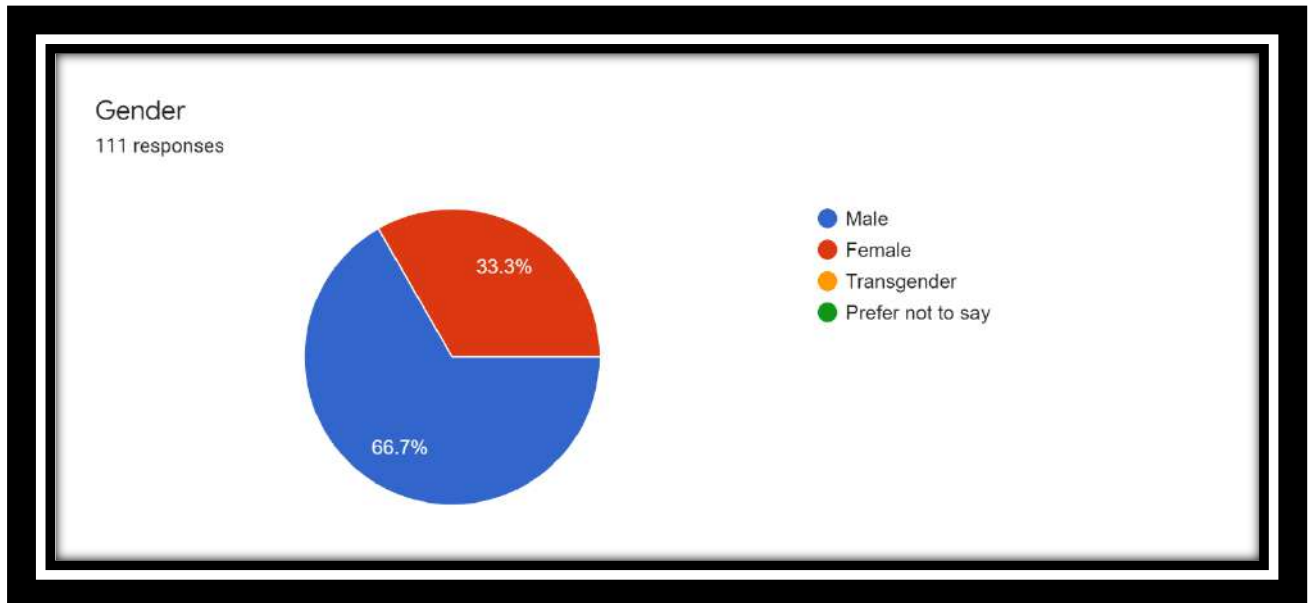
QUESTION 2:- Gender

Figure 1.3

Gender	No of respondent
Male	74
Female	37
Transgender	0
Prefer not to say	0

Table 1.2

INTERPRETATION:- The figure shows that 66.7% respondents are male and

33.3% are female
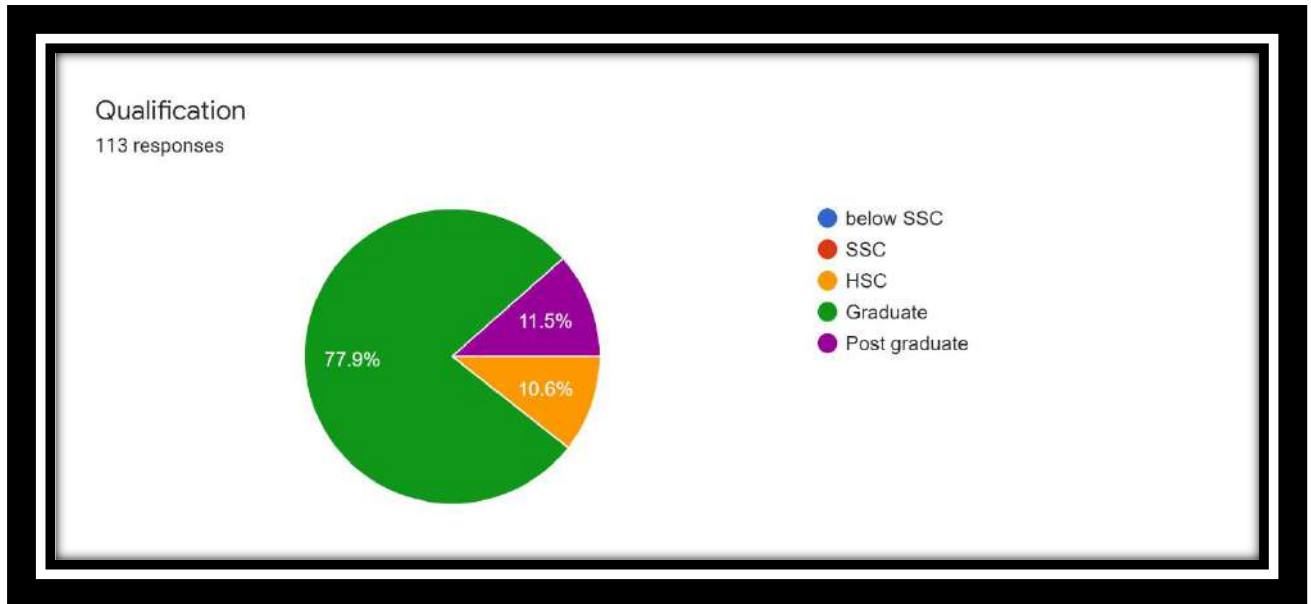
QUESTION 3:- Qualification

Figure 1.4

Qualification	No of respondent
Below SSC	0
HSC	12
Graduate	88
Post Graduate	13

Table 1.3

INTERPRETATION:- The figure shows that 77.9% respondents are

Graduate, 11.5% are Post graduate and 10.6% are 10.6%.
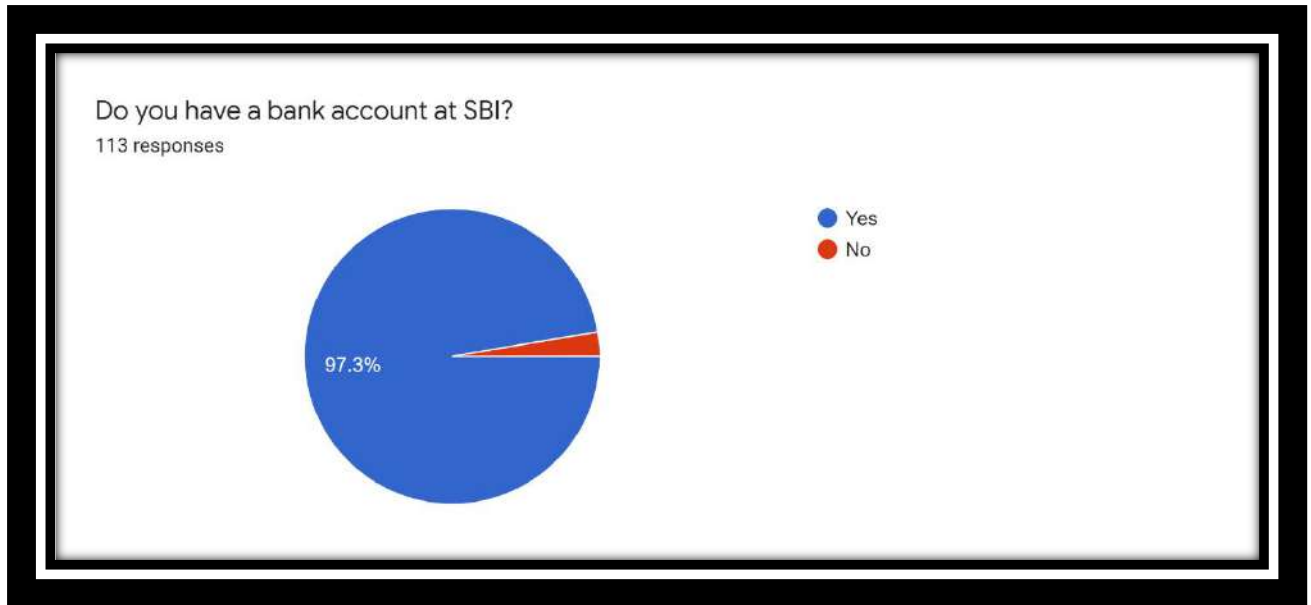
QUESTION 4:- Do you have a bank account at SBI ?

Figure 1.5

Bank account at SBI	No of respondent
yes	110
no	3

Table 1.4

INTERPRETATION:- The respondents were asked whether they have a bank account in SBI or not. The majority of respondents that 97.3% have a bank account in State bank of India . the figure shows that 97.3% respondents said "YES" and 2.7% said "NO".

QUESTION 5:- If yes, have you availed e-banking services to run your bank account online?

If yes, have you availed e-banking services to run your bank account online?

113 responses

- Yes
- No
- Maybe

91.2%
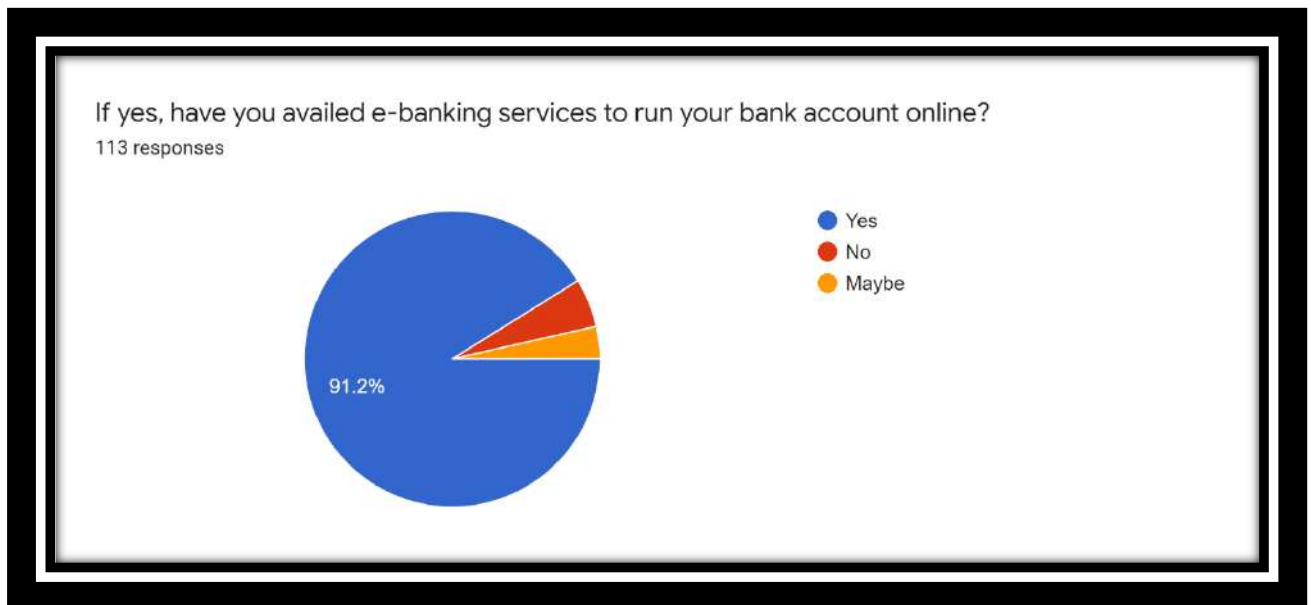
Figure 1.6

Run bank account online	No of respondent
Yes	103
No	6
May be	4

Table 1.5

INTERPRETATION:- The figure shows that 91.2% respondents are YES and 5.3% are NO and 3.5% are MAY BE. The respondents were asked if yes , they

have a bank account then whether or not they have availed the e-banking services. 91.2% that is the majority of the population responded "Yes" to the question. Remaining respondents did not availed the facility or was not sure about the topic.

Availing e-banking service facility raises a question of awareness of the service at first point. If a person is not aware about the particular service how can he avail it. The other condition is the person is aware about the particular facility but is not comfortable using or maybe due to transaction failure or any technical glitch of the system. Awareness level to be increased as well as proving that there is minimum transaction failure risk by ensuring smooth process of e-banking should be the main motive of bankers.

QUESTION 6 :- How far do you think is a need of online banking service to you?
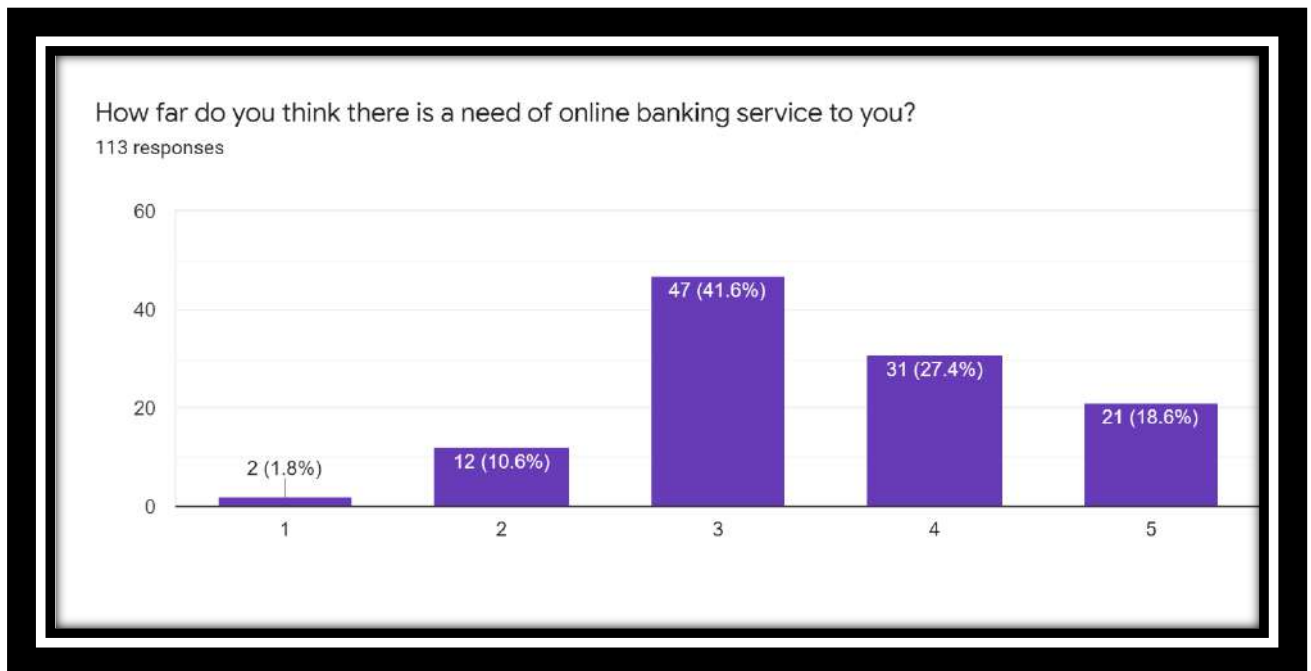
Figure 1.7

Online banking service	No of respondent
1	2
2	12
3	47
4	31
5	21

Table 1.6

INTERPRETATION:- The respondents were asked to rate the overall efficiency of e-banking services on a scale of 1-5 (1 being the worst and 5 being

best). The above given picture represents the responses and rating marked by the respondents.

The figure shows that 1.8% respondents are 1. 10.6% respondents are 2. 41.6% respondents 3. 27.4% respondents are 4 and 18.6% respondents are for 5.
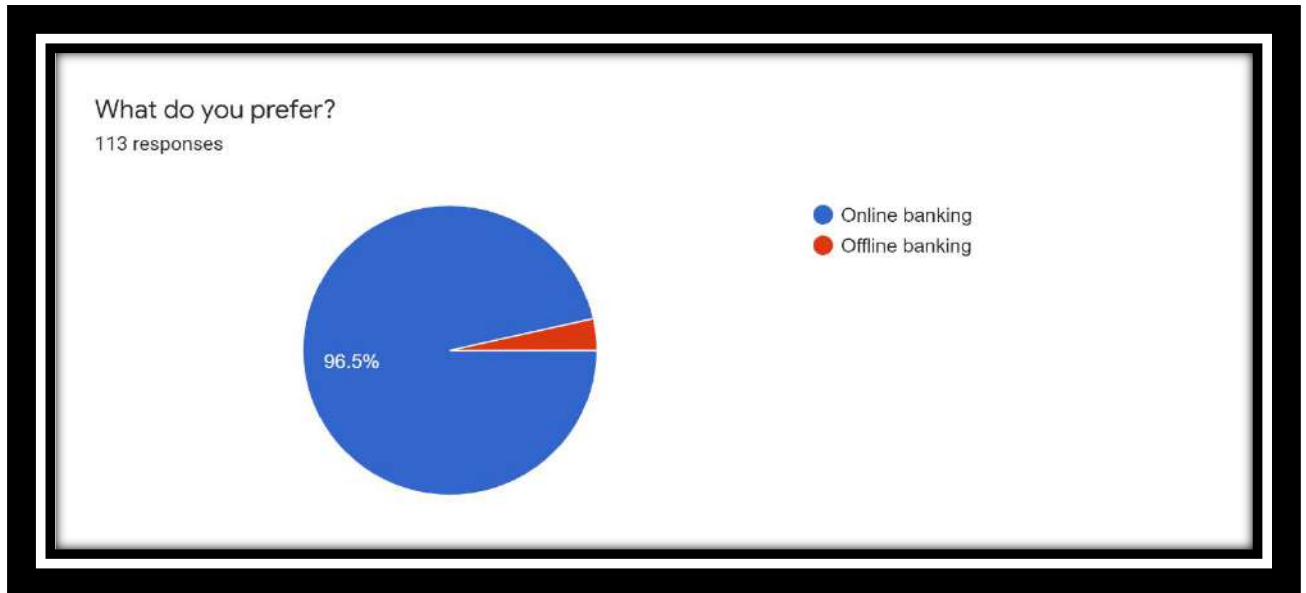
QUESTION 7:- What do you prefer ?

What do you prefer?
113 responses

96.5%

● Online banking
● Offline banking

Figure 1.8

Prefer	No of respondent
Online Banking	109
Offline Banking	4

Table 1.7

INTERPRETATION:- The respondents were asked about their choice regarding what they prefer offline banking or online banking. 96.5% respondents prefer online banking whereas only 3.5% respondents prefer offline mode of banking with all aspects. Online banks allow you to do online activities using your computer or mobile phone rather than in person. There are many similarities, but a few important differences make online banks attractive to experienced webmasters. Identifying the main reasons for using an online banking can help you choose a banking solution that suits your needs.

QUESTION 8:- Does the state banks e-banking website function smoothly?

Does the State Bank's e-banking website functions smoothly?
113 responses

- Yes
- No
- Maybe

14.2%
7.1%
78.8%
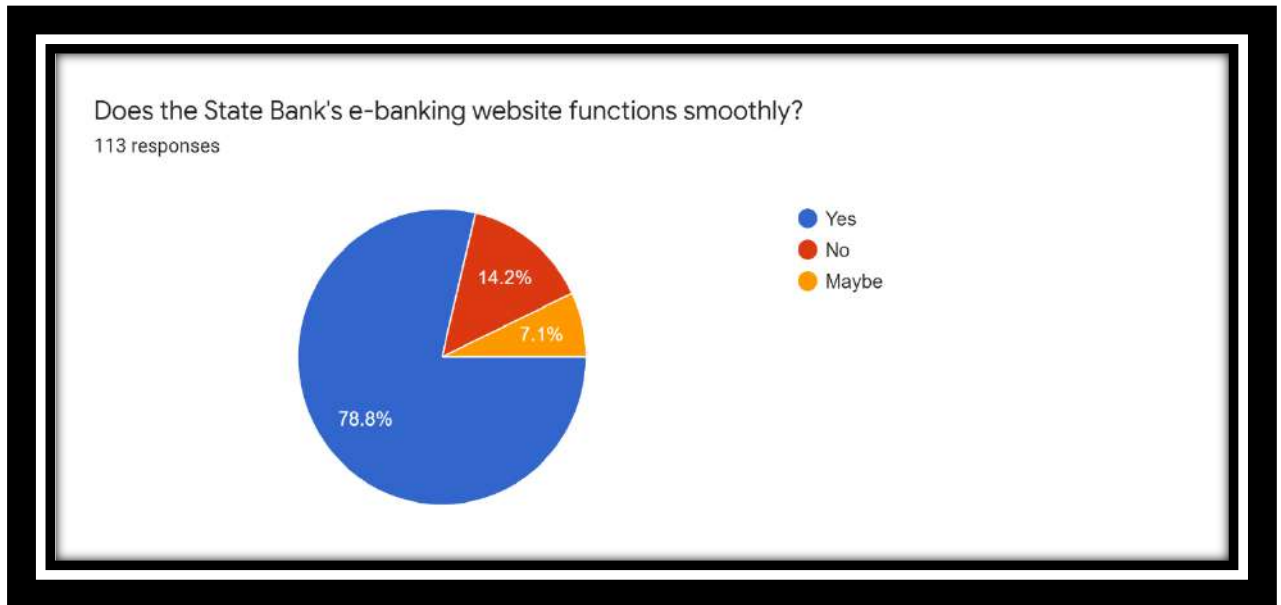
Figure 1.9

Functions Smoothly	No of respondent
Yes	89
No	16
Maybe	8

Table 1.8

INTERPRETATION:- The respondents were asked when they use the e-banking website to do any transaction does the online banking website functions smoothly. 78.8% of the respondents (89) said "Yes" that it functions smoothly.

14.2% (16) respondents said "No" that it doesn't functions smoothly. 7.1% (8) of the respondents said "maybe".

While easy access is one of the many benefits of online banking, it also makes banking much easier. The need to wait in long lines at the bank is completely eliminated. In addition, with the mobile banking option available to most banks, transfers and payments have become easier. Banking online means accessing your bank account and carrying out financial transactions through the internet on your smartphone, tablet or computer. It's quick, usually free and allows you to do tasks, such as paying bills and transferring money, without having to visit or call your bank. Along with this there is a need of smooth function while using the website. The bank account holders in SBI feels that the e-banking website functions smoothly most of the time. Though it differs from bank to bank on how much expenditure they have put to make the software more functional and user friendly.

QUESTION 9:- Is the state bank mobile app you use is user friendly?
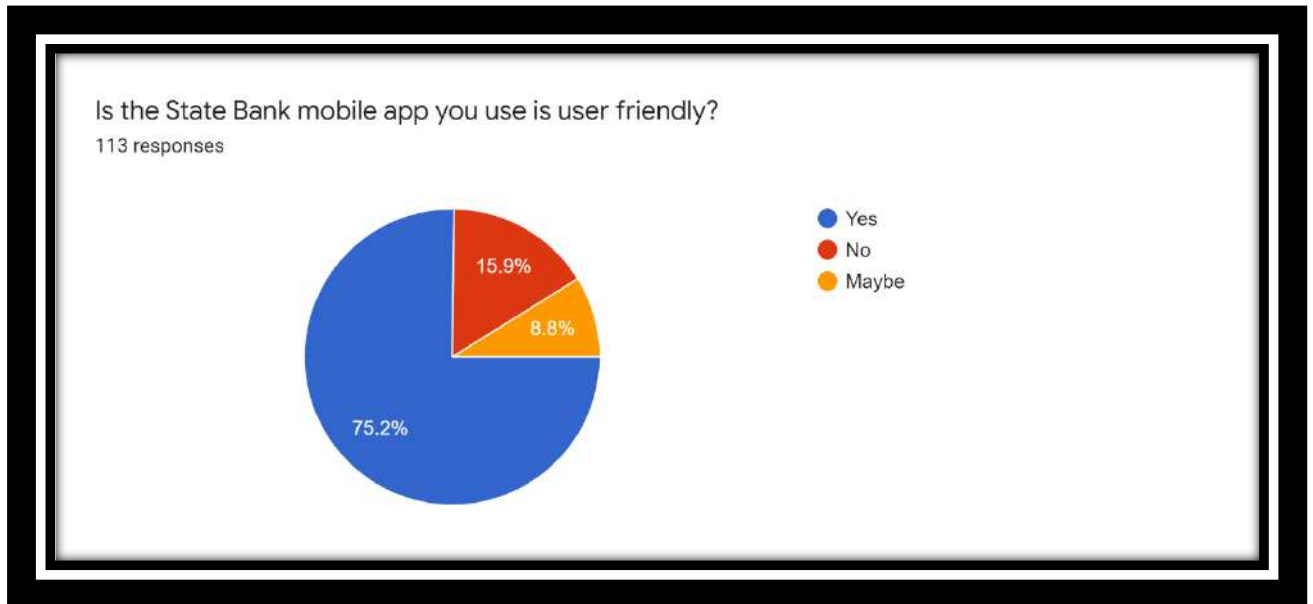
Figure 1.10

User Friendly	No of respondent
Yes	85
No	18
Maybe	10

Table 1.9

INTERPRETATION:- The respondents were asked whether the banking website is user friendly. 75.2% respondents said "Yes" and 8.8% respondents said "maybe" because they were not sure about it. 15.9% of the people said "No" that the banking app is not user friendly.

QUESTION 10:- How often do you face transaction failure or server issues while you do online banking with SBI?

How often do you face transaction failure or server issues while you do online banking with SBI?
113 responses

- Very Often
- Often
- Sometimes
- Rare

32.7%
11.5%
25.7%
30.1%
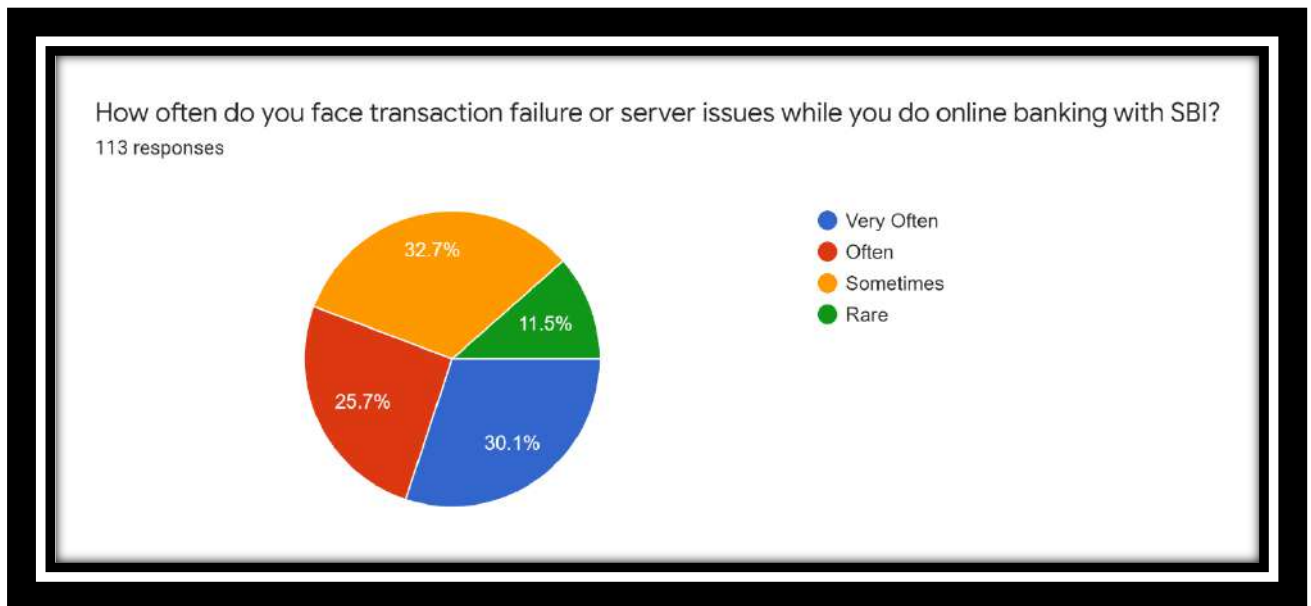
Figure 1.11

Server issues	No of respondent
Very often	34
Often	29
Sometimes	37
Rare	13

Table 1.10

INTERPRETATION:- The respondents were asked was how often do they face transaction failure or server issues while they do online banking. 30.1% of the respondents said "very often". 25.7% of the respondents said "often" whereas 32.7% respondents said "sometimes" and 11.5% respondents said "rare".

QUESTION 11:- Do you feel frustrated due to server issues that made you feel like closing the bank account or prefer the service from a different source?
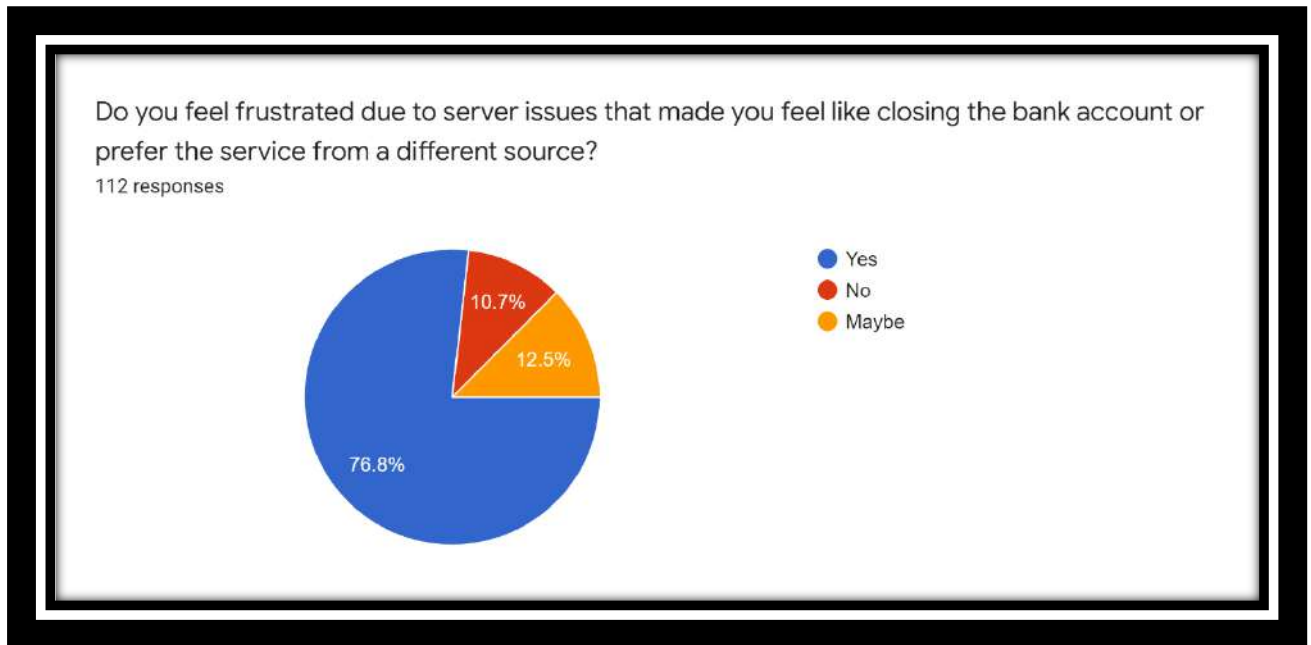

Do you feel frustrated due to server issues that made you feel like closing the bank account or prefer the service from a different source?

112 responses

- Yes
- No
- Maybe

10.7%
12.5%
76.8%

Figure 1.12

Closing bank account	No of respondent
Yes	86
No	12
Maybe	14

Table 1.11

INTERPRETATION:- The respondents were asked if they feel frustrated due to server issues that made them feel like closing the bank account or prefer the service from a different bank. 76.8% of the respondents said "Yes".10.7% of the respondents said "No" that they do not feel frustrated. The remaining 12.5% of the respondents said "maybe" they are not sure about the situation.

QUESTION 12:- Do you do all your shopping, money transfers, pay bills online through SBI portal?

Figure 1.13

Pay bills online	No of respondent
Yes	70
No	23
Partially	11
Prefer not to say	9

Table 1.12

INTERPRETATION:- The respondents were asked whether they do all their shopping, money transfers, bill payments online. 61.9% of the respondents said "Yes" that they do it wholly online. 20.4% of the respondents said "No" that they do not do all the payments online. 9.7% of the respondents said "Partially" that means they make online as well as offline payment partially or as per their convenience. 8% of the respondents said "Prefer not to say" that is they want to disclose their mode of paying bills.

The respondents gave a very varied answers. Online bill paying is safe when you choose the right bill payment service. Typically, an online bill pay service that is backed by a bank or a company that provides online banking services will be safe and reliable. Online bill paying is much safer, for example, than handing a credit card to a waiter at a restaurant. It's convenient. When you make online payments

through your bank, you can pay all of your bills from a central location rather than logging into multiple websites. It's secure. It makes managing your money easier. It saves you time. Online bill paying can be an expensive component to online banking as some companies will charge fees (Online Banking Fees). If you've set up automatic bill payment and need to stop those payments, the process can take a while. With the ease of automatic bill payment, it's easy to forget which bill is due when. We have presented all side of making an online transaction.

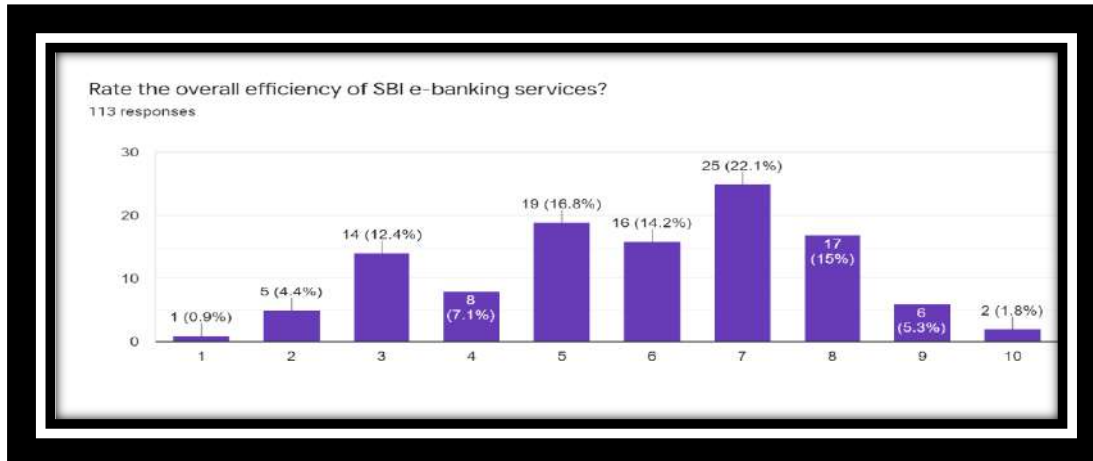**QUESTION 13**:- Rate the overall efficiency of SBI E-banking services?

Figure 1.14

Rate overall efficiency	No of respondent
1	1
2	5
3	14
4	8
5	19
6	16
7	25
8	17
9	6

10	1

Table 1.13

INTERPRETATION:-

    The respondents were asked to rate the overall efficiency of e-banking services on a scale of 1-10 (1 being the worst and 10 being best). The above given picture represents the responses and rating marked by the respondents

    Online banking has always been important to the diverse views of participants. Improving online banking is now considered a priority. Banks hope that online banking will help them maintain profitable growth by allowing them to operate automatically, reduce costs, and retain customers at the same time. Online banking may help reduce the cost of 'bricks and mortar,' and reduce significant costs. Online banking can give customers 24 hours access, and give customers comfort. Using the internet at a lower cost can attract more users to online banking services, but there has been less research examining the heights of banks offering online banking services than those that do not. The role of online banking in leading better decisions and creating more profits needs to be studied.

    The figure shows the 0.9% respondents are (1), 4.4% respondents are (2), 12.4% respondents are (3), 7.1% respondents are (4), 16.8% respondents are (5), 14.2% respondents are (6), 22.1% respondents are (7), 15% respondents are (8), 5.3% respondents are (9), 1.8% respondents are (10).

CHAPTER :- 5

FINDINGS AND SUGGESTIONS

This part deals with the findings, summarised , the conclusions derived and suggestions made from the collected data .

Our study deals with "A STUDY ON CUSTOMER AWARENESS ON E-BANKING OF SBI". It was conducted among the customers of Ernakulam district. For the purpose of study, primary data was collected from 50 customers using questionnaire. Following are the findings of the study:

FINDINGS:-

1. It can be inferred that majority of the respondents (67%) are male.

2. It also shows that majority of the respondents are comes under 40 years group.

3. It is found that some of them are business man, some of them are salaried people, some of them are professionals.

4. It shows that majority of the respondents are aware about the ATM services, some of them are aware about EFT, , majority of them are aware about Mobile Banking, many of them are aware about Internet Banking.

5. It is found that ATM is the foremost E – Banking services used by the customers. It is followed by POS, Mobile Banking, EFT and lastly Internet Banking.

6. Website Management is not good for them. It creates confusion in their mind.

7. Students are using e-banking services because they are more aware about the same. 76% of the respondents are qualified as students.

8. Private employees prefer e-banking services more compared to Government employees and businessmen. Through less time they can make their transactions.

9. Most of the respondents are aware about the various e-banking services provided by State Bank of India.

10. It also shows that some of the respondents are not aware about the same. This is because of lack of technical knowledge.

11. Majority of them prefer mobile banking as the commonly used e-banking service. This is because of its convenience in handling mobiles can be easily portable from one place to another.

12. All the SBI e-banking services apps can downloaded into the mobile and thus they can avoid time consuming.

13. None of the persons are extremely dissatisfied with the internet banking services.

14. There is more dissatisfaction from the part of customers related with the tele-banking services of SBI.

15. Only 16 % of them are satisfied with the tele-banking services.

16.There also exist the persons who are extremely dissatisfied with the same.

17. It shows that 54% of the customers are in need of more promotion techniques in the field of e-banking services of SBI.

SUGGESTIONS :-

+ Awareness about e-banking services of SBI is moderate; the bank must take necessary steps to make customers more aware about the provisions of e-banking services.

+ In order to increase the knowledge about e-banking services of SBI among customers bank can conduct more promotion techniques.

+ To ensure customer loyalty the bank can provide better facility according to the needs and convenience of customers.

+ Though the e-banking is an effective tool but many of the customers are not using it due to the awareness of the particular direct banking channel. Now the responsibility lies with the bank to make them aware about various e-banking channels through publicity and advertisements.

+ The bank should educate the customer about the usage of e-banking services and also about their advantages. This would prompt the customers to shift from traditional brick and mortar channel.

+ It has been observed that even the customers who know about e-banking services are not using this facility due to misconception and lack of information. These customers should be targeted by the bank and must be convinced to use the same.

+ The bank may improve existing facilities to spread awareness about computer and net banking

The best way to motivate the customer to use the e-banking is the most efficient customer care service.

CHAPTER 6:

CONCLUSION:-

Customers are the most essential asset of any business. The result of a business depends upon how far they satisfy their customers' expectations. Banks are the most important social organization rendering various financial services to its customers. Various committees were set up to give recommendations to improve the service to customers in banks. Today by clicking the mouse offers customers banking services at a minimal cost and also empowers them with extraordinary freedom in choosing vendors for their financial service needs. The advent of Internet banking is restructuring business relationship with the customers. The reach of Internet banking has swiftly increased due to the Telecommunication Infrastructure development in India. Overall, E-banking is at one roof under which numerous customers may perform various transactions electronically in the same time even without visiting branch. This study can help the State bank of India to know its customers opinion and find the solution through customers' perspective. It can help them easily to achieve customer satisfaction.

Internet banking providers should put more effort to improve in order to increase customer satisfaction. Even though service quality variable and security and privacy variables do not have a relationship with customer satisfaction in this research, the importance of these variables that is web designing, content, convenience and speed cannot be ignored by Internet banking providers because prior research had shown that these variables are important in fulfilling customer satisfaction toward Internet banking. This research can help Internet banking providers to know Internet banking users' opinion and find the solution through

customers' perspective. It can help Internet banking providers easily achieve customer satisfaction. There are several recommendations that can help in overcoming this research. The problem of constraints on time can be solved by increasing the range of time in conducting a research in the future. It can provide there searchers more time to collect more data from more respondents and pass more questionnaires to the working adults. E-banking offers a higher level of convenience for managing one's finances. However, it continues to present challenges to financial security and personal privacy.

8. ANNEXURE

QUESTIONNAIRE (BLANK COPY) :

1. Age:

- below 20 years
- 20-30 years
- 30-40 years
- 40- 50 years
- Above 50 years

2. Gender:

- Male
- Female
- Transgender
- Prefer not to say

3. Qualification

- Below SSC
- SSC
- HSC
- Graduate
- Post graduate

4. Do you have a bank account at SBI ?

- YES

- NO

5. If yes, have you availed e-banking services to run your bank account online?

- YES

- NO

- MAY BE

6. How far do you think is a need of online banking service to you?

- 1

- 2

- 3

- 4

7. What do you prefer ?

- Online banking

- Offline banking

8. Does the state banks e-banking website function smoothly?

- YES
- NO
- MAYBE

9. Is the state bank mobile app you use is user friendly ?

- YES
- NO
- MAYBE

10. How often do you face transaction failure or server or server issues while you do online banking with SBI ?

- Very often
- Often
- Sometimes
- Rare

11. Do you feel frustrated due to server issues that made you feel like closing the bank account or prefer the service from a different source?

- YES
- NO
- MAYBE

12. Do you do all your shopping, money transfers, pay bills online through SBI portal?

- Yes
- No
- Partially
- Prefer not to say

13. Rate the overall efficiency of SBI e-banking services ?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10

9. BIBLIOGRAPHY:-

❖ Gomez Clifford, "Banking Theory and Practice".

❖ Abraham M, "Modern Banking".

Website used:

❖ www.bank.sbi.gov.in

❖ https://sdmmmkmysore.in/department/commerce/sandhya/A%20study%20on%20SBI%20coustmer's%20satisfaction%20towards%20E-Banking%20services.pdf

❖ https://www.slideshare.net/sajidbinnasar/customer-satisfaction-of-ebankingonline-banking-of-sbi

❖ https://www.researchgate.net/publication/349731210_A_Study_on_Customer_Satisfaction_towards_Banking_Services_Provided_By_SBI_in_Reference_with_Coimbatore_City

❖ www.wikipedia.com

❖ www.google.com

❖ www.shodhganga.inflibnet.ac.in

❖ www.scribd.com

Class Note Book Web App

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)

By

Aditya Nandkishor Divate

Roll Number: 21302F0012

And

Deven Nandkishor Parab

21302F0023

Under the esteemed guidance of

Ms. Madhavi Amondkar

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Class Note Book Web Application "**, is bonafied work of **Aditya Nandkishor Divate and Deven Nandkishor Parab** bearing Seat No: <u>21302F0012 and 21302F0023</u> submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY in the subject **Green Computing** from University of Mumbai.

Internal Guide:

Internal Examiner:

Date: **College Seal**   **Principal**

INDEX

Acknowledgement

Imagine working in an office without a single piece of paper. Imagine no paper documents to sign and pass around the office. No paper documents to sift through and keep updating. No paper documents to store in your limited office space. No need for file cabinets! It sounds too good to be true, right?

While it might seem like a distant possibility, this the future of business. Many businesses are already moving towards the paperless office through using document management software such as OpenKM to streamline business process, cut costs as well as save on precious time.

"We set out to recreate the paper writing experience using technology, and while this continues to be important, the next step is to focus on expanding the possibilities on our device. With new features and integrations that live up to the reMarkable promise - helping people to think better" says *reMarkable CEO and founder Magnus Wanberg.*

"Since launching the original reMarkable, we've been lucky to develop a strong community who have helped us get to where we are today. We're so thankful to you all, for the support, but also the feedback that we use to improve what we do. We've really listened to this feedback and that's informed this next chapter - a renewed focus on the software experience." *says Wanberg.*

INTRODUCTION

- Concept introduced in the 1980s.

- Office of the Future, one that requires little or no paper to do business.

- Instead of paper, the paperless office would use modern technology to accomplish all of the same goals. Going Paperless can make documentation and Information sharing easier,

- Keep personal information more secure and help the environment.

ABOUT THE TOPIC

The market is competitive for businesses. The pressure to improve efficiency and cut costs while still maintaining a high level of customer service is felt constantly. One great way to accomplish this is by going paperless. Technology has made going paperless easier than ever, yet many companies still haven't made the switch. Many are unaware of the incredible benefits that paper-free processes can provide; others are intimidated at the thought of switching to entirely new processes. However, there's no need to feel overwhelmed; the benefits of going paperless are substantial, and it's easier than ever to remove the paper from your workflows and processes.

reMarkable at a glance

- Convert your handwritten notes into text

- All your notes, organized and accessible on all devices

- Take handwritten notes, read, and review documents

- Take notes directly on PDFs

- Paper-like writing and reading

- Integrate with Google Drive, Dropbox, Microsoft OneDrive

- 2 weeks of battery life

A digital notebook as close to paper as it gets, reMarkable's virtually instant response and texturized surface make for an unprecedented writing experience.

Convert handwritten notes into text

Make your handwritten notes easy to reuse in emails, reports, or presentations by converting them into text.

- Supports 33 languages
- Supports cursive and block letters
- Share your notes by email

Your notes. Organized.

Practically unlimited pages and folders mean you can organize your notes, documents, and books however you like. Keep a notebook for each client or project and never lose track of them again.

Easily access your files on different platforms

Access documents in popular cloud storage apps directly from your paper tablet. Includes Google Drive, Dropbox, and Microsoft OneDrive integration.

An eye-friendly reading experience

Comfortably read PDFs or ebooks for hours on end without backlight, glare, or eye strain.

Easily make notes on your documents

Read and review reports and presentations by writing your thoughts directly onto the page - or add a blank one if ideas really start to flow. Signing PDFs and taking notes while reading has never been easier.

- Drag and drop file transfer
- Readable in sunlight
- PDF and ebook (ePub) support

Read web articles on reMarkable with a click

Any web page, simplified and ready to read on your paper tablet with our Google Chrome plug-in, Read on reMarkable.

A visualization powertool

Paper is great for visualizing and problem solving. Powerful digital tools like undo, erase, and move make reMarkable even better.

Share your ideas. Live.

Share your reMarkable ideas directly on a big screen or in video meetings. Turn your paper tablet into the perfect digital whiteboard and write, draw, and demonstrate tricky concepts live with our latest feature: Screen Share.

A note-taking system for all your work

reMarkable bridges the gap between pen and paper, and your digital devices. Easily access your notes from your laptop or phone, where they're always readily available to review and reuse.

Connect

Get the full reMarkable experience with a Connect subscription. An ever-expanding universe of powerful tools for your paper tablet.

The only tablet that helps you focus

In a distracted world, reMarkable 2 was designed to not get in your brain's way. Free from distractions, you can find the focus you need to think better. No notifications, social media, or email — just you and your thoughts.

A breakthrough technology

We've spent six years developing technology that mimics the tactile nature and immediate response of paper. Qualities that make paper a simple, yet powerful and flexible tool for thinking. The result is the second-generation CANVAS display. Twice as fast as its predecessor, it's the world's fastest digital paper.

reMarkable 2 looks and feels like paper. A combination of cutting-edge digital paper technology and ultra-thin high-friction surface materials, allows the second-generation CANVAS display to deliver an unprecedented paper experience.

Tips for getting ready for the Future

Typewriters, computers and voice-recognition have all challenged the art and craft of writing. But the loops and lines of longhand refuse to die. If you haven't tried it for a while, here's our guide to getting started.

Warm up

Handwriting is exercise for both hand and mind. But before jumping off the deep end, consider doing a few warm-up exercises to strengthen and stretch your muscles. Wriggle your fingers, move your wrists in a circle, or play an imaginary piano on the table. It'll help keep your hand relaxed for longer.

Find your sweet spot

Locate the best surface for writing and slip into a comfortable seat. For the best possible starting point, ask yourself: Am I sitting well? Are my arms and shoulders relaxed? Am I in a quiet place? Am I able to block out distractions?

Pick your pen

Explore our digital pencil case, then experiment with what best suits your mood and purpose. The ballpoint pen is a reliable workhorse, the pencil adds texture and personality to your strokes, the fineliner is an artist favorite for its detailed and precise linework. And the calligraphy pen, which is sensitive to stroke direction, has an almost magical ability to make even the most unsteady cursive scribbles look like master penmanship.

Are you left-handed?

About 7 out of 100 people are left-handed, which makes writing setups that favor the majority more difficult if you naturally hold the pen in your left hand. Left-handers solve this problem in many ways, but one solution is to give your left arm more room and hold the pen higher up for better visibility - about 2cm

from the tip is a good starting point. reMarkable also has a left-handed mode. This can be selected when setting up your device for the first time, but you can also switch between left- and right-handed modes if you wish later on.

Enjoy the ride

Don't pressure yourself by thinking you need to write endless pages of notes, but learn to enjoy the process instead. Try doodling as a way to get into the flow and connect your hands with your thoughts. Allow motion to take lead - and feel how shapes, lines and letters roll effortlessly from your wrist. You might soon find yourself sinking deeper into concentration and new ideas.

When ready, put words down

Doodling has prepared your hand for the shapes of letters. As a bridge to full longhand, try practising entries from the Dolch list - a roster of the 220 most commonly used English words. Or try out a few pangrams. Those are sentences that make use of all letters of the alphabet, and include zappy phrases such as "the quick brown fox jumps over the lazy dog"; "when zombies arrive, quickly fax Judge Pat"; and "six juicy big steaks sizzled in a pan as five workmen left the quarry". These exercises imbue your hand with muscle memory and provide a jump-off point for longer, more focused writing.

Remove the fear of failure

Don't fret about making mistakes. Nobody's watching anyway, and when working digitally you can always go back by pressing undo, or use the Eraser to wipe it all out and start over. Alternatively, use the Selection tool to resize and move entire sections, either around on the page or between notebooks.

You're ready to go

By now your muscles and mind should be relaxed, your hands warmed up and your concentration at its peak. Hopefully, the process has also sparked some ideas and inspiration along the way - making it hard to put down the Marker.

All new Features and more

The reMarkable universe is expanding, and we're not planning on slowing down any time soon.

- Access all your **Dropbox**, **Google Drive**, or **Microsoft OneDrive** files directly from your reMarkable. The addition of these new third-party cloud storage options greatly expands the way you can use your paper tablet.
- Then there's **Screen Share**, a new feature that lets you turn your reMarkable into the perfect digital whiteboard. Perfect for sharing your thoughts in real time.

Bring your existing file system

All your content is just a few taps away, and ready to be downloaded so you can get to work without distractions. Again, you get the best of both worlds on reMarkable, taking advantage of those aspects of paper that are so essential to the reMarkable experience, while tapping the useful features of the digital age. Just the good stuff, no distractions.

Integrations on reMarkable mean that in addition to easily accessing your own content, annotating, reading, and brainstorming, you can also access any folders that have been shared with you in third-party cloud storage services. This is perfect for collaborative projects, making it quicker and easier for you to upload and download directly from your paper tablet.

The more you're able to view and annotate content from your paper tablet, the more useful it becomes. Free from interruptions, it's easier to get started, and think more clearly about your work as you go.

Share your thoughts live

Paper is great for meetings. Unfortunately, it's hard to seamlessly share what you've written down, and easily convert it into typed text in case you need to use it later. This is an area reMarkable excels, given its modern connections, and the DNA it shares with paper. It's subtle, and it allows you to sketch out your thoughts in a way not possible with words alone.

Screen Share, is a new way to share your work from your reMarkable. Just tapping 'Present with Screen Share' from within a notebook, will allow you to cast your current page to your desktop or laptop. It's ideal for meetings, or even just for seeing how your work looks on a larger screen. The best thing is it works live, so meeting participants are able to see your adjustments instantly.

Connect

Both Screen Share, and Integrations are available to Connect subscribers, along with all the service's other features, like unlimited cloud storage, handwriting conversion, and faster sync. Just part of an ever-expanding universe of powerful tools for your paper tablet.

The Hardware

This is the third chapter in our Inside reMarkable 2 series, documenting the creation of reMarkable 2, the world's thinnest tablet.

Between the sheets

During the development of reMarkable 2, chief design officer Mats Herding kept a very interesting spreadsheet. In it, Herding documented the thinness of every component slated for the device in millimeters, down to four decimal places.

"Just a flex cable for example," he says. "We had to know it would be 0.6745 millimeters thin."

"Once we had a rough list of all the components, we had to go through and start seeing where we could make things thinner."

A thinner device was important for a number of reasons. A thinner paper tablet can easily fit in your bag, and it's more comfortable to write on given the reduction in distance between the edge of the screen and where you rest your arm. The thinner they could make reMarkable 2, the more like paper it would be.

The problem, as Herding explains, was that they couldn't just stack a bunch of thin components atop one another and make a paper-thin device — they needed to rethink the shape, placement, and material of each one. To complicate matters, there were hundreds of components to consider.

The 'eureka moment' occurred when the team realized they could treat the screen as a separate entity to the other components. They found out rearranging the processor and mainboard to fit in a bezel along the bottom edge of the tablet, on the same layer, led to a much slimmer design.

The idea is similar to taking the cards from your wallet and spreading them out on the table, the result is much thinner. For it to work though, they needed to somehow create a battery that would not only fit the design, but provide exceptional battery life.

"Batteries are quite shapeable. So I was thinking… we could have a battery that is huge… just super thin!" says Herding.

"So we kept the PCB (main board) on the outside, and put this really thin battery under the screen."

"We ended up getting a battery that is 1.4 mm thin, and it lasts for two weeks, or ninety days on standby. That's pretty incredible when you think about it."

Under the microscope

It may seem like Herding is obsessed with thinness, but it's only one aspect of reMarkable 2's design, among many others. Getting the surface friction right, for example, has been one of the biggest challenges in the next-gen device's development.

"This time around we wanted to go further, and understand more, about the physics involved when it comes to the writing experience. So we've spent two years growing our understanding of what constitutes the perfect handwriting experience from a physical perspective."

"The complexity of that is just immense. It's just bottomless. How do you describe a good writing experience? What words do you use that we can actually use as a reference, and how do we measure it objectively?"

Developing the understanding Herding is talking about, involved a range of things, from talking with reMarkable users and everyday people who like to write by hand, to looking at the components and materials in great detail.

"We do a lot of scans on a microscopic level, of all the materials we use," Herding says.

"Not only micro level 2d scans, but 3d scans of all the surfaces, so we can understand the topography and how it leads to certain feedback when you write."

"We look at it like microscopic landscapes. You have alps, or you have rolling hills, and you have the highest peaks and the lowest valleys. How these

landscapes interact with the Marker tip material determines the friction and writing experience you get."

In many ways, the reMarkable 2 hardware owes a lot to reMarkable 1. As Herding explains, when they set out to make reMarkable 1 they had so many different ideas that not all of them made it into the final design. After time to reflect, reMarkable 2 was a chance to incorporate a lot of the more ambitious things they couldn't include the first time around. One example is a Folio cover that opens and closes like a book, so you can protect your device while you're working.

One of Herding's pet peeves has always been products that were not designed to fit with their accessories, and vice versa. So when the time came, the team was really focused on solving the reMarkable 2 accessories in a seamless, and symbiotic way. In light of that goal, Marker, Marker Plus, and the Folios were all planned and designed together, alongside the main hardware.

"One thing that was difficult to solve was magnets," says Herding, referring to the way the accessories magnetically snap in place.

"There's a sensor in the Marker that tells it to draw when it's in range of a small magnetic field induced by the device. That makes putting any magnets inside the device super, super difficult because they can prevent the Marker from working in certain areas. Also, because the device is so thin, getting the small magnets to work effectively has been an interesting challenge."

The key to making it work was a combination of magnets with specific arrays, that are strong in one orientation and weak in another, and sophisticated shielding materials that direct and control the strength of the magnets. The Folios also had their own challenges, given they needed to be so thin.

"When you spend so much time and energy on making a thin product, you don't want to add a thick Folio to it. Then you're losing the whole battle," ***says Herding.***

"So we did a great deal of experimenting and testing to find the right strength and thinness. The Folios needed to be sturdy enough to protect your reMarkable, but not so thick that they would ruin its profile."

Despite all the hard work that has gone into the Folios, Herding still hopes there will be occasions for people to use reMarkable 2 without one.

"I really hope people use the product naked," he says.

"The side bezel gives you something to hold and the aluminum is so nice to touch."

Got your back

In contrast to reMarkable 1, flipping reMarkable 2 over and looking at its back cover results in a view of the exact same color. Both sides even feel the same. According to Herding this is for good reason.

"We wanted you to only be touching paper when you pick it up. The whole device should feel similar, wherever you touch it, like paper does," he says.

"And that's also why we wanted to mirror the color on the front and back. So it is more like a stack of paper that's been dipped in aluminum."

Herding explains they also used more aluminum in the design of reMarkable 2 in a conscious effort to lift the premium feel of the device. The spine and the edges that run around the rest of reMarkable 2, give it a distinct quality feel. Yet it's a departure from the typical tablet design, which features even bezels (borders) on every side.

"We thought it was a bold move, to do an asymmetric tablet design with that notebook look. It's definitely very a-typical for a mobile device."

"But we did so many tests on it, and the end result is something our team has ended up loving. It's definitely something you have to work with, and get used to, but I have a feeling people are really going to like it."

It's the little things

From the millimeter precision in his spreadsheet, to the analysis of micro level material scans, Herding values attention to detail.

The aspects of reMarkable 2 he gets most excited about are the ones you don't notice at first.

The cool feeling of uninterrupted aluminum and the smooth CANVAS display, the nice texture when you hold the Marker, or just the way a magnet snaps in place perfectly.

"I love products that have surprises in them. Things you experience over time. Not the first time you meet the product," he says.

"It's that old cliche about albums. The good ones get better the tenth time you hear them."

reMarkable 2.

The next-generation paper tablet.

We're proud and incredibly excited to announce reMarkable 2. A paper tablet that redefines note-taking, reading, and reviewing documents. Boasting a groundbreaking new display, weeks of battery, and a paper-thin design, our latest offering is the most advanced paper tablet yet.

reMarkable 2 is the culmination of well over six years spent pushing the boundaries of digital paper technology. Not only is it the world's thinnest tablet, but it features an E Ink display with previously unheard of responsiveness. It provides the world's best digital handwriting experience. An experience so paper-like it's hard to tell the difference.

Incredible responsiveness

When we launched reMarkable 1, the CANVAS display was at the core of the paper experience. reMarkable 2 marks the arrival of its successor. Featuring impressive 21 ms latency and a unique high-friction surface, the second-generation CANVAS display makes reMarkable 2 more paper-like than ever.

A unique pen tip crafted from compressed felt fibers, together with a paper-textured surface, creates the familiar feeling of pen and paper. Featuring realistic ink flow, and almost no distance between the Marker tip and its digital ink, reMarkable 2 is as close to paper as it gets.

"We set out to make a device as paper-like as possible. It always comes back to paper as a tool for thinking. If we're going to help people think better, then looking and feeling like paper is essential," says reMarkable co-founder and CEO Magnus Wanberg.

"With the second-generation CANVAS display, we've made some real breakthroughs when it comes to the tactile aspects of digital handwriting. At the same time, we managed to make the thinnest tablet anyone has ever seen."

Measuring just 4.7 mm / 0.19 in, reMarkable 2 is the world's thinnest tablet. This feat makes our latest paper tablet comfortable to write on and exceptionally portable. Even in its book-like cover, Book Folio, reMarkable 2 remains extremely thin.

"We had to machine aluminum to unbelievable dimensions, while engineering an incredibly strong structure. Each tiny component has a precise location in the assembly, and of course, rethinking them all to make the device thinner was crucial," says Mats Herding Solberg, reMarkable's Chief Design Officer.

Weeks of battery

Our advancements in CANVAS display technology have made our next-generation paper tablet considerably more battery efficient. reMarkable 2 will last for up to two weeks on a single charge, allowing for two hours of active reading and writing every day during the working week. An incredible standby time of up to 90 days, means reMarkable 2 is always ready to come out of your bag and get to work.

Smarter accessories

Designed to complement reMarkable 2, our sleeve Folio and Book Folio offer stylish and functional protection for the world's most advanced digital paper. Launching in addition to the standard Folio in polymer weave, the new Book Folio makes it simple and easy to use reMarkable 2 without ever having to take it out of its cover. Snapping securely into place thanks to magnets in reMarkable 2's spine, Book Folio is a practical and stylish way to protect your paper tablet. Book Folio is also available in a premium leather finish that ages beautifully.

Magnetic Markers

The Marker and Marker Plus were created in conjunction with reMarkable 2, to provide the perfect amount of friction, and draw digital ink on the second-generation CANVAS display with incredibly low lag and phenomenal accuracy. Both Markers attach to reMarkable 2 magnetically, and don't require charging or setup.

The Marker Plus features an eraser in the top end that can be used like a traditional pencil eraser. Together with the added weightier feel and fiber finish, Marker Plus is simply an unrivaled digital writing instrument.

New software features. Still no distractions.

Launching alongside reMarkable 2 is *Read on reMarkable*, a plug-in soon available for Google Chrome. *Read on reMarkable* makes it possible to send simplified web articles directly to reMarkable 2 with the click of a button, and read without interruptions.

As ever, reMarkable 2 remains free from notifications, pop-ups, and social media by design. In the absence of distraction, it's possible to do your best work. Just you, and your thoughts.

Can you avoid the old trap?

Saving your schedule with a paper tablet.

The messy morning

You know your 'system' isn't working anymore, when you're trying to start the day with a post-it lost beneath a mountain of desk clutter, and a head full of competing priorities.

Stave off stress with a fresh approach, and get the day's events down on digital paper. That way you can keep everything organized and in one place, while still enjoying the simplicity and feel of writing on paper.

Get started with the to-do template, or go freestyle with your own style of list. As you progress throughout the day, erasing, cutting, and pasting your to-dos helps you stay flexible and keep your list up-to-date.

First meeting fadeout

It's your turn to talk, but you were looking at a text and now you've got no idea what to say. Sound familiar?

Then it's probably time to get in the habit of leaving your phone at your desk or out of reach, that way it's easier to stay engaged for longer. Take your reMarkable instead, and take advantage of being able to sketch out ideas visually, and share your work live via your laptop with Screen Share.

Stress sandwich

It's hard to relax and take a break for lunch with a fork in one hand, and a mouse in the other.

Now you finally have a moment to spare, you can read through that article you found earlier and sent with Read on reMarkable. It's always a good idea to keep your Marker handy, just in case inspiration strikes and you need to annotate.

When you return to work, and your brain is refreshed, you can tackle the rest of the day.

Afternoon apathy

It's time to build that presentation, but inspiration won't come. The due date is approaching, and all you can do is sit and stare at blank sides.

Mapping your work out on reMarkable can help break the cycle. After jotting down a few bullet points on what you'd like to include, you can start sketching out the order, and make some smaller notes in the margins with things you need to follow up on. You can even email your thoughts to any collaborators directly from your paper tablet.

Knowing it'll all be available from the desktop app is nice too, it's just easier to drag and drop into PowerPoint or Keynote later.

After hours email

You were just going to check one email. Just one. An hour later and you realise your night is nearly over and you haven't had any time to yourself.

It's time for new and improved habits. Instead you settle in with a good book on your paper tablet and no distractions. When you're finished, you go to put your reMarkable on its charger... but at a quick glance you can see there's still at least a week and a half's worth of battery remaining. You put it back in your work bag so it's ready to get to work again tomorrow.

Why paperless office?

Let's dig in and explore in details why the paperless office might be the right strategy for your business:

1. Cost-effective

With companies looking for ways to cut costs while still making considerable profits, the paperless office seems like a viable solution. Paper documentation is an increasingly expensive overhead. Its shortcomings such as theft, misplacement, and loss are also detrimental to a business.

Without paper, no cash will be spent on buying paper, printer toner, printing or hiring filing staff. No money will be spent on renting document storage space or buying file cabinets. Also, no money will be spent on occasional servicing of office equipment such as printers.OpenKM comes in handy in eliminating paper through office automation. It enables you to keep your documents in digital formats; thus your office expenditure is reduced considerably.

2. Enhanced security

Secondly, the manual documentation system is susceptible to lots of security breaches. Even with security measures such as locks and shredders, sensitive documents are not safe. Intruders can easily access file cabinets and steal your documents. In case of fire or any natural calamity like a hurricane or flood, sensitive documents can be lost. Sometimes due to human error files get misplaced, never to be found again, and this can be a big blow to business.

The good thing with an electronic record management system is that all documents are stored in encrypted servers that can track when files are accessed, by whom, at what time, and what changes were made. Access to digital documents can also be limited to authorized personnel.

Thanks to cloud computing. You can store sensitive documents in cloud-based platforms for easier access and watertight security. This also allows for multiple backup points. What's more, OpenKM cloud services can be accessed from various devices; such as PCs, tablets, and smartphones.

3. Enable a Mobile Work Force

Thirdly, smart solutions have proved to be very important in the twenty-first century. With a smartphone, your smart home control is a click of a button away. Similarly, with the necessary mobile apps, all your office work can be a fingertip away.

Gone are the days when you needed to visit a stationary office to work. A home office is the new cool. The paperless office enables you to access your data from any point in the world. Consequently, your business process can never be disrupted, and your employees will be happy to work remotely. A happy employee is a productive employee.

4. Improve Business Process

With the right digital document management system like OpenKM employees can review, delegate, authorize and transfer information at a click of a button. This can speed up purchase requests, expense reports, loan approvals, contracts and much more.

For example, the real estate business is quite slow because of the many regulations that surround it. Time is everything. Real estate agents will need to learn how to employ office automation to their advantage. Through automation, documents can be signed digitally and sent to the relevant authorities in real time cutting down on both time and costs.

Moreover, employees can collaborate on projects by working on shared documents simultaneously. This promotes creativity while allowing for prompt feedback. It also frees up most of your employees time enabling them to add value in other areas of your business.

5. Customer Satisfaction

Customers are the backbones of your business. Their satisfaction is never an option. Many clients nowadays prefer self-service over calling and being placed on hold. Digital transformation is indispensable.

With documents, one click away employees don't have to keep clients and customers on hold as they manually search for relevant information. With quick customer and client response, their satisfaction is guaranteed.

In addition, with the right content management software and customer relationship management application, you can easily identify the needs and wants of your customers through email, chat and social media. This makes it easier to customize your business to your customers and clients satisfaction.

6. Faster Payments

If your business extends credit to clients, it's likely that you will need to invoice them from to time. First, using electronic invoices will enable you to save money that would otherwise be spent on office paper, envelope, and postage.

Secondly, using an email invoice can expedite the payment process. Customers receive your invoice as soon as you click the send, and this can accelerate how fast they make payments. Also, since most document management software can create and track invoices, you can easily make follow-ups on unpaid invoices, when appropriate.

7. Environmentally Friendly

Embracing digital documentation does not only improve productivity in your business but also helps keep the environment safe. On average Americans use 650 pounds of paper per year. The U.S. business community uses around 21 million tons of paper annually. Such numbers raise concerns on the environmental impact.

As you can see, going paperless is such an important venture not only to the business community but also the entire human race. In fact, there is a world paper-free-day that advocates for industries to go paperless. Furthermore, there are paperless trade treaties already in play promoting paperless transactions for the sake of the environment. With such legislation coming into existence, there is no doubt that a paperless office is the future of business.

6 Benefits

Remove distractions and simplify your workflow. Here's how to get the most out of your workday with reMarkable.

As excited as most of us are about getting back to the collaborative nature of working in the office again, it brings with it familiar challenges. Daily noise, distractions, and constant interruptions are common aspects of the modern-day workplace.

However, returning to the office doesn't have to affect productivity or focus. The digital tools and design of reMarkable allow for the elimination of distractions and give the space needed for focused thinking without losing the sense of community and energetic collaboration achieved by being in the office environment.

Here are six benefits of using reMarkable at work:

1. Organize your time

Heading back to the office after an extended remote working situation can make one feel overwhelmed. To ensure feeling in control and on top of the situation, create a schedule of your day and week.

Physically visualizing your time and availability can help ease some of the work environment stresses. On reMarkable, you have the ability to choose between different pre-installed planning templates to help the organization process. You can also change templates at any time within the same notebook, and effortlessly switch between daily and weekly planners.

Writing out a to-do list is also essential. It provides clarity of thought and allows you to prioritize what needs to be completed first. When using reMarkable, you

simply jot these tasks down by hand and then using the built-in digital tools, such as the selection tool, easily cut, paste, review, and rework your handwritten list so that the most demanding, high-priority tasks are now at the top.

2. Stay focused in meetings

Taking notes is a great way to jump-start your participation in the meeting. The simple act of note-taking requires you to engage, listen intently, and make eye contact with the speaker. At just 4.7 mm and with no fold-up screen, reMarkable doesn't get in the way or create a physical barrier between you and your colleagues. The paper tablet is also designed free from notifications, pop-ups, and social media, so that your note-taking can be done without interruptions. Even better, the second-generation CANVAS display makes it feel and sound like you're actually writing on paper.

After the meeting, with a few taps, you can convert your handwritten text to typed text. Once converted, you can edit the typed content as desired and share it instantly with your team. A simple and efficient way to keep everyone on the same page.

3. Visualize and collaborate

Sometimes ideas make perfect sense in your head, but they just don't come out in a way that is easily understood by others. Now that you and your colleagues will be back sharing the same workplace, why not use the opportunity to sketch out or visually brainstorm those ideas bouncing around in your head and develop a shared understanding among the team. This will not only lead to better collaboration and make you a more effective communicator, but it will also help you to understand and work through your thoughts with more clarity.

The selection tool on reMarkable makes it simple to rotate, resize, rework, and rearrange your ideas. Additionally, layers can be used to add more flexibility to your sketching. Drawing on different levels gives you the ability to conceal or add to what you're working on. You can also reorder your layers for more creative control. This can be a handy feature in a collaborative setting when you want to make sure that everyone's contributions are recognized, but you don't want to lose track of the original idea.

4. Simplify the workflow

In an office setting, it's easy to fall into the pattern of printing out documents or articles to read away from the glare of the computer screen. Although reading on paper is easier on the eyes, it also creates clutter. That's why the display on

reMarkable was purposely developed without glare and backlight, giving you an eye-friendly paper-like reading experience without the need to print a page.

Your paper tablet also allows you to take handwritten notes onto digital documents to give that tactile feel and versatility of pen on paper. Just import a PDF through the desktop app onto your reMarkable and choose from one of eight writing tools. Whether it's highlighting something worth remembering or using the fineliner to mark up your work, there's no longer the need to have that pencil holder crammed with different pens and highlighters taking up space on your desk.

5. Sign and send

Another perk of digitizing your workflow with reMarkable, aside from finally setting those printers curbside, is that you can sign digital documents and contracts by hand. Just like with your meeting notes and annotated content, you can email your signed work right from your paper tablet. Imagine no longer needing to interrupt a client meeting in order to print up a contract or scan a document. On reMarkable, it can all be done without touching a single sheet of paper or interrupting the face-to-face interactions essential for smooth and successful sales meetings. Additionally, being able to instantly sign and send documents ensures the client receives a copy straight away, giving you peace of mind and saving both time and money.

6. Finally obtain that tidy desk

By getting rid of the paper clutter, printers crowding the room, or the abundance of pens strewn across the desk, you can finally create the optimal space for focused work. Plus, you'll have all those loose printouts, sticky notes, and client documents organized into a structured folder system, where anything you want or need is pulled up effortlessly within seconds.

When making the return to your workplace, you'll find that with reMarkable at hand, you'll be able to get the most out of your workday while also enjoying the in-person work culture and community once again.

Conclusion

All said and done. Going paperless has many benefits for you, your employees, customers, your business and its environs at large. Aside from enabling you to transact business from anywhere. It eliminates the hassles associated with manual document management process which can be slow, cumbersome, and expensive.

With document management systems like OpenKM, the paperless office is no longer a future possibility but a reality that is waiting to be embraced. As an experienced solutions partner, we can help you make a smooth transition from paper to a paperless office with a competitive edge.

Reference

- https://www.openkm.com/blog
- https://remarkable.com/

Vidyalankar School of Information Technology

TITLE OF THE PROJECT

FEMALE FOETICIDE AND ITS SEQUENCE

BACHELOR OF/IN First Year Becholar Of Banking & Insurance

by
Chandrakanth Jinna

Roll Number:21220322

Under the guidance of

Ms. Reshma Suryavanshi
Assistant Professor

Date of Submission:11 DECEMBER 2021

FOUNDATION COURSE-I

PROJECT ALLOTMENT 2021-22

1.COVER PAGE

- Title:- Female foeticide and its sequence

- Name:- Chandrakanth.M.Jinna

- Rollno.:- VSIT21220322

- Course and divison:- FYBBI

- Name of the teacher:- Reshma Ma'am

2. INDEX PAGE

Sr No.	Particulars	Pg no.
1.	Introduction	
2.	Objectives	
3.	Procedure of method	
4.	Recommendations	
5.	Conclusion	
6.	Bibliography	
7.	Appendix (for images)	

2.INTRODUCTION

- Female foeticide has been linked to the arrival, in the early 1990s, of affordable ultrasound technology and its widespread adoption in India. Obstetric ultrasonography, either transvaginally or transabdominally, checks for various markers of fetal sex. It can be performed at or after week 12 of pregnancy.

- Female foeticide is the process of finding out the sex of the foetus and undergoing abortion if it is a girl. Although it is illegal, many people continue to practice it. Besides this, there are some communities which practice female infanticide – the practice of killing the girl child once she is born.

- Female foeticide has been linked to the arrival, in the early 1990s, of affordable ultrasound technology and its widespread adoption in India.

- The proliferation and abuse of advanced technologies coupled with social factors contributing to the low status of women such as dowry, concerns with family name and looking up to the son as a breadwinner has made the evil practice of female foeticide to become common in the middle and higher socioeconomic households, …

- Some of the reasons for female foeticide are son preference, low status of women, social and financial security associated with sons, socio-cultural practices including dowry & violence against women, small family norm and consequent misuse of diagnostic techniques with the intention of female foeticide.

- Female foeticide is the practice of aborting a foetus when a person finds out that the foetus is female after undergoing a sex determination test known as prenatal diagnostic tests.iagnostic

No. of domestically produced ultrasound machines
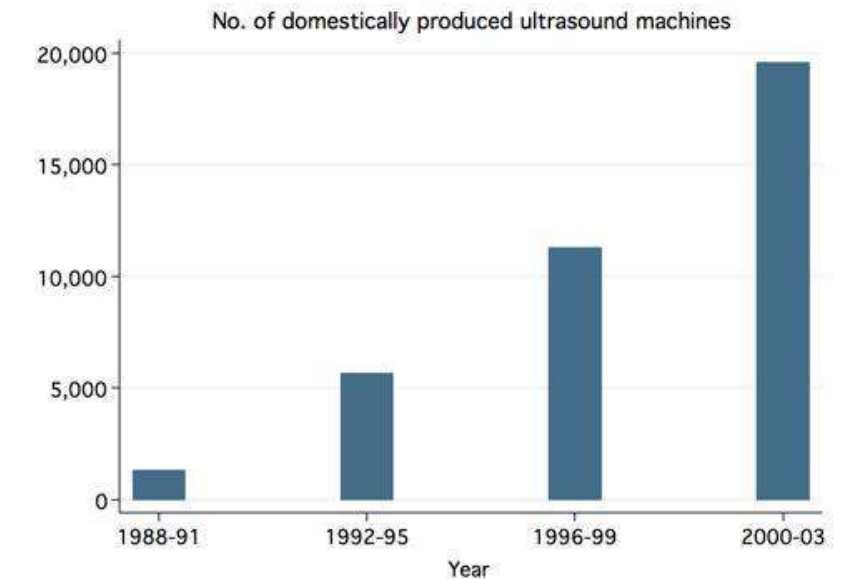
In the most recent national Indian census in 2011, the female to male ratio in India is 1.08 males for every female. In the United States, the sex ratio is 0.97 males for every female, and the international average is about 1.01 males for every female. This low ratio in India is a result of the limitations that the society puts on the birth of girls.

Female foeticide occurs all over India, from the rural villages to the urbanized cities. The government has made attempts to lower the female foeticide rate with acts such as the Pre-Conception and Pre-Natal Diagnostics Techniques Act (PCPNDT). The PCPNDT was enacted in 1994 by the Parliament of India and prohibits prenatal sex determination due to the rapidly increasing female foeticide in the country of India.
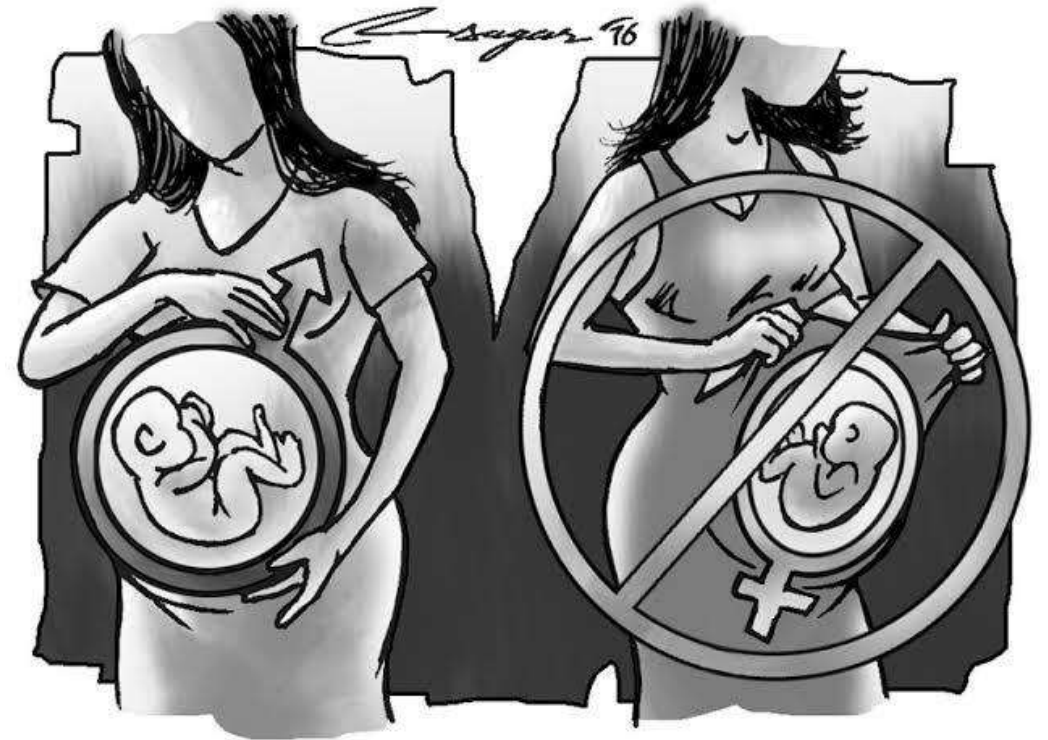
These heinous killings of the girl child are advocated mainly on two grounds. One of them is the preference culture. Many scholars believe that female foeticide takes place because of the preference of a male child. They are preferred because they provide manual labor, are the bread earners of the family and succeed the family lineage. The selective abortion of a female child is most common in the areas where cultural norm values a male child over a female child. In a family, son is always considered as an "asset" and daughter, a "liability."

The second reason is the financial burden. In India, it is considered that having a daughter is a great financial burden. A huge amount of money has to be spent on a daughter's marriage. Sometimes people have to mortgage their property or even have to sell it for a daughter's marriage. They sometimes have to take loans that are paid even by the future generations. Due to this reason, a daughter is considered as a financial burden which not many want to bear.

Female Foeticide
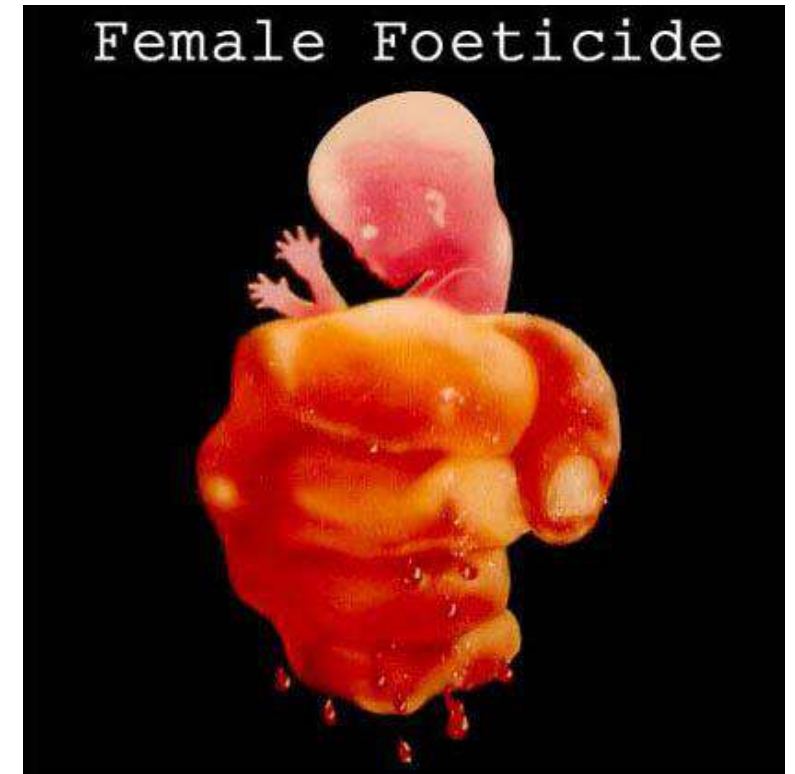
OBJECTIVE AND AIM

To increase public awareness of the value of the girl child, and concurrently, to strengthen the girl child's self-image, self-esteem and status

To improve the welfare of the girl child, especially in regard to health, nutrition and education.

Some of the reasons for female foeticide are son preference, low status of women, social and financial security associated with sons, socio-cultural practices including dowry & violence against women, small family norm and consequent misuse of diagnostic techniques with the intention of female foeticide

To assess the awareness and perceptions of school children regarding female feticide.

To eliminate all forms of discrimination against the girl child and the root causes of son preference, which results in harmful and unethical practices regarding female infanticide and prenatal sex selection;

Some of the variation in birth sex ratios and implied female foeticide may be due to disparate access to resources. As MacPherson (2007) notes, there can be significant differences in gender violence and access to food, healthcare, immunizations between male and female children. This leads to high infant and childhood mortality among girls, which causes changes in sex ratio.

There is an ongoing debate as to whether these high sex ratios are only caused by female foeticide or some of the higher ratio is explained by natural causes.[8] The Indian government has passed Pre-Conception and Pre-Natal Diagnostic Techniques Act (PCPNDT) in 1994 to ban and punish prenatal sex screening and female foeticide. It is currently illegal in India to determine or disclose sex of the foetus to anyone. However, there are concerns that PCPNDT Act has been poorly enforced by authorities.

Ultrasound technology arrived in China and India in 1979, but its expansion was slower in India. Ultrasound sex discernment technologies were first introduced in major cities of India in 1980s, its use expanded in India's urban regions in 1990s, and became widespread in 2000s.

One school of scholars suggested that female foeticide can be seen through history and cultural background. Generally, male babies were preferred because they provided manual labor and success the family lineage. The selective abortion of female fetuses is most common in areas where cultural norms value male children over female children for a variety of social and economic reasons. A son is often preferred as an "asset" since he can earn and support the family; a daughter is a "liability" since she will be married off to another family, and so will not contribute financially to her parents. Female foeticide then, is a continuation in a different form, of a practice of female infanticide or withholding of postnatal health care for girls in certain households. Furthermore, in some cultures sons are expected to take care of their parents in their old age. These factors are complicated by the effect of diseases on child sex ratio, where communicable and noncommunicable diseases affect males and females differently.

PROCEDURE & METHOD

Female foeticide is the process of finding out the sex of the foetus and undergoing abortion if it is a girl. Although it is illegal, many people continue to practice it. Besides this, there are some communities which practice female infanticide – the practice of killing the girl child once she is born.

The main way to tackle the issue of female infanticide is to address the root cause of the problem – the patriarchal mindset, says Jim Jesudoss, Director, Childline Madurai. "The government often focuses on addressing the issue of female infanticide without focusing on trying to change the patriarchal mindset.

India - Sex Ratio (males per 100 females)
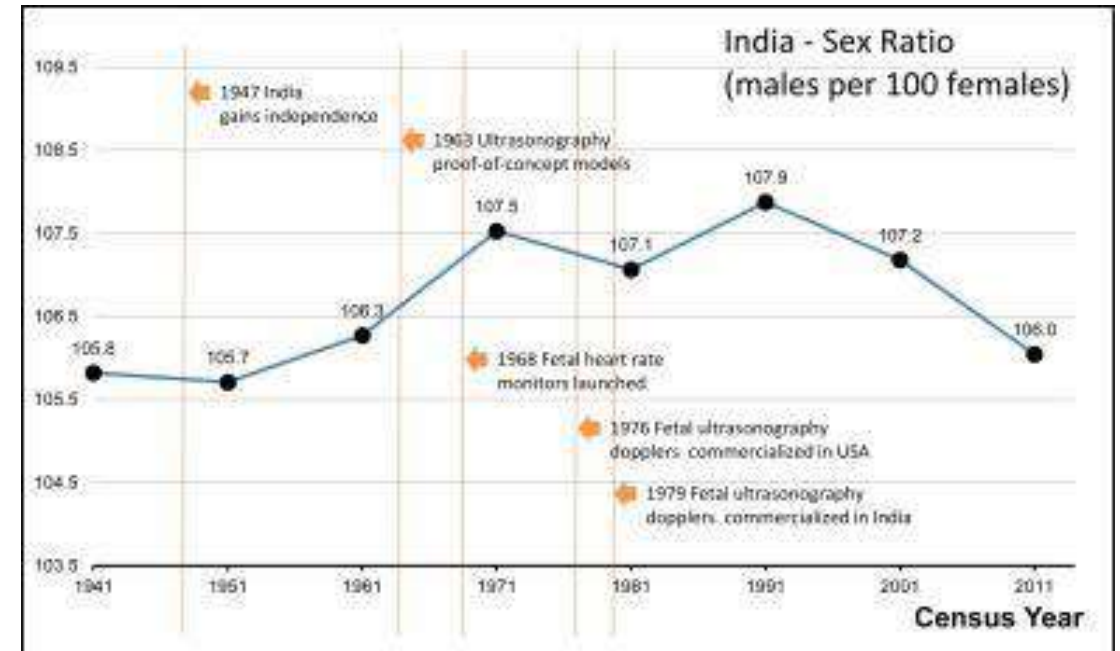
These include increased gender disparity, a high sex ratio, lives lost, lack of development, and abuse and violence against women and children.
Female Infanticide Act: 1870
Dowry Prohibition Act: 1961

Some of the reasons for female foeticide are son preference, low status of women, social and financial security associated with sons, socio-cultural practices including dowry & violence against women, small family norm and consequent misuse of diagnostic techniques with the intention of female foeticide.

RECOMMENDATIONS

The reasons for the discrepancy include, among other things, harmful attitudes and practices, such as preferences for sons – which results in female infanticide and prenatal sex selection – early marriage, including child marriage, violence against women, sexual exploitation, sexual abuse, discrimination against girls …

Gender refers to the characteristics of women, men, girls and boys that are socially constructed. This includes norms, behaviours and roles associated with being a woman, man, girl or boy, as well as relationships with each other. … Gender and sex are related to but different from gender identity

CONCLUSION

In an attempt to curb female feticide, the Indian Government enacted the Pre–Natal Diagnostic Techniques (PNDT) Act of 1994, which prohibits sex selection and regulates prenatal diagnostic techniques to prevent their misuse.

The Indian government has passed Pre-Conception and Pre-Natal Diagnostic Techniques Act (PCPNDT) in 1994 to ban and punish prenatal sex screening and female foeticide. It is currently illegal in India to determine or disclose sex of the foetus to anyone.

REFERENCES

https://en.wikipedia.org/wiki/Female_foeticide_in_India

https://vikaspedia.in/social-welfare/women-and-child-development/child-development-1/resources-on-safe-childhood-for-panchayat-members/female-foeticide-and-female-infanticide

https://timesofindia.indiatimes.com/readersblog/rightpath/female-foeticide-2780/

http://rajswasthya.nic.in/PCPNDT%20Workshop/24oct/PCPNDT%20Act_ritesh.ppt

VARNA SYSTEM IN INDIA

Varna System in Ancient India was based on occupation, but with time it turned to a rigid caste system. 'Varna' literally means group in Sanskrit . With the advent of the Aryans , the ancient Indian society got divided into four sections - Brahmin, Kshatriya, Vaishya and Sudra. The Vedic period was around the time of 1500-1000 BCE when people were not classified according to their economic standard but as per their Varnas.

According to Hindu scripts, society was classified into 4 majors Varnas:

1. . Brahmins (The Superior One, Priests, Teachers, and Intellectuals)
2. Kshatriyas or Rajanyas (Warriors, Police, and Administrators)
3. Vaishyas also called Vysyas (Agriculturalists, Merchants or Traders)
4. Shudras (Artisans and Workers)

BRAHMANA   KSHATRIYA   VAISHYA   SHUDRA

The varnas have been known since a hymn in the Rigveda (the oldest surviving Indian text) that portrays the Brahman (priest), the Kshatriya (noble), the Vaishya (commoner), and the Shudra (servant) issued forth at creation from the mouth, arms, thighs, and feet of the primeval person (purusha). Males of the first three varnas are "twice-born" (dvija): after undergoing the ceremony of spiritual rebirth (upanayana), they are initiated into manhood and are free to study the Vedas, the ancient scriptures of Hinduism. The Shudra live in service to the other three. The Vaishya, in turn, as common people, grazers, and cultivators, contrast with the governing classes—i.e., the secular Kshatriya, or barons, and the sacerdotal Brahmans. Brahmans and Kshatriya themselves contrast in that the former are the priests, while the latter have the actual dominion. In the older description, far greater emphasis is placed on the functions of the classes than on hereditary membership, in contradistinction to caste, which emphasizes heredity over function.

Four Castes in India
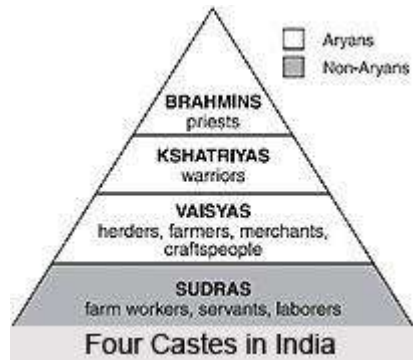
Caste system in India is a composite structure of different social classes in the Hindu religion. Caste system in India has a long history dating back to the ancient past. It dates back to that era when people used to believe that people were born into a particular social status. They also believed that experiences in past lives and good deeds can actually reincarnate one into higher social strata in the next life. The Indian caste system has gone places with the changes that have taken place in the society. Education has been massively instrumental in bringing a change in the state of mind though a large section of a society, mostly the older generation is still under the curse of this social ostracism.

Vidyalankar School of Information Technology

ROLE OF WOMEN IN INDIAN POLITICS

BACHELOR OF/IN FYBBI

by

Piyush Manna

Roll Number: 21303A0004

Under the guidance of

Ms. Reshma Suryavanshi

Assistant Professor

Date of Submission: 07/12/2021

INDEX PAGE

<mark>INTRODUCTION</mark>

The term political participation has a very wide meaning. It is not only related to Right to Vote, but simultaneously relates to the participation in decision-making process, political activism, political consciousness, etc. Women in India participate in voting, run for public offices and political parties at lower levels more than men. Political activism and voting are the strongest areas of women's political participation. To combat gender inequality in politics, the Indian Government has instituted reservations for seats in local governments.

Women turnout during India's parliamentary general elections was 65.63%, compared to 67.09% turnout for men. India ranks 20th from the bottom in terms of representation of women in Parliament. Women have held the posts of president and prime minister in India, as well as chief ministers of various states. Indian voters have elected women to numerous state legislative assemblies and national parliament for many decades.

A new dimension of women in politics emerged in recent years all over the world. More and more women have now been entering into politics. Conventional politics reflected male concerns and hence women were notably absent in politics.

Welfare policies had been constructed and reinforced women's traditional position as wives and mothers. Women have struggled over issues affecting them, especially their rights to property and vote in the 19th century and to abortion, equal pay and nursery provision in the 20th century.

In India, reform movements before and after independence has helped women to gain some power in politics also. After independence they have achieved an unprecedented political breakthrough with the reservation of seats for them in panchayats and other public bodies.

It is heartening to note that Indian women were among the earliest to get their political rights (right to vote) without any political movement

like in die United States and many Western countries. They were among the foremost to take active part in politics even in pre-independence times.

Indian women have a distinction to become UNO Secretary (Vijay laxmiPandit), Prime Minister (Indira Gandhi), Chief Minister (SuchetaKriplani, Jayalalitha, Uma Bharati, Mayawati and VasundharaRaje) and even President (PratibhaPatil).

By becoming Pradhan or a ward member in a Gram Panchayat or any other civic body, or a member of State Assembly or Parliament, it augments respect within the family as well as in the community at large besides increasing their self-esteem, confidence and decision-making ability.

If we take the women's participation in politics as one of the measurements of their emancipation, we find their number is very low in comparison to men in State Assemblies and Parliament. It is about 11 per cent only (26 women in upper house-Rajya Sabha consisting of 245 members and 59 women in lower house-Lok Sabha consisting of

543 members. There were only 8 women ministers out of total 75 in the government of Dr Manmohan Singh).So far as the administration is concerned, there are only 592 women IAS officers out of 4,671 officers. The demand for special concessions and privileges along with the reservation of posts in assemblies and parliament (the bill is pending for the last more than ten years) and other civic institutions are a few steps towards women empowerment in India.
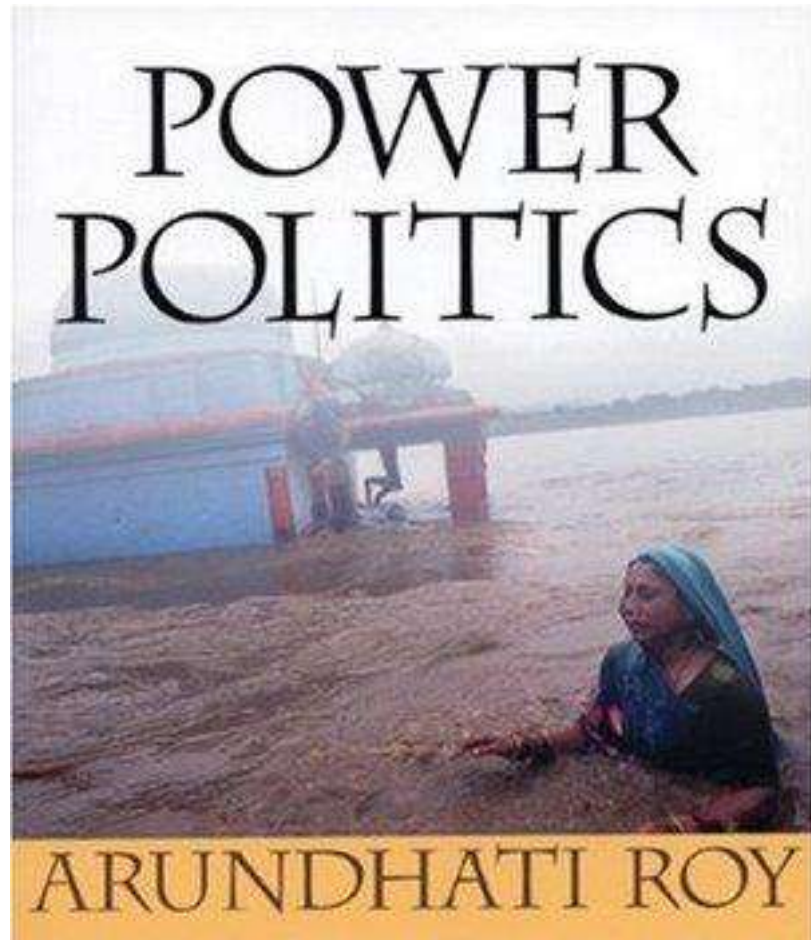
Women have started writing and reading what other women have written. During the last two decades the writings of many women writers (such as Arundhati Roy) have been acclaimed by the institutions of international repute. There are many women in the field of journalism which was previously dominated by men. Now, she blogs and networks using it for the freedom denied so far to voice her angst, express outrage and disapproval, fulfil the need for acceptance and approval.In spite of many gains, much remains to be done to improve the status of women in India. The female work participation rate in India is only 26 per cent whereas it is 46 per cent in China. Some 34 (2011) out of every 100 women are illiterate as compared to only 13 in China.

Female foeticide accounts for an estimated half-a-million missing female births in India every year, lowering the female sex ratio to a dismal 914:1000 (2011). It is worst since independence. According to the report of UNICEF, India ranks at 115 out of 162 countries in matters of gender development.Though the above changes signify positive gains from the point of view of equality for women, but the reality is beset with many problems and tensions. The observation about the gains in equality applies only on a meagre number of Indian educated women living in urban areas.

Many studies conducted in India and elsewhere (in so-called developed countries) revealed that equal sharing of housework is still a nightmare for women. Working wives find that housework and care of children is still largely their task, quite unequally wives shared with husband as on an average working wives/mothers are compelled to work at least 14 hours a day and even more. The weekend is less a time for rest and more to catch up on unfinished and pending tasks of the household.The status of women in a society cannot be secured by her economic power alone as is generally supposed. It depends on culture also. Women's income in particular becomes a means to survival of the poor people.They are empowered as far as earnings are concerned but not with respect to spending the earnings.

<mark>OBJECTIVE OR AIM</mark>

➢ From the title of the project (Role of Women in Indian Politics) itself , one can understand the objective / aim of this project ; i.e. to understand the role and impact of women in Indian Politics , which by the end will be clear to all.

➢ As defined in the introduction , women's are empowered as far as earnings are concerned but not with respect to spending the earnings.

➢ Women's political participation is not only limited upto voting but also participation in various activities such as decision making , political activism , political consciousness.

➢ As far as comparing to the past , women's participation in politics now has much likely increased. This change in politics has taken a change after the independence. We can also say that nowadays , women's participation is equally or more likely active than as compared to men.

➢ To overcome political gender inequality the Government has instituted reservations. Women's have also actively participated alongside men in various independence movements such as non-corporation , salt march , swadeshi movements for the attainment of freedom. As per various accounts , men in assembly listened carefully to the speeches made by women.

> The foundation formed during the national movement helped women to participate in democratic process after independence. Various legal , social and economic measures were taken by the government of India after independence. Women also began to participate in national and state politics.

> The observation about the gains in equality applies only on a meagre number of Indian educated women living in urban areas.

PROCEDURE OR METHOD

The data is collected through wikipedia and different website covering the topic of role of women in politics. Some of the websites are ,

https://en.wikipedia.org/wiki/Women%27s_political_participation_in_India

https://www.yourarticlelibrary.com/essay/essay-on-the-role-of-women-in-politics/31315

https://www.researchgate.net/publication/330984828_The_Role_of_Women_in_the_Political_Sphere

It is a secondary data as the data was primarily collected by other and now I have used that data in my project.

The below table shows us the participation percentage of women in Lok Sabha from the year 1952 till 2014 ,

Year	Percentage of Women in Lok Sabha
1952	5%
1957	5%
1962	7%
1967	6%
1971	5%
1977	4%
1980	6%
1984	8%
1989	5%
1991	8%
1996	8%
1998	8%
1999	10%

2004	9%
2009	11%
2014	11.3%

Below is the graphical representation of the above table, by which we can clearly see the growth of women's participation in Lok Sabha.
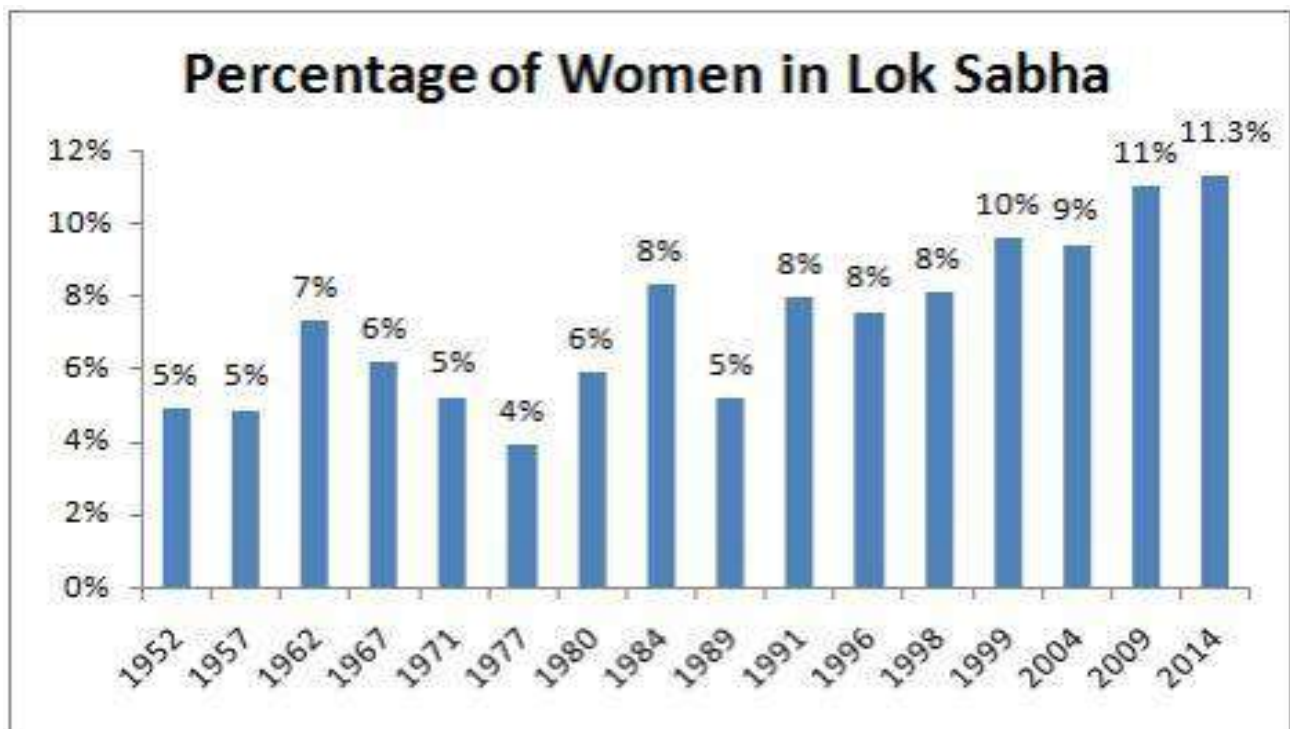
From the above graph we can see the increase in percentage of women in Lok Sabha over the years. In the year 1952 there was only 5% Women in Lok Sabha but in the year 2014 this percentage increased to 11.3% . I hope this percentage keeps on improving in the future and more and more women come forward and participate in politics.

The data collected would be useful for the current and future generation to know in detail about the role and responsibilities of women in Indian politics. By reading this the reader enhances his knowledge more towards the importance of women and their need in the politics.

While working on the project it was an amazing experience as I got to know about the role of women in Indian politics and their responsibilities towards the empowerment of the Indian society.

<mark>RECOMMENDATIONS</mark>

As mentioned earlier the data was collected through Wikipedia and various other websites. From the study we can see that in the past the participation / role of women in politics was not much seen. This upliftment of women participation in politics took place after independence.

Women are struggling to achieve empowerment opportunities and sustain their livelihoods better. These women, primarily belong to economically backward sections of the society. Within the political sphere, it is believed to a major extent that when women would get involved in political, social, cultural, economic and other domains, then it would not only render an effective contribution in bringing about their empowerment, but also progress of the community and the entire nation. Hence, it is vital to formulate measures that would enable women, belonging to rural and remote communities to acquire empowerment opportunities. For meeting the objective of empowerment and political participation of women, it is vital to motivate and encourage them.

Another important aspect that needs to be put into practice is, decision making. The women, irrespective of their backgrounds and categories are required to enhance their decision making abilities. Making of decisions is regarded as an integral part of one's life. They may be major or minor. It has been researched that the substantial portion of the women have increased in terms of factors, like self-confidence, status and ability to make decisions. Perceived positive outcomes do not appear to be enough for women to continue within the local governance, as the manifestations of gender roles, public support and perceptions of what can be achieved through this role could also be

regarded as considerations in influencing the decisions. Hence, it has been recommended to bring about reformations in these factors.

Training and education are perceived unmet needs, particularly in the areas, where the system of education is not well-developed. The main purpose of stating this recommendation is, to improve one's political participation. On the other hand, it is essential for men as well as women to generate awareness and augment their skills through training and education programs. The training and education programs are initiated to meet the needs and requirements of women, especially, belonging to underprivileged sections of the society. These programs are required to meet the demand of women, who have no or limited exposure to education. It is necessary to bring about improvements in these programs by putting emphasis upon the concepts of social and gender justice.

In the present existence, there has been an increase in the number of women, who are aspiring to take their rightful place in the government bodies. Hence, it is important for all institutions, i.e. state, family and community to respond to specific needs of women. These are, bridging the gaps in education, renegotiating gender roles, gender division of labour and addressing biased attitudes. This combined with the address to initiate institutional and operational frameworks to place strategic gender interests at the core of the governance process. It will get involved to a great extent in exploiting the potential and capabilities of the panchayats, as spaces of democracy and equitable development.

Another vital area that needs to be taken into consideration is, promotion of employment opportunities among women. Whether, they are educated or not, they should be encouraged towards acquisition of employment opportunities. When the women are engaged in various types of employment settings, then they are not only able to generate a source of income, but also are able to form communication links with others, and enhance their livelihoods opportunities. Furthermore, they are able to develop their skills and abilities and generate awareness in terms of various aspects. There should not be any bias or prejudice and constructive attitudes need to be formed regarding women, particularly in power.

<mark>CONCLUSION</mark>

As the topic was **Role of Women in Indian Politics ,** the term political participation is not only related to Right to Vote, but simultaneously relates to the participation in decision-making process, political activism, political consciousness. In India, there has been a radical change in the movement that is initiated to promote empowerment of women. It has been recognized that women are turning into a political force, both nationally and internationally. The political participation of women require reinforcement measures. When the women are involved in political sphere, then the positive aspects are, they are not only able to bring about enhancements in their own lives, but also in promoting welfare of their families and communities. The variables of political environment are , psychological environment, socio-economic environment and political environment. In conducting an analysis of the measurement framework, the main aspects that are included are, introduction to Indian electoral framework, electoral statistics in India, political participation of women and development of women's groups.

In order to promote empowerment opportunities among women, it is vital to pay attention towards important aspects. These are, education and training programs, alleviation of various forms of criminal and violent acts, making provision of equal rights and opportunities to them, alleviating discriminatory treatment against them on the basis of factors, such as, caste, creed, race, religion, ethnicity, gender and socio-economic background, they should be encouraged to participate in various types of employment opportunities. PRIs at all the three tiers have not turned into the spaces to discuss and deliberate on critical strategic and gender issues. Through the availability of support from the PRI representatives, women are able to cope up with these problems in an appropriate manner. When individuals, and communities have the main objective of leading to progression of the country, then promoting empowerment opportunities among women is regarded crucial. Political participation is regarded as one of the fundamental measures that promotes women empowerment.

REFERENCES
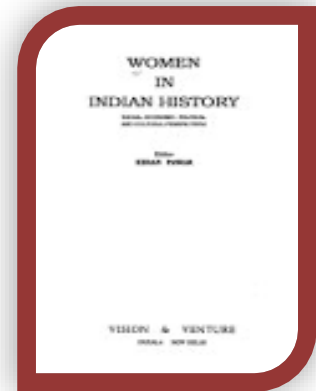
- ❖ https://en.wikipedia.org/wiki/Women%27s_political_participation_in_India
- ❖ https://www.yourarticlelibrary.com/essay/essay-on-the-role-of-women-in-politics/31315
- ❖ https://www.researchgate.net/publication/330984828_The_Role_of_Women_in_the_Political_Sphere

BIBLIOGRAPHY

Women in Indian History , 1996

Status of Indian Women: Progressive women and political identity , 1998
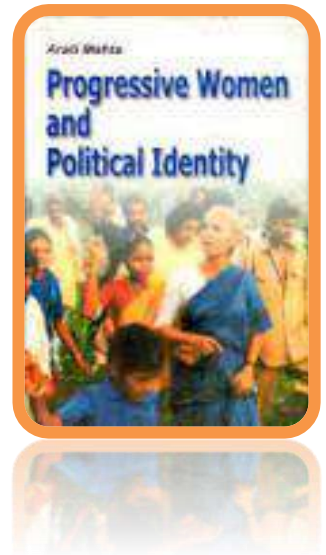
<mark>GLOSSARY</mark>

- ❖ reinforced - strengthen or support

- ❖ unprecedented - never done or known before

- ❖ reform movement - is a type of social movement that aims to bring a social or also a political system closer to the community's ideal.

- ❖ emancipation - the process of giving people social or political freedom and rights.

- ❖ angst - is a feeling of anxiety, apprehension, or insecurity.

- ❖ compelled - having to do something because you are forced to

- ❖ emphasis - special importance, value, or prominence given to something.

- ❖ renegotiate - to discuss an agreement again in order to change it

Thank You!!!

Vidyalankar School of Information Technology

IMPORTANCE OF FUNDAMENTAL RIGHTS IN INDIA

BACHELOR OF/IN- **BBI**

By

Name of The Student- **ADITYA RAVINDRA PATIL**
Roll Number: 21303A0005

Under the guidance of

Ms.Reshma surayanshi

Date of Submission: 3rd January 2022

Fundamental rights in India

- **Fundamental rights in India** are the rights guaranteed under Part III (Articles 12-35) of the Constitution of India. There are six fundamental rights (Article 12 - 35)[1] recognised by the Indian constitution: the right to equality (Articles 14-18), the right to freedom (Articles 19-22), the right against exploitation (Articles 23-24), the right to freedom of religion (Articles 25-28), cultural and educational rights (Articles 29-30) and the right to constitutional remedies (Article 32 and 226).[2]

- While the Constitution also provides some other rights, such as the Right to Property, that are not fundamental rights. In cases of fundamental rights violations, the Supreme Court of India can be directly petitioned under Article 32 of the Constitution. The Rights have their origins in many sources, including England's Bill of Rights, the United States Bill of Rights and France's Declaration of the Rights of Man.and Rights of women

- Fundamental rights for Indians have also been aimed at overturning the inequalities of traditional aryan practices. Specifically, they have also been used to abolish untouchability and thus prohibit discrimination on the grounds of religion, race, caste, gender or place of birth. They also forbid trafficking of human beings and forced labour (a crime). They also protect cultural and educational rights of religious establishments. Right to property was changed from fundamental right to legal right.Sardar Vallabhai Patel is considered as the chief architect of fundamental rights of Indian constitution.

Origins

- The first demand for fundamental rights came in the form of the "Constitution of India Bill, in 1895. Also popularly known as the Swaraj Bill 1895, it was written during the emergence of Indian nationalism and increasingly vocal demands by Indians for self-government. It talked about freedom of speech, right to privacy, right to franchise, etc.

- The development of such constitutionally guaranteed fundamental human rights in India was inspired by historical examples such as England Bill of Rights (1689), the United States Bill of Rights (approved on 17 September 1787, final ratification on 15 December 1791) and France's Declaration of the Rights of Man (created during the revolution of 1789, and ratified on 26 August 1789).[3]

- In 1919, the Rowlatt Act gave extensive powers to the British government and allowed indefinite arrest and detention of individuals, warrantless searches and seizures, restrictions on public gatherings, and intensive censorship of media and publications. The public opposition to this act eventually led to mass campaigns of non-violent civil disobedience throughout the country demanding guaranteed civil freedoms, and limitations on government power. Indians, who were seeking independence and their own government, were particularly influenced by the independence of Ireland and the development of the Irish constitution. Also, the directive principles of state policy in Irish constitution were looked upon by the people of India as an inspiration for independent India's government to comprehensively tackle complex social and economic challenges across a vast, diverse nation and population.

- In 1928, the Nehru Commission composing of representatives of Indian political parties proposed constitutional reforms for India that apart from calling for dominion status for India and elections under universal suffrage, would guarantee rights deemed fundamental, representation for religious and ethnic minorities, and limit the powers of the government. In 1931, the Indian National Congress (the largest Indian political party of the time) adopted resolutions committing itself to the defence of fundamental civil rights, as well as socio-economic rights such as the minimum wage and the abolition of untouchability and serfdom.[4] Committing themselves to socialism in 1936, the Congress leaders took examples from the Constitution of the Soviet Union, which inspired the fundamental duties of citizens as a means of collective patriotic responsibility for national interests and challenges.

- The task of developing a constitution for the nation was undertaken by the Constituent Assembly of India, composed of non-elected representatives. The Constituent Assembly first met on 9 December 1946 under the temporary presidency of Sachchidanand Sinha. Later, Dr. Rajendra Prasad was made its president. While members of Congress constituted a large majority of the assembly, Congress leaders appointed persons from diverse political backgrounds to positions of responsibility for developing the constitution and national laws.[5] Notably, Bhimrao Ramji Ambedkar became the chairperson of the Drafting Committee, while Jawaharlal Nehru and Sardar Vallabhbhai Patel became chairpersons of committees and sub-committees responsible for different subjects. A notable development during that period having significant effect on the Indian constitution took place on 10 December 1948 when the United Nations General Assembly adopted the Universal Declaration of Human Rights and called upon all member states to adopt these rights in their respective constitutions.

- The fundamental rights were included in the First Draft Constitution (February 1948), the Second Draft Constitution (17 October 1948) and final Third Draft Constitution (26 November 1949), prepared by the Drafting Committee.

Significance and characteristics

- The fundamental rights were included in the constitution because they were considered essential for the development of the personality of every individual and to preserve human dignity. The writers of the constitution regarded democracy of no avail if civil liberties, like freedom of speech and religion, were not recognised and protected by the State.[6][7] According to them, democracy is, in essence, a government by opinion and therefore, the means of formulating public opinion should be secured to the people of a democratic nation. For this purpose, the constitution guaranteed to all the citizens of India the freedom of speech and expression and various other freedoms in the form of the fundamental rights.[8]

- All people, irrespective of race, religion, caste or gender, have been given the right to petition directly the Supreme Court or the High Courts for the enforcement of their fundamental rights. It is not necessary that the aggrieved party has to be the one to do so. Poverty-stricken people may not have the means to do so and therefore, in the public interest, anyone can commence litigation in the court on their behalf. This is known as "public interest litigation".[9] In some cases, High Court judges have acted suo moto on their own on the basis of newspaper reports.

- These fundamental rights help not only in protection but also the prevention of gross violations of human rights. They emphasise on the fundamental unity of India by guaranteeing to all citizens the access and use of the same facilities, irrespective of background. Some fundamental rights apply for persons of any nationality whereas others are available only to the citizens of India. The right to life and personal liberty is available to all people and so is the right to freedom of religion. On the other hand, freedoms of speech and expression and freedom to reside and settle in any part of the country are reserved for citizens alone, including non-resident Indian citizens.[10] The right to equality in matters of public employment cannot be conferred to overseas citizens of India.[11]

- Fundamental rights primarily protect individuals from any arbitrary state actions, but some rights are enforceable against individuals.[12] For instance, the Constitution abolishes untouchability and also prohibits *begar*. These provisions act as a check both on state action as well as the action of private individuals. However, these rights are not absolute or uncontrolled and are subject to reasonable restrictions as necessary for the protection of general welfare. They can also be selectively curtailed. The Supreme Court has ruled[13] that all provisions of the Constitution, including fundamental rights, can be amended, but that Parliament cannot alter the basic structure of the constitution. Since the fundamental rights can be altered only by a constitutional amendment, their inclusion is a check not only on the executive branch but also on the Parliament and state legislatures.[14]

- A state of national emergency has an adverse effect on these rights. Under such a state, the rights conferred by Article 19 (freedoms of speech, assembly and movement, etc.) remain suspended. Hence, in such a situation, the legislature may make laws that go against the rights given in Article 19. The President may by order suspend the right to move the court for the enforcement of other rights as well.

Right to equality

- The Right to Equality is one of the chief guarantees of the Constitution. It is embodied in Articles 14–16, which collectively encompass the general principles of equality before law and non-discrimination[15] and Articles 17–18 which collectively encompass further the philosophy of social equality.[16]

- **Article 14**[edit]

- *Main article: Article 14 of the Constitution of India*

- *Article 14* guarantees equality before law as well as equal protection of the law to all people within the territory of India. This includes the equal subjection of all persons to the authority of law, as well as equal treatment of persons in similar circumstances.[17] The latter permits the State to classify persons for legitimate purposes, provided there is a reasonable basis for the same, meaning that the classification is required to be non-arbitrary, based on a method of intelligible differentiation among those sought to be classified, as well as have a rational relation to the object sought to be achieved by the classification.[18]

- **Article 15**[edit]

- *Main article: Article 15 of the Constitution of India*

- *Article 15* prohibits discrimination on the grounds of religion, race, caste, sex, place of birth, or any of them. This right can be enforced against the State as well as private individuals, with regard to free access to places of public entertainment or places of public resort maintained partly or wholly out of State funds.[19] However, the State is not precluded from making special provisions for women and children or any socially and educationally backward classes of citizens, including the Scheduled Castes and Scheduled Tribes. This exception has been provided since the classes of people mentioned are considered deprived and in need of special protection.[20]

- **Article 16**[edit]
- *Article 16* guarantees [equality of opportunity](#) in matters of public employment and prevents the State from discriminating against anyone in matters of employment on the grounds only of religion, race, caste, sex, descent, place of birth, place of residence or any of them. It creates exceptions for the implementation of measures of [affirmative action](#) for the benefit of any backward class of citizens in order to ensure adequate representation in public service, as well as reservation of an office of any religious institution for a person professing that particular religion.[21]
- **Article 17**[edit]
- *Article 17* abolishes the practice of [untouchability](#) in any form, making it an offense punishable by law. The Protection of Civil Rights Act, 1955 was enacted by Parliament to further this objective.[16]
- **Article 18**[edit]
- *Article 18* prohibits the State from conferring any titles other than military or academic distinctions, and the citizens of India cannot accept titles from a foreign state. Thus, Indian aristocratic titles and title of nobility conferred by the British have been abolished. However, [Military](#) and [academic](#) distinctions can be conferred on the citizens of India. The awards of *[Bharat Ratna](#)* and *[Padma Vibhushan](#)* cannot be used by the recipient as a title and do not, accordingly, come within the constitutional prohibition".[22][23] The Supreme Court, on 15 December 1995, upheld the validity of such awards.[

Right to freedom

- The Right to Freedom is covered in Article 19 to 22, with the view of guaranteeing individual rights that were considered vital by the framers of the Constitution, and these Articles also include certain restrictions that may be imposed by the State on individual liberty under specified conditions. Article 19 guarantees six freedoms in the nature of civil rights, which are available only to citizens of India.[25][26] These include the freedom of speech and expression, freedom of assembly without arms, freedom of association, freedom of movement throughout the territory of our country, freedom to reside and settle in any part of the country of India and the freedom to practice any profession. All these freedoms are subject to reasonable restrictions that may be imposed on them by the State, listed under Article 19 itself. The grounds for imposing these restrictions vary according to the freedom sought to be restricted and include national security, public order, decency and morality, contempt of court, incitement to offences and defamation. The State is also empowered, in the interests of the general public to nationalize any trade, industry or service to the exclusion of the citizens.[27]

- The freedoms guaranteed by Article 19 are further sought to be protected by Articles 20–22.[28] The scope of these articles, particularly with respect to the doctrine of due process, was heavily debated by the Constituent Assembly. It was argued, especially by Benegal Narsing Rau, that the incorporation of such a clause would hamper social legislation and cause procedural difficulties in maintaining order, and therefore it ought to be excluded from the Constitution altogether.[29] The Constituent Assembly in 1948 eventually omitted the phrase "due process" in favor of "procedure established by law".[30] As a result, Article 21, which prevents the encroachment of life or personal liberty by the State except in accordance with the procedure established by law, was, until 1978, construed narrowly as being restricted to executive action. However, in 1978, the Supreme Court in the case of *Maneka Gandhi v. Union of India* extended the protection of Article 21 to legislative action, holding that any law laying down a procedure must be just, fair and reasonable,[31] and effectively reading due process into Article 21.[32] In the same case, the Supreme Court also ruled that "life" under Article 21 meant more than a mere "animal existence"; it would include the right to live with human dignity and all other aspects which made life "meaningful, complete and worth living".[33] Subsequent judicial interpretation has broadened the scope of Article 21 to include within it a number of rights including those to livelihood, good health,[34] clean environment, water,[35] speedy trial[36] and humanitarian treatment while imprisoned.[37][38] The right to education at elementary level has been made one of the Fundamental Rights under Article 21A by the 86th Constitutional amendment of 2002.[39] Article 20 provides protection from conviction for offences in certain respects, including the rights against ex post facto laws, double jeopardy and freedom from self-incrimination.[40] Article 22 provides specific rights to arrested and detained persons, in particular the rights to be informed of the grounds of arrest, consult a lawyer of one's own choice, be produced before a magistrate within 24 hours of the arrest, and the freedom not to be detained beyond that period without an order of the magistrate.[41] The Constitution also authorizes the State to make laws providing for preventive detention, subject to certain other safeguards present in Article 22.[42] The provisions pertaining to preventive detention were discussed with scepticism and misgivings by the Constituent Assembly, and were reluctantly approved after a few amendments in 1949.[43] Article 22 provides that when a person is detained under any law of preventive detention, the State can detain such person without trial for only three months, and any detention for a longer period must be authorised by an Advisory Board. The person being detained also has the right to be informed about the grounds of detention, and be permitted to make a representation against it, at the earliest opportunity.[44]

Right to information

- Right to information has been given the status of a fundamental right under Article 19(1) of the Constitution in 2005. Article 19 (1) under which every citizen has freedom of speech and expression and the right to know how the government works, what roles it plays, what its functions are, and so on.[45]

Right to freedom of religion

- The Right to Freedom of Religion, covered in Articles 25–28, provides religious freedom to all citizens and ensures a secular state in India. According to the Constitution, there is no official State religion, and the State is required to treat all religions equally, impartially and neutrally.[51]

- Article 25 guarantees all persons the freedom of conscience and the right to preach, practice and propagate any religion of their choice. This right is, however, subject to public order, morality and health, and the power of the State to take measures for social welfare and reform.[52] The right to propagate, however, does not include the right to convert another individual, since it would amount to an infringement of the other's right to freedom of conscience.[53]

- Article 26 guarantees all religious denominations and sects, subject to public order, morality and health, to manage their own affairs in matters of religion, set up institutions of their own for charitable or religious purposes, and own, acquire and manage a property in accordance with law. These provisions do not derogate from the State's power to acquire property belonging to a religious denomination.[54] The State is also empowered to regulate any economic, political or other secular activity associated with religious practice.[51]

- Article 27 guarantees that no one can be compelled to pay taxes for the promotion of any particular religion or religious institution.[55]

- Article 28 prohibits religious instruction in a wholly State-funded educational institution, and educational institutions receiving aid from the State cannot compel any of their members to receive religious instruction or attend religious worship without their (or their guardian's) consent.[

Right to life

- The Constitution guarantees the right to life and personal liberty, which in turn cites specific provisions in which these rights are applied and enforced:

- Protection with respect to a conviction for offences is guaranteed under the right to life and personal liberty. According to Article 20, no one can be awarded punishment which is more than what the law of the land prescribes at the time of commission of the crime. This legal axiom is based on the principle that no criminal law can be made retrospective, that is, for an act to become an offence, the essential condition is that it should have been an offence legally at the time of committing it. Moreover, no person accused of any offence shall be compelled to be a witness against himself. Compulsion in this article refers to what in law is called duress (injury, beating or unlawful imprisonment to make a person do something that he may not want to do). This article is known as a safeguard against self-incrimination. The other principle enshrined in this article is known as the principle of double jeopardy, that is, no person can be convicted twice for the same offence, which has been derived from Anglo-Saxon law. This principle was first established in the Magna Carta.

- Protection of life and personal liberty is also stated under the right to life and personal liberty. Article 21 declares that no citizen can be denied his life and liberty except by due process of law. This means that a person's life and personal liberty can be disputed only if that person has committed a crime. However, the right to life does not include the right to die and hence, suicide or any attempt thereof, is deemed an offence (attempted suicide being interpreted as a crime has seen many debates. The Supreme Court of India gave a landmark ruling in 1994. The court repealed section 309 of the Indian penal code, under which people attempting suicide could face prosecution and prison terms of up to one year).[56] In 1996, another Supreme Court ruling nullified the earlier one.[57] But with the passage of the Mental Healthcare Bill 2017, attempted suicide has been decriminalised.[58] "Personal liberty" includes all the freedoms which are not included in Article 19 (that is, the six freedoms). The right to travel abroad is also covered under "personal liberty" in Article 21.[59]

- In 2002, through the 86th Amendment Act, Article 21A was incorporated. It made the right to primary education part of the right to freedom, stating that the state would provide free and compulsory education to children from six to fourteen years of age.[39] Six years after an amendment was made in the Indian Constitution, the Union Cabinet cleared the Right to Education Bill in 2008.[60]

- Rights of a person arrested under ordinary circumstances is laid down in the right to life and personal liberty. No one can be arrested without being told the grounds for his arrest. If arrested, the person has the right to defend himself through a lawyer of his choice. Also, an arrested citizen has to be brought before the nearest magistrate within 24 hours. The rights of a person arrested under ordinary circumstances are not available to an enemy alien. They are also not available to persons under any law providing for preventive detention. Under preventive detention, the government can imprison a person for a maximum of three months. It means that if the government feels that a person being at liberty can be a threat to the law and order or to the unity and integrity of the nation, it can detain or arrest that person to prevent him/her from doing this possible harm. After three months, such a case is to be brought before an advisory board for review, unless specific legislation(s) by Parliament regarding preventive detention do(es) not necessitate scrutiny by such an advisory board.

Cultural and educational rights

- The Cultural and Educational rights, given in Articles 29 and 30, are measures to protect the rights of cultural, linguistic and religious minorities, by enabling them to conserve their heritage and protecting them against discrimination.[61]

- Article 29 grants any section of citizens having a distinct language, script culture of its own, the right to conserve and develop the same, and thus safeguards the rights of minorities by preventing the State from imposing any external culture on them.[61][62] It also prohibits discrimination against any citizen for admission into any educational institutions maintained or aided by the State, on the grounds only of religion, race, caste, language or any of them. However, this is subject to reservation of a reasonable number of seats by the State for socially and educationally backward classes, as well as reservation of up to, 50 percent of seats in any educational institution run by a minority community for citizens belonging to that community.[63]

- Article 30 confers upon all religious and linguistic minorities the right to set up and administer educational institutions of their choice in order to preserve and develop their own culture, and prohibits the State, while granting aid, from discriminating against any institution on the basis of the fact that it is administered by a religious or cultural minority.[62] The term "minority", while not defined in the Constitution, has been interpreted by the Supreme Court to mean any community which numerically forms less than 50% of the population of the state in which it seeks to avail the right under Article 30. In order to claim the right, it is essential that the educational institution must have been established as well as administered by a religious or linguistic minority. Further, the right under Article 30 can be availed of even if the educational institution established does not confine itself to the teaching of the religion or language of the minority concerned, or a majority of students in that institution do not belong to such minority.[64] This right is subject to the power of the State to impose reasonable regulations regarding educational standards, conditions of service of employees, fee structure, and the utilisation of any aid granted by it.[65]

-

Right to constitutional remedies

- Article 32 provides a guaranteed remedy, in the form of a Fundamental Right itself, for enforcement of all the other Fundamental Rights, and the Supreme Court is designated as the protector of these rights by the Constitution.[66] The Supreme Court has been empowered to issue writs, namely habeas corpus, mandamus, prohibition, certiorari and quo warranto, for the enforcement of the Fundamental Rights, while the High Courts have been empowered under Article 226 – which is not a Fundamental Right in itself – to issue these prerogative writs even in cases not involving the violation of Fundamental Rights.[67] The Supreme Court has the jurisdiction to enforce the Fundamental Rights even against private bodies, and in case of any violation, award compensation as well to the affected individual. Exercise of jurisdiction by the Supreme Court can also be suo motu or on the basis of a public interest litigation. This right cannot be suspended, except under the provisions of Article 226, when a state of emergency is declared.[66]

- The father of the Indian constitution, and polymath, B. R. Ambedkar wanted a specific guarantee of fundamental rights expressly incorporated in the constitution so that it could be easily enforced. He drafted this Article 32.[68] B. R. Ambedkar had said,

- "If I was asked to name any particular article in this Constitution as the most important – an article without which this Constitution would be a nullity – I could not refer to any other article except this one (Article 32). It is the very soul of the Constitution and the very heart of it."[69][68][70][71][72][73]

- During the Constituent Assembly debates in December 1948, Dr. Babasaheb Ambedkar had said that the rights invested with the Supreme Court through this Article could not be taken away unless the Constitution itself is amended and hence it was 'one of the greatest safeguards that can be provided for the safety and security of the individual'.[70][72]

Right to privacy

- The right to privacy is protected as an intrinsic part of the right to life and personal liberty under Article 21 and as a part of the freedoms guaranteed by Part III of the Constitution. It protects the inner sphere of the individual from interference from both State and non-State actors and allows individuals to make autonomous life choices. On 24 August 2017, the Supreme Court of India[74][75][76][77] in its Right to Privacy verdict ruled that:

- "Right to Privacy is an integral part of Right to Life and Personal Liberty guaranteed in Article 21 of the Constitution,"

Critical analysis

- The fundamental rights have been revised for many reasons. Political and other groups have demanded that the right to work, the right to economic assistance in case of unemployment, old age, and similar rights be enshrined as constitutional guarantees to address issues of poverty and economic insecurity,[78] though these provisions have been enshrined in the directive principles of state policy.[79] The right to freedom and personal liberty has a number of limiting clauses, and thus has been criticised for failing to check the sanctioning of powers often deemed "excessive".[78] There is also the provision of preventive detention and suspension of fundamental rights in times of emergency. The provisions of acts like the Maintenance of Internal Security Act (MISA), Armed Forces (Special Powers) Act (AFSPA) and the National Security Act (NSA) are a means of countering these fundamental rights, because they sanction excessive powers with the aim of fighting internal and cross-border terrorism and political violence, without safeguards for civil rights.[78] The phrases "security of State", "public order" and "morality" are of wide implication. The meaning of phrases like "reasonable restrictions" and "the interest of public order" have not been explicitly stated in the Constitution, and this ambiguity leads to unnecessary litigation.[78] The freedom to assemble peaceably and without arms is exercised, but in some cases, these meetings are broken up by the police through the use of non-fatal methods.[80][81]

- Freedom of press has not been included in the right to freedom, which is necessary for formulating public opinion and to make freedom of expression more legitimate.[78] Employment of child labour in hazardous job environments has been reduced, but their employment even in non-hazardous jobs, including their prevalent employment as domestic help violates the spirit and ideals of the Constitution. More than 16.5 million children are employed and working in India.[82] India was ranked 88 out of 159 in 2005, according to the degree to which corruption is perceived to exist among public officials and politicians worldwide. In 2014, India had improved marginally to a rank of 85.[83][84] The right to equality in matters regarding public employment is not conferred upon overseas citizens of India, according to the Citizenship (Amendment) Bill, 2003.[11]

- As per Article 19 of Part III of the Constitution, the fundamental rights of people such as freedom of speech and expression, gathering peaceably without arms and forming associations or unions shall not effect the interests of the sovereignty[85] unity and integrity of India. The words sovereignty and integrity are the qualities to be cultivated/emulated by Indian people as urged by the Constitution but not used related to the territory of India. Article 1 of Part 1 of the Indian constitution, defines India (Bharat) as a Union of states. In a nutshell, India "is its people, not its land", as enshrined in the Constitution.

- Since speedy trial is not a Constitutional right of citizens, the cases involving violations of fundamental rights take an inordinate amount of time for resolution by the Supreme Court which is against the legal maxim 'justice delayed is justice denied'

Amendments

- Changes to the fundamental rights require a constitutional amendment, which has to be passed by a special majority of both houses of Parliament. This means that an amendment requires the approval of two-thirds of the members present and voting. However, the number of members voting in support of the amendment shall not be less than the absolute majority of the total members of a house – whether the Lok Sabha or Rajya Sabha.

Fundamental rights not sacrosanct

- While deciding the Golaknath case in February 1967, the Supreme Court ruled that Parliament had no power to curtail the fundamental rights. They were made permanent and sacrosanct, reversing the Supreme Court's earlier decision which had upheld Parliament's power to amend all parts of the Constitution, including Part III related to fundamental rights. Up until the 24th constitutional amendment in 1971, the fundamental rights given to the people were permanent and could not be repealed or diluted by Parliament. The 24th constitutional amendment introduced a new article – Article 13(4) – enabling Parliament to legislate on the subjects of Part III of the constitution using its constituent powers per Article 368 (1). In 1973, a 13 member constitutional bench of the Supreme Court also upheld with majority the validity of the 24th constitutional amendment. However, it ruled that the basic structure of the constitution, which is built on the basic foundation representing the dignity and freedom of the individual, could not be altered, and that it was "of supreme importance" and could not be destroyed by means of amendment(s) to the Constitution.[87] Many constitutional amendments to Part III of the Constitution were made deleting, adding or diluting the fundamental rights before the judgement of Golaknath case (Constitutional amendments 1, 4, 7, and 16) and after the validity of 24th constitutional amendment was upheld by the Supreme Court (Constitutional amendments 25, 42, 44, 50, 77, 81, 85, 86, 93, and 97).

- **Validity of Article 31B**[edit]

- Articles 31A and Article 31B are added by the first constitutional amendment in 1951. Article 31B says that any acts and regulations included in the Ninth Schedule of the constitution by the Parliament can override the fundamental rights and such laws cannot be repealed or made void by the judiciary on the grounds of violating fundamental rights. Thus fundamental rights given in Part III are not equally applicable in each state /region and can be made different by making additions/deletions to Ninth Schedule by constitutional amendments. In 2007, the Supreme Court ruled that there could not be any blanket immunity from judicial review for the laws inserted in the Ninth Schedule. Apex court also stated it shall examine laws included in the Ninth Schedule after 1973 for any incompatibility with the basic structure doctrine.[88]

- **Amendment to Article 31C**[edit]

- Section 4 of the 42nd Amendment, had changed Article 31C of the Constitution to accord precedence to the Directive Principles (earlier applicable only to clauses b & c of Article 39) over the fundamental rights of individuals. In Minerva Mills v. Union of India case, the Supreme Court ruled that the amendment to Article 31C was not valid and ultra vires.

- Right to property[edit]

- The Constitution originally provided for the right to property under Articles 19 and 31. Article 19 guaranteed to all citizens the right to acquire, hold and dispose of property. Article 31 provided that "no person shall be deprived of his property save by authority of law." It also provided that compensation would be paid to a person whose property has been taken for public purposes.

- The provisions relating to the right to property were changed a number of times. The 44th Amendment of 1978 removed the right to property from the list of fundamental rights.[89] A new provision, Article 300-A, was added to the constitution, which provided that "no person shall be deprived of his property save by authority of law". Thus, if a legislator made a law depriving a person of his property, there would be no obligation on the part of the State to pay anything as compensation. Furthermore, the aggrieved person would also have no right to move the court under Article 32 due to the right to property no longer being a fundamental right, though it would still be a constitutional one. If the government appeared to have acted unfairly, the action could have been challenged in a court of law by aggrieved citizens before the amendment.[78]

- The liberalisation of the economy and the government's initiative to set up special economic zones has led to many protests by farmers and have led to calls for the reinstatement of the fundamental right to private property.[90] The Supreme Court had sent a notice to the government questioning why the right should not be brought back, but in 2010, the Court rejected the PIL.[91]

- Right to education[edit]
- The right to education at elementary level has been made one of the fundamental rights in 2002 under the 86th Amendment of 2002.[39] However this right was brought in to implementation after eight years in 2010. On 2 April 2010, India joined a group of few countries in the world, with a historic law making education a fundamental right of every child coming into force.[92]
- The Right of Children to Free and Compulsory Education Act is said to be of direct benefit to children who do not go to school. This Act provides for the appointment of teachers with the requisite entry and academic qualifications.
- Former Prime Minister Manmohan Singh announced the implementation of the Act. Children, who had either dropped out of schools or never been to any educational institution, would get elementary education as it would be binding on the part of the local and state governments to ensure that all children in the 6–14 age group get schooling. As per the Act, private educational institutions should reserve 25 percent seats for children from the weaker sections of society. The Union and the state governments had agreed to share the financial burden in the ratio of 55:45, while the Finance Commission gave Rs. 250 billion to the states for implementing the Act. The Union government approved an outlay of Rs. 150 billion for 2010–2011.
- The school management committee or the local authority would identify the drop-outs or out-of-school children aged above six and admit them in classes appropriate to their age after giving special training.

Reference

- www.Wikipedia.com

Vidyalankar School of Information Technology

PROBLEMS FACED BY PHYSICALLY OR MENTALLY CHALLENGED PEOPLE

BACHELOR OF BANKING AND INSURANCE

Samruddhi Nimbalkar
21303A0006

Under the guidance of
Reshma Suryavanshi Ajetrav

Date of Submission: 11 December 2021

INTRODUCTION

▶ Background :

    I have got the topic," Problems Faced By Physically or Mentally Challenged People" for my Foundation Course Subject of FYBBI. Earlier I had got the topic," Paternity Leave" but later I went on to request our respected Reshma Ma'am to allowing for changing the topic. Because I feel connected with this topic from bottom of my heart and these people who are physically or mentally challenged. I have seen and experienced their grievances throughout my life and it would be a honour for me to represent them and their struggle, in the form of this project.

- Procedure :

   I feel very much proud while working on this project. I personally know a lot of people who are physically or mentally challenged and I have grown up with them and this always made me understand the difficulties faced by them at different point and different stages of life. So this always created a place of affinity in my heart for them.

   I am grateful this project gave me chance to spend time with their families also. And I learnt, what I was always knowing was just upper part of an iceberg. A whole different universe was bought in front of me, when I spent time with their families. The universe of trauma or disgrace, which is caused by the society to the families of physically and mentally challenged people.

   I am fortunate that I could know their innumerable problems and obstacles, I depth. Their inability to live a normal life just because of a mere incompleteness. Their million ability, their unique talents are

absolutely evaluated and their life is made hell. I want to sincerely thank my seniors for allotting me this project and giving me opportunity to bring problems faced by physically or mentally challenged people in light.

OBJECTIVES

- While working on this project, I met many people who told me their perspectives about lives of physically or mentally challenged people.

- I went on to meet families of these people, who told me their experiences of day to day life while surviving with these people and their perception sometimes was they are making them survive.

- While some families think handicap people are a baggage and dependent, some think of making them independent in some or the other ways.

A friend of mine Chirag Sharma has a younger brother who is mentally challenged, he suffers from Edward Syndrome (affected by delayed development and intellectual disabilities) and their family is constantly traumatized by the society regarding his brother. But 22 years old Chirag has came up with innovative ideas by establishing a small institution to help people like his brother.

So, instead of hammering mentally and physically challenged people for no reason we should take positive steps like Chirag or at least contribute something by our side, in the work initiated by such people.

One of my distant relative's daughter Divya is blind and she is their 14 years old, oldest daughter and they have three sons. She is reportedly harrassed by her family for the fact of being a female child moreover blind.

- But Divya is blessed with devine voice but her family is just least bothered about her talent. If her own people are treating her this way, what can be expected by the society.

  I was gone to my grandmother's neighbors, whose son is on wheelchair. He was going through physical harassment two years down the line when he was 15 and in school, a peon regularly used to abuse him and he did not ever opened up to his family, because he had been always scared about how they will react, they will blame him only for his personal condition. He told this to me during our interaction and broke down as he vented it out for the first time.

  I hope with this project I would end up creating at least a little awareness about safety, self esteem, independence, and the survival of physically and mentally challenged people.

PROCEDURE

- Initially, for basic collection of information, I went on to meet the people I know, my family members and our family friends and some of my close friends. And I gathered what they think about physically or mentally challenged people and what are the problems faced by these people according to them.

- Sometimes I got a very positive response, when some people told me that they personally want to do something for these people.

- But also sometimes I got negetive response, when I found some people consider them baggage and their attitude towards the physically and mentally challenged people was like they and their families are a blemish on the society.

- One of my father's friends narrated an incidence during my survey, of a girl lived in his Chawl in his childhood. She was mentally ill and she used to scream at night, her family believed she was possessed and they used to hit her, tied her hands and feets and gagged her. And feed her anything in the name of god and what not but actually everything she needed was just a psychiatrist.

    But this is the mindset of our society they accept criminals who are back on bails but visiting a psychiatrist is a stigma and this mentality is still not changed much.

    I did visited some mentally and physically challenged people too, whom I had been knowing. Some are unfortunate by birth while some had to suffer through some kind of accidents but all I came to know after holding discussions with them was they don't need us to protect them, they only need a little bit support to stand on their feet.

- Their families love them and don't need pity of the Society on their situation but they do expect Society to cooperate with them. While talking with them, they mentioned small things that can make huge difference for example making some traffic rules in favor of physically handicapped people or facilities of lift is not available everywhere still at places like Government Offices which causes them great trouble or counseling and seminars should be arranged at rural places for mentally challenged people.

  While this process I also learned that how blessed we are to be born as a normal child so that we can live a normal life by the Grace of God. Otherwise what is the difference between us and these people, all are human beings only. I found new aspects of life, and I am thankful of the almighty and nature for this life. This project somewhere made me a better person than what I was.

- After the completion of this project me and some people whom I met while working on it and who were willing to do something for these people came together and arranged a drama based on their life and collected money and donated it to the trusts working for them and we performed the same drama in the trust also in front of the physically and mentally challenged people.

RECOMMENDATIONS

► I went to meet people I know and conducted survey and hold discussions with physically and mentally challenged people I know and their families.

► Firstly I had a very ground level discussion about the problems faced by mentally and physically challenged people with my family and friends and then I stepped out of home to collect data and gather information from those who are actually going through it.

► I also found out people and youth is coming forward to help such people and in order to create awareness among society about them.

► I was even willing to visit the instructions and trusts working for the physically and mentally challenged people and visit their schools and attend some counseling or seminars but that could not happen due to Covid.

CONCLUSION

► We collected money and donated it to the trusts, we raised fund for their treatments.

► We also raised the topic to support and motivate their talents and their unique abilities at the trusts.

► I believe the people I visited while my survey will further contribute by themselves to create some awareness in the society.

► And from this moment onwards, I will do whatever I can and whenever needed and possible by my side for them always and try my best to reduce the "Problems Faced by Physically or Mentally Challenged People"even by a percent.

TITLE   : ISSUE OF CHILD LABOUR

NAME   : NILESH JETLA

ROLL NO   :   21303A0007

COURSE & DIVISION   :   FYBBI & 'A'
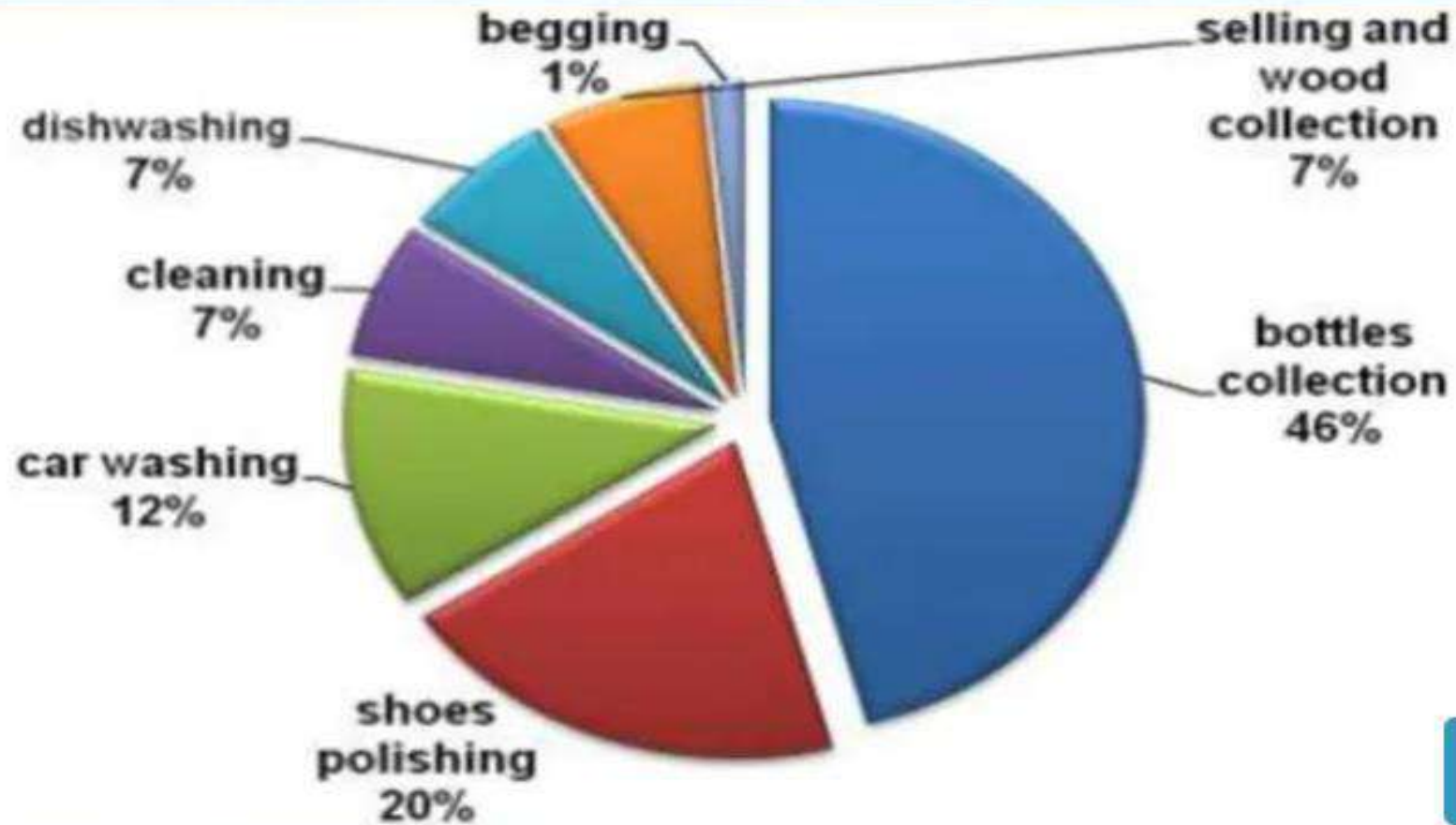
NAME OF TEACHER :   RESHMA MA'AM

CHILD LABOUR IN INDIA

Some Sweet Ones

Some Bitter Ones

Introduction

Children are the greatest gift to humanity and Childhood is an important and impressionable stage of human development as it holds the potential to the future development of any society. Children who are brought up in an environment, which is conducive to their intellectual, physical and social health, grow up to be responsible and productive members of society. Every nation links its future with the present status of its children. By performing work when they are too young for the task, children unduly reduce their present welfare or their future income earning capabilities, either by shrinking their future external choice sets or by reducing their own future individual productive capabilities. Under extreme economic distress, children are forced to forego educational opportunities and take up jobs which are mostly exploitative as they are usually underpaid and engaged in hazardous conditions. Parents decide to send their child for engaging in a job as a desperate measure due to poor economic conditions. It is therefore no wonder that the poor households predominantly send their children to work in early ages of their life. One of the disconcerting aspects of child labour is that children are sent to work at the expense of education. There is a strong effect of child labour on school attendance rates and the length of a child's work day is negatively associated with his or her capacity to attend school. Child labour restricts the right of children to access and benefit from education and denies the fundamental opportunity to attend school. Child labour, thus, prejudices children's education and adversely affects their health and safety. India has all along followed a proactive policy in addressing the problem of child labour and has always stood for constitutional, statutory and developmental measures that are required to eliminate child labour. The Constitution of India has relevant provisions to secure compulsory universal primary education. Labour Commissions and Committees have gone into the problems of child labour and made extensive recommendations. India's judiciary, right up to the 2 apex level, has demonstrated profoundly empathetic responses against the practice of child labour. Despite several proactive legislations, policies and judicial prounecements, the problem of child labour persists as a challenge to the country.

• Magnitude of Child Labour in India

○ The magnitude of child labour in India has been witnessing enormous decline in the last two decades, both in terms of magnitude and workforce participation rates. Evidence drawn from the National Sample Survey data suggest that India's child workforce during 2004-05 was estimated at little over nine million (9.07 million) as against twenty-one and half million (21.55 million) in 1983. During this period, the number of child employment has declined sharply by 12.48 million. There is considerable fall in child workforce is observed among boys than girls. The corresponding fall in boys and girls workforce during 1983 to 2004-05 is observed to have decreased from 12.06 to 4.76 million, and 9.49 to 4.31 million, respectively. In effect, the gender difference that existed between boys and girls (adverse against boys) during the early 1980s has almost dissipated in recent years, the difference being slowed down from 2.57 million to roughly 0.45 million. However, in absolute numbers, the problem is large. As per the Census 2001, there are 1.26 crores economically active children in the age-group of 5-14 years. It was 1.13 crores in the 1991 Census. The number of working children in the major child labour endemic states as per the 1991 and 2001 Census is given below:-

Sl.no	Name of state/ut	Census 1991	Census 2001
1	Uttar Pradesh	1410086	1927997
2	Andhra Pradesh	1661940	1363339
3	Rajasthan	771499	1262570
4	Bihar	942245	1117500
5	Madhya Pradesh	1352563	1065259
6	West Bengal	711691	857087
7	Karnataka	976247	822615
8	Maharashtra	1068418	764075
9	Gujarat	523585	485530
10	Tamil nadu	578889	418801
	All india total	1.13 cores	1.26 cores

Among the states, Uttar Pradesh accounts for a larger share of close to onefourth of all child labour in India followed by Andhra Pradesh. While Maharastra and West Bengal respectively garnered nine and eight percent of India's child employment. The share of Uttar Pradesh has dramatically shot up in the last one decade from less than 13 per cent in the mid-1990s to close to 23 per cent in 2004-05, which is a cause for serious concern. On the other hand, the share of Andhra Pradesh seems to have declined quite considerably during this period.

Causes

primary causes

cultural cause

Macroeconomic causes

Primary causes

International Labour Organization suggest proverty is the greatest single cause behind child labour for impoverished house, income from a child's works is usually crucial for his or her own survival or for that of the household. Income from working children, even if small, may be between 25 to 40% of these household income others scholar such as harsch on Africa child labour, and Edmonds and pavcnik on global child labour have reached the same conclusion.

Cultural causes

In European history when child labour as common, as well as in contemporary child labour of modern world, certain cultural beliefs as rationalized child labour and thereby encouraged it. Some view that work is good for the character-building and skill development of children.in many cultures, particular where informal economy and small household businesses thrive, the cultural tradition is that children follow in there parent's footsteps; child labour then is a means to learn and practice that trade from a very early age. Similarly, in many cultures the education of girls is less valued or girls are simply not expected to need formal schooling, and these girls pushed into child labour such as providing domestic services.

Macroeconomic causes

Biggeri and Mehrotra have studied the macroeconomic factors that encourage child labour. They focus their study on five Asian nation including india, Pakistan, Indonesia, thailand and Philippines. They suggest that child labour is a serious problem in all five, but it is not a new problem, macroeconomic causes encouraged widespread child labour across the world, over most of human history . They suggest that the causes for child labour include both the demand and the supply side, the suggest that the growth of low paying informal economy rather than higher paying formal economy is amongst the causes of the demand side. Other scholars too suggest that inflexible labour market, size of informal economy, inhability of industries to scale up and lack of modern manufacuturing technology are major macroeconomic factors affecting demand and acceptability of child labour.

This is how child labour affects the nation:
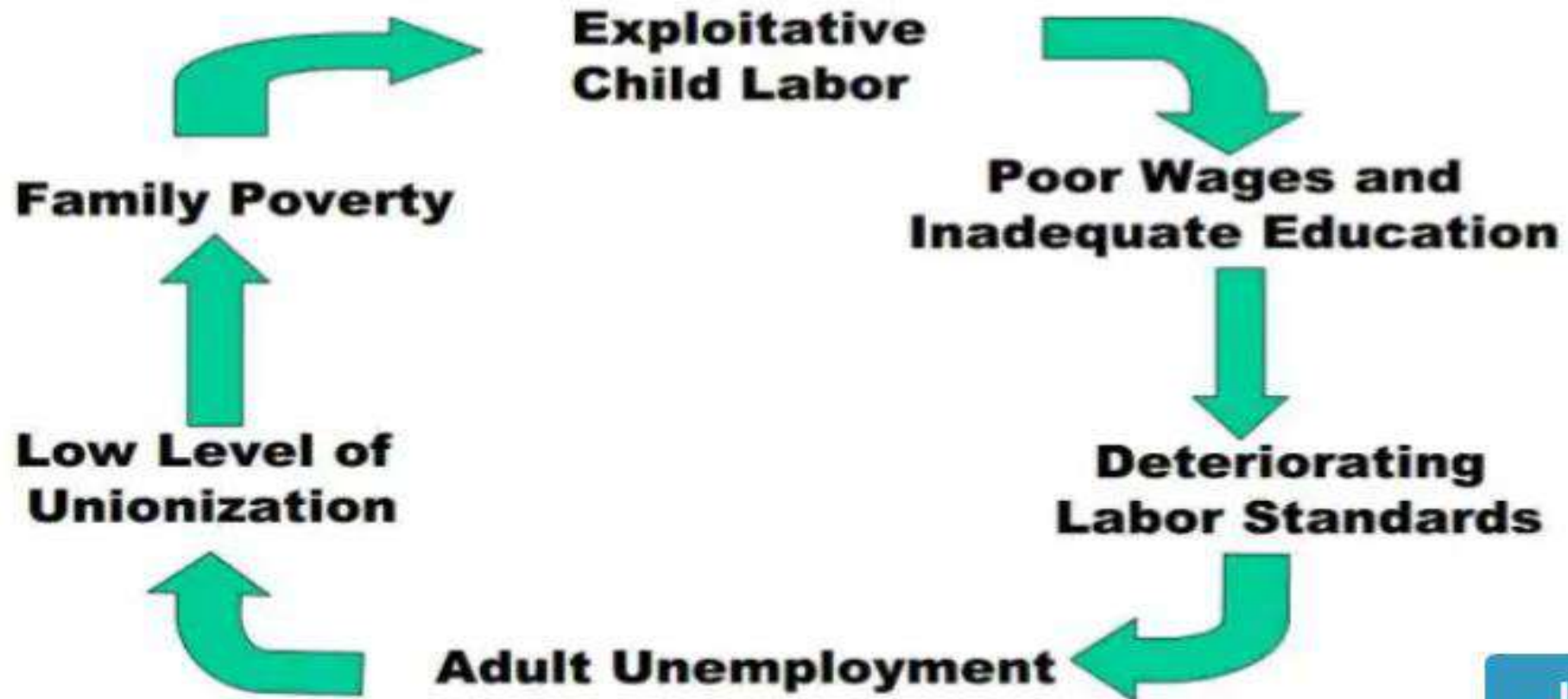
Consequences of child labour

◦ The presence of a large number of child laborers is regarded a a serious issue in terms of economic welfare. Children who work fail to get necessary education. They do not get the opportunity to develop physically, intellectually, emotionally and psychologically. In terms of the physical condition of children, children are not ready for long monotous work because they become exhausted more quickly than adults. This reduces their physical conditions and makes the children more vulnerable to disease. Children in hazardous working condition are even in worse condition. Children who work, instead of going to school, will remain illiterate which limits their ability to contribute to their own being as well as to community they live in. child labour has long term adverse effects for india.
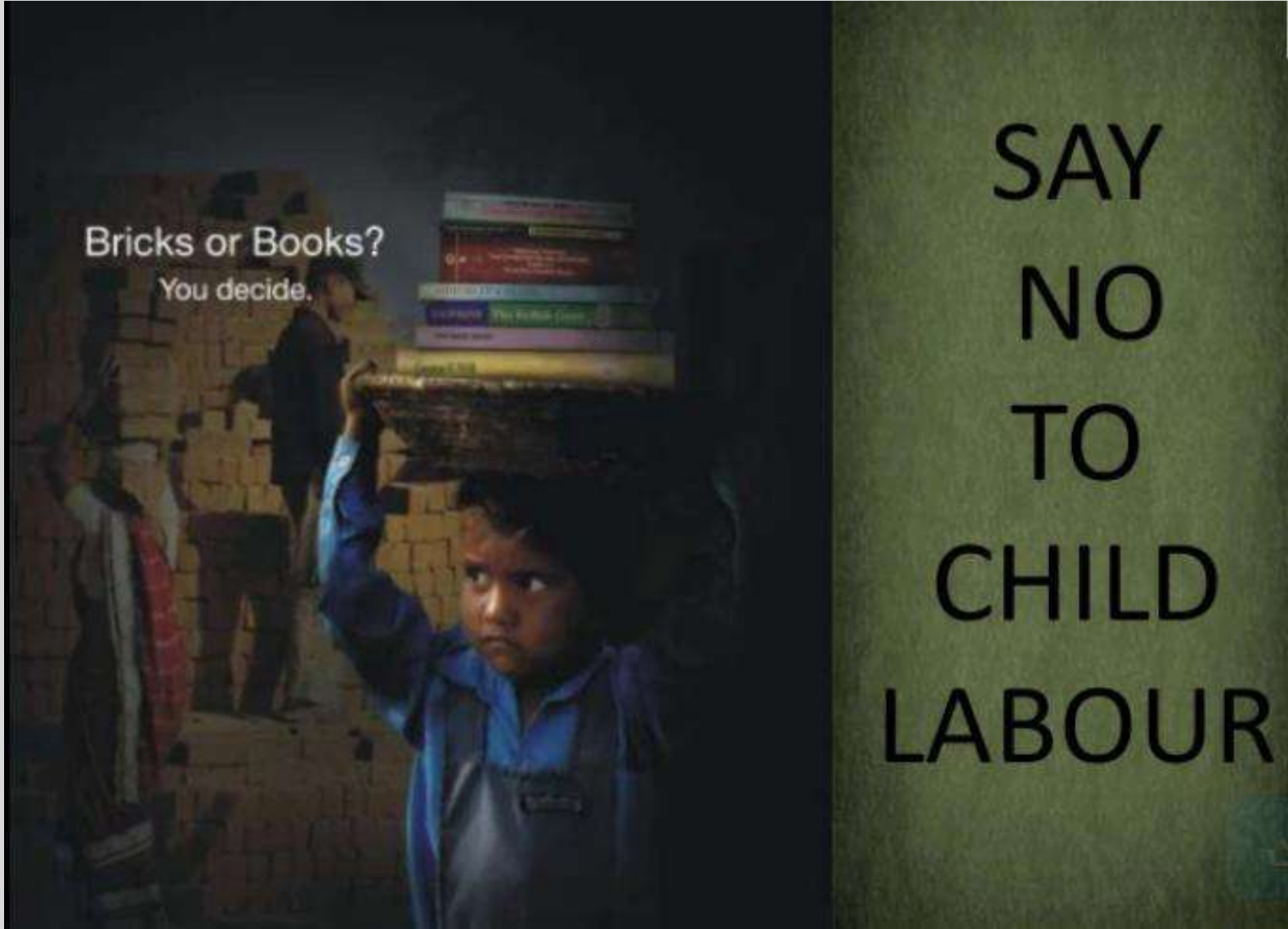
Some facts about child labour

❖ According to the india census of 1991, there are 11.28 million working children under the age if fourteen years in india.

❖ Over 85% of this child labour is in the country's rural areas, working in agricultural activities as farming livestock, rearing, forestry and fisheries

❖ The world's highest number of working children is in india. The estimates that 218 million children were involved in child labor in 2004, of which 126 million were engaged in hazardous work

❖ The hindi belt, including bihar, Madhya Pradesh, rajasthan and uttar Pradesh, account for 1.27 crore working children in the country, engaged in both hazardous and non-hazardous occupations and processes

❖ Over 19 lakh children labourers in the 5-14 age group are in uttar Pradesh. Rajasthan accounts for over 1.26 lakh workers followed by bihar with over 11 lakh and Madhya Pradesh with 10.6 lakh

❖ However, according to the 2001 census, Andhra Pradesh with 13.6 lakh child labour stands second in the national lust after UP.

conclusion

◦ The problem of child labour continues to pose a challenge before the nation. Government has been taking various pro-active measures to tackle this problem. However, considering the magnitude and extent this problem and that it is essentially a socio-economic problem inextricably linked to proverty and illiteracy, it requires concerted efforts from all society to make a dent in the problem

◦ The social evil of child labor can be brought under control, if each individual takes responsibility of prevailing child labour. Each and eery citizen should be aware of their responsibilities and should take corrective measures to stop child labour, so that we can have a better and developed inida. Child labour can be controlled if the government functions effectively with the support of the public

Thank You!

Vidyalankar School of Information Technology

URBAN RURAL DISPARITY

BACHELOR IN BANKING AND INSURANCE

BY

YASH KAMBLE-21303A0008

Under the guidance of

Mrs. Reshma Suryavanshi

Date of Submission: 10/12/2021

Urban and Rural Disparities in India

Indian society has been broadly divided into urban, rural and tribal societies on the basis of their geographical surroundings and socio-cultural characteristics. There have been differences in the urban and the rural areas within the country with regards to the educational institutions, employment opportunities, housing, lifestyle of the people and so forth. Contemporary urbanization in India is marked by what is termed as an urban and rural divide; this aspect began to be initiated some two centuries ago. By the end of the nineteenth century, urban centers primarily became the centers of rural exploitation both in the case of natural and human resources. This pattern not only continued during the 20th century but also was made stronger; so that the positive interdependence existed amongst the rural and urban settlements. The urban areas were over populated with migration of more people in search for better education and employment opportunities and rural areas were remote and less influenced by advancements and developments as compared to urban areas. The main focus of this research paper is to identify the disparities in urban and rural areas; the main areas that have been underscored in the paper are rural and urban disparities, rural and urban transformations, urban and rural income differences, changing land utilization and influence upon rural life and urbanization and expansion of large cities. Therefore, it can be stated that there are differences between both the areas with respect to various developments and transformations; with constructions, industrialization and occurrences of natural calamities and disasters, there have been depletion of forests and natural resources and thus emergences of disparities between urban and rural areas. Keywords: Urban, Rural, Disparities, Transformations, Growth, Development

Introduction

The transformation of an economy from agricultural and primarily rural to industrial and largely urban is a sign of economic development; the urbanization is occurring at a more rapid rate as compared to the rest of the world. Increase in urbanization has led to the urban and rural divide within the country. This area is often therefore, is discussed as how the country's two economies, the rural which is referred as Bharat and the urban which is referred as India are progressively growing different from each other. The subject has the main objective to discuss some issues regarding the rural- urban disparities, the growth of megacities and other related concerns (urban rural conditions, n.d.).

Indian society has been generally divided into urban, rural and tribal societies on the basis of their geographical surroundings and socio-cultural characteristics. The urban areas comprise of cities and towns. The urban area is a spatial concentration of people who are working and are employed in non-agricultural activities i.e. urban society is based on non- agricultural occupations such as the industries and the service sector. Urban areas are prepared with all the modern amenities and services; the modern day facilities are broadly accessible in the urban areas. A majority of the households in urban areas are acquainted with the technological development. People in urban areas lead an efficiently more established, secure and a comfortable life due to availability of varying and advanced career opportunities. Criterion used to define urban areas can include population size, space, density, services, facilities and economic organizations (urban rural conditions, n.d.).

A society or a community can be classified as rural on the basis of the criterion of lower population density, less social differentiation, less social and spatial mobility, time-consuming rate of social transformation etc. Rural is an area where the people are engaged in primary industry or sector namely termed as agriculture. Rural areas normally possess an agricultural character; though many rural areas are differentiated by an economy based on mining, oil and gas exploration, tourism etc. These are sparsely populated places away from the control of large cities and towns. Lifestyle in rural areas is different as compared to the urban areas mainly because limited resources are accessible such as public transport, electricity or higher educational institutions, health and medical facilities etc (urban rural conditions, n.d.).

Rural and Urban Disparities

The following areas have been identified that illustrate the disparities between the urban and the rural areas: (Das & Pathak, 2012).

Education – In the urban areas there have been establishment of more advanced and reputed educational institutions for elementary as well as for higher education; whereas in rural areas, the educational institutions have not been very advanced and there are differences in the educational levels of the individuals, more people are educated and qualified in urban areas, whereas in rural areas the rates of illiteracy are higher as compared to urban areas.

Health and Medical – Health and medical facilities are more developed and advanced in urban areas; there have been establishment of hospitals, health and medical centers and number of programs for childhood care. On the other hand, in rural areas, there have been establishment of health and medical facilities, which make provision of healthcare facilities to the rural masses, but in the present world, they prefer to travel to urban areas and seek medical assistance and health care facilities in the city hospitals.

Employment Opportunities – Agriculture is stated to be the main occupation of the people in rural areas, they are engaged in agricultural sector; 60% of the workforce in India is employed in the agricultural sector. Other employment opportunities in rural areas have been setting up of minor tea stalls or other grocery shops, small businesses and people are even employment in small scale industries in order to earn their living. In urban areas, there have been many employment opportunities for people, in urban areas there have been establishment of educational institutions, medical and health centers, offices, industries, organizations, service sector, where people are able to find jobs and employment opportunities.

Housing – In rural areas, people normally reside in huts and thatched roofs, their houses are mostly simple, but there have been provision of housing facilities so that they are able to dwell in a manageable way even in situations like heavy rains, floods or draught. Holistic approach has been adopted in rural areas by integrating into nutrition, sanitation, hygiene and safe drinking water. On the other hand, in urban areas, the houses of the people are constructed with proper technological materials and equipment, advanced construction materials are made use of in order to construct houses.

Lifestyles – In rural areas, people lead a simple lifestyle, they are mostly engaged in their jobs, whether it is the agricultural sector, or industries or ones own business; they are also involved in the rearing of livestock and cattle and normally do not have provision of electricity in their houses and prepare their meals on stoves. In urban areas, the lifestyles of people have much improved, employment opportunities have expanded in urban areas, goods and products of all kinds are being imported and technology has changed the lifestyle of the people in not only urban areas but rural areas also, especially digital technology.

Rural and Urban Transformations

The process of developments and transformations tends to produce large scale structural changes of economies as they shift from being mainly agrarian towards more industrial and service oriented actions. A related aspect of this transformation is how the personnel in such developing economies regulates to the changing macro- economic structure in terms of their labor market selections such as dealings in skillfulness, choices of professions, positions and industry of employment. Indeed, some of the more extensively cited inputs to growth economics have tended to center precisely upon these aspects. The well known Harris-Todaro model of Harris and Todaro (1970) was centered upon the procedure through which rural labor would transfer to urban areas in reaction to the differences in wages while the regularly revered Lewis model celebrated in Lewis (1954) concentrated on the issue of shifting motivations for employment between rural agriculture and urban industry (Hnatkovska & Lahiri, 2013).

The main focus of this area is upon making an attempt to discover the relationship between development and inequality between the urban and the rural areas. This concept is related to the subject of rural-urban dynamics during improvement since the process of structural transformation implies agreement and expanding sectors which, in turn, implies that the personnel and the employees have to be transferred and probably be retrained. The capability of the organizations in these developing economies to deal with these conditions, requires an essential factor that concludes how effortless or unsettling this procedure will be; evidently, the greater the interruption, the more the possibilities of income redistributions through unemployment and wage losses due to mismatched proficiencies. The main questions that are required to get answered are how has the workforce in rural and urban India reacted to these transformative aggregate sectoral patterns? and have these transformations been associated with by broadening of rural-urban disparities or have the disparities between them been lessening over the period of time? (Hnatkovska & Lahiri, 2013).

Urban and Rural Income Differences

Income inequality that has been prevalent between urban and rural areas is an important characteristic of the development of an economy. Very often individuals refer to it for revealing upon the differentiations in the standard and normal living between the two areas. Preferably for this principle one requires the approximations of the personal income in both the areas, which are basically not available in the country given the regional accounting framework and predicaments connected with cross border streams of goods and services. It is, therefore, extremely accepted to utilize consumption expenditures by households as an alternative for the personal income to reveal upon the differentiations in the lifestyle of the individuals. It apparently does not take into account the differences in the saving behavior of population in the two areas. Income generated within the geographical boundaries given by

the concept of domestic produce can serve as a substitute; particularly because it takes into account the physical developments, employment level and productive potential of the area. In this context, it becomes particularly pertinent to produce approximations of urban and rural domestic products within an economy (Dholakia, Pandya & Pateriya, 2014).

The Central Statistical Organization (CSO) then begins to produce these estimates for the country as a whole in different base years for the national income series. Thus, it has practiced and distributed estimates of the urban and rural domestic products for the years 1970-71, 1980-81, 1993-94, 1999-00, and 2004-05. Since the proposed new base year for the national income series is 2011-12, one can anticipate the next estimate of urban and rural domestic product for that year brought out around 2015-16. It is, however, unexpected that a similar attempt is not made at the state level in spite of the Committee on Regional Account clearly recommending it in its final report which was in the year 1976 (Dholakia, Pandya & Pateriya, 2014).

OBJECTIVES/AIM

There has been vast size and population of Indian states along with the differences in terms of culture, languages and social norms and these factors tend to limit the mobility of the labor across the states (Cali, 2007). Land utilization transformations effect from the population expansion and migration of poor rural people to urban areas in search for work and economic opportunities; transformations in land use straightforwardly has an effect upon the regional air quality, energy consumption, environmental conditions and climate at global, regional and local scales. Land utilization change although necessary for economic development does not come about without any cost. Any transformation in land use decreases the amount of land available for cultivation and agricultural production. Soil erosion, desertification and soil degradation reduces the quality of land resource (urban rural conditions, n.d.).

Urbanization, industrialization, mining and quarrying activities, major irrigation projects and agricultural activities have taken their toll of India's cultivable lands and forests. Lands and forests are the main sources of livelihood of rural people; they are continuously warned over their land rights, especially in the urban peripheries. In the present existence, this warning has become more apprehensive as the cities are growing at a fast pace than ever in India. The cities have begun to clear over the rural areas. Wealthy people in urban areas have been looking for plots for their recreational activities and second homes all along the highways in different parts of India; this also led to changes in the services in rural areas. For example the employment in secondary and tertiary industry is on the increase in many parts of Maharashtra, particularly in Konkan area. Industrialization near the rural areas is contaminating the water resources posing a threat to the cultivable land as well as drinking water in many rural parts of India. There have been many developments and advancements that are taking place in the environment and the lives of the tribal as well as the rural people are getting affected; these developments normally take place close to tribal habitats, forcing the tribals to move out, though there is no formal transmission and possession of land (urban rural conditions, n.d.).

Urbanization and Expansion of Large Cities

Urbanization is regarded as one of the most prominent human induced land transformations of the present existence. Urbanization is correlated with augmented land utilization for non-agricultural purposes. It is a very up to date phenomenon and directly related with industrial revolution and is associated with economic development. Urbanization is a form of social transformation from traditional rural societies to modern urban communities. It is a progressive concentration of population in urban unit. These transformations marked themselves in the increasing concentration of population in urban settlements greater than the villages, in the increasing participation of the people in the secondary and tertiary production sectors and occupations. Urbanization not only associates with industrialization, but also is connected with modernization. Urbanization is an increase in a population in cities and towns versus rural areas. Urbanization can be defined as the speedy and substantial growth of and migration to large cities. Urbanization is the process by which large number of people becomes permanently settled in relatively small areas, leading to formation of cities. Natural increase of urbanization takes place when natural population growth in cities is larger than in the rural areas (urban rural conditions, n.d.).

The level of urbanization is an indicator of change from traditional to modern existence. It is an instituted generalization that an increase in urbanization which enhances the secondary sector and decreases the reliance on primary sector is considered as a representation of economic growth and development. Economic growth influences the urbanization and urbanization in turn affects the rate of economic growth (urban rural conditions, n.d.). From the middle of 1980s, the Indian Government gradually adopted market oriented reform policies and these policies were associated with the expansionist fiscal strategy that involved additional fiscal allocations to the rural areas and thus balanced the redistributive effects of early liberalization (Pal & Ghosh, 2007).

Discussion

For the development of the country, it is essential that every individual should be educated; every individual should have a source of income; there should be improvement in the agricultural as well as the industrial sectors in urban and rural areas so that people are able to generate more and more employment opportunities. There have been disparities in urban and rural areas; education plays an important role in the institution of proper foundation for the overall enhancement of the individuals, in rural areas, 78.6% of the males are educated and females are 58.8%, on the other hand, in urban areas, the males that are educated account for 89.7% and females are 79.9%; therefore, it can be stated that more individuals are educated in urban areas as compared to rural areas. Another area that identifies disparities is health, around 80% of the hospitals are located in urban areas, even though it contains 31% of the population; the availability of medical practitioners and physicians is 11.3 per 10,000 population in urban areas, while in rural areas, it is 1.9 per 10,000 populations. In rural areas, there are 35% of the people who are below the poverty line; they cannot afford any kind of expenditure upon health check up or medicines.

In rural areas, electricity is available in an inconsistent manner, richer and wealthier states are able to provide to the villages with power, whereas other states are facing challenges in

implementation of electricity. In urban areas, 92.7% of the population has access to electricity, whereas in rural areas, 55.3% of the population has access to electricity. Another point that leads to differences in the urban and rural areas are, prevalence practice of shifting agriculture in a particular region, increase in the demand for industrial products and industrial goods, construction of roads and dams in forest areas, construction of residential areas and due to occurrences of natural calamities and disasters also there is reduction of natural resources and rural areas.

Rural to urban migration is due to population pressure and lack of resources in rural areas, individuals residing in rural areas are moving towards the cities in search for better education, employment opportunities and to acquire a better living standard. In urban areas, there is availability of advanced education, good health and infrastructural facilities. Another difference is in the family system, when individuals migrate from rural areas to urban, this result in the disintegration of the family system; joint family system gets replaced by the nuclear family system. In the present existence, proper amenities and facilities with regards to education, employment, health, medical, technology, infrastructure and so forth have been developed in rural areas also so that people can improve their living standards and do not continue to reside in the conditions of poverty and backwardness.

Procedure or Method

Rural-Urban Divide In India

In simple words, the glaring disparities in income distribution, consumption, and quality of life between rural and urban India is known as rural-urban divide. There is a lack of livelihood opportunities, modern amenities and services, necessary for decent living in rural areas.There are huge differences in the availability of physical and social infrastructure in rural and urban areas which draws a divide between these two types of areas.What does Rural-Urban divide signify?

The soul of India lives in its villages. - Mahatma Gandhi India is a land of villages. According to the latest Census (2011), India has more than 6 lakh villages while there are around 7000 towns and urban centres. Out of a total population of 121 crores, the rural population accounts for 69% and urban population 31%..On the contrary, economic policies have primarily focussed on urban areas. It relied on the philosophy that benefits of India s high growth and expansion of industrial urban centres would automatically percolate down to the rural areas. This has led to the unequal growth of rural areas and has resulted in a sense of deprivation and dissatisfaction amongst a large percentage of rural population. Hence a majority of rural society remains excluded from India s journey of development.

What are the causes of the Rural-Urban divide?

1 Dependence of Rural population on Agriculture

About 70% of the population lives in rural areas and about 50% of the overall labour force is still dependent on agriculture that is not productive enough. The GDP contribution of agriculture to the nation is only about 14% while for industries and services sector (employers of people living in urban areas) is 26% and 60% respectively. (Economic Survey 2017-18)The devastating effects of natural calamities such as droughts and floods further lead to lower incomes for people living in rural areas.

2 Lack of Rural Livelihood & Employment opportunities

The Socio-Economic and Caste Census (SECC) for rural Indiareveals that in 75% households, the monthly income of the highest earning member is less than Rs. 5,000. And more than 80% rural people are without a salaried job.

3 Differential Impact of India s Growth and Development

The impact of economic revival steps taken by the government has benefitted only a very few. For example- in Haryana, only two urban centres- Gurgaon and Faridabad contributing majority of state revenue have been modernised while adjoining rural areas remain neglected.Also, India s growth in the last decade has been mainly driven by software, financial and consultancy services sector which employ bright, English speaking urban youth. But the majority of rural Indian youth are unfit for these up-end jobs because of lack of professional training.

4 Urban Bias in Social Sectors such as Health and Education

India spends around 1.3% of its GDP on public healthcare and has an insufficient public healthcare infrastructure. A majority of health infrastructure is in the private sector, which is limited to the middle classes in urban India. Rural areas are catered by government-run dispensaries which lack infrastructure and medicines. The doctors too are not willing to serve in rural areas. Meanwhile, patients have to travel far to elite public hospitals like Delhi s AIIMS. As a result, rural India is behind urban India in health indicators such as Infant Mortality Rate, Maternal Mortality Rate, Fertility Rate, Life expectancy and so on.Similarly, rural areas lack quality educational institutions which are mainly concentrated in urban areas which are out of reach of poor rural people.

5 Poor Rural Infrastructure

Development of rural areas is slow due to the improper and inadequate provision of infrastructure when compared to urban areas. The primary hindrance to growth in rural productivity and prosperity is the lack of basic infrastructures such as connectivity through roads, electricity, housing, clean water and sanitation. Small business enterprises can only flourish in rural areas if they have access to good quality and reliable infrastructure.

6 Emphasis on Smart Cities and neglect of Rural areas

Even after more than 70 years of Independence, the focus of policy-makers has been on few selected cities to be transformed as Smart Cities. The programme excludes rural areas and it will further worsen the rural-urban divide. While the persons living in these smart cities will enjoy digital governance, satellite traffic updates; many people living in rural areas still defecate in open.

7 Dominance of Social Institutions in Rural areas

In closed rural societies, social institutions such as caste system, joint family system and various social customs play a major role in the day to day life of an individual. For example- the rigid caste system does not allow a low caste person to give up his traditional work. While in urban areas, the emphasis is on individual s merit and qualification. Similarly, rural areas have joint family traditions which regulate a person s economic activities whereas, in urban areas, there is mainly nuclear family tradition leading to economic freedom.

8 Improper Implementation of Rural Development schemes, Leakages and Corruption

Although there is no dearth of schemes for rural development, the benefits of these schemes are not able to reach the target population mainly due to corruption in the disbursal of funds, non-transparency in financial transactions, wrong identification of the beneficiaries, lack of involvement of Gram Panchayats in planning and implementation and lack of political and administrative accountability.

Recommendations

1 India vs Bharat

The rural-urban divide has led to the generation of two polar opposites- India and Bharat. Many economists and intellectuals argue that while India is urban and progressive; Bharat is rural, underdeveloped and backward.

2 Rural to Urban Migration

The rural areas characterised by lower wages, a small size of landholdings, lack of opportunities, and amenities have been a push factor of migration from rural areas to urban areas.Although, migration is helpful in raising incomes and equalizing social status. But, uncontrolled migration of rural population to urban areas has led to rising of slums, congestion in cities, the problem of traffic and increase in crime rates.

3 Poverty and Hunger Reduction is slower in Rural areas

With the achievement of self-sufficiency in food grains and implementation of Food Security Act, Right to Education Act, Mahatma Gandhi National Rural Employment Guarantee Act and other significant poverty alleviation schemes, poverty is reducing. But, the rate of poverty reduction in urban areas is higher than rural areas. Also, today, nearly 26% of rural India is poor, compared to a meagre 13% in urban areas. (Tendulkar Report on Poverty Estimates)

4 Rural Distress, Alienation and Protests

The growing inequalities between the rural and urban areas, rural poverty and exploitation have led to peasant struggles throughout India latest being Madhya Pradesh farmers protest in 2017. Left-wing extremism particularly the Maoist insurgency is also a manifestation of a huge rural-urban divide as the Maoists see urban people as invaders mining their resources. Also, the Red-corridor area comprises the poorest, backward and remote areas which are devoid of basic amenities.

Bridging the Rural-Urban Divide

In India, we have created an economy of rich metro cities which are surging and poor villages which are decaying. Hence, there is an immediate need to reduce the gap between these two areas. In recent years many steps have been taken in this regard. Dr Shyama Prasad Mukherji Rurban Mission is being implemented which aims at strengthening rural infrastructure. The focus is on village clusters to be provided with modern amenities which will attract investment and provide employment. Another strategy being adopted is the Rural-Urban Synergy which aims at creating linkages between rural and urban areas. It will lead to a smooth flow of agricultural and other commodities from peripheral rural areas to adjoining urban markets. Similar linkages will be developed in the form of transition of people, money, household items, information, and service sectors. Also, Sansad Adarsh Gram Yojana scheme is being implemented from 2015 where a Member of Parliament has to choose villages in his constituency to be transformed as model villages with all social, welfare and infrastructure facilities.It is noteworthy that in Kerala, there is no such wide divide as in other states. In Kerala, there exists a Rural-Urban continuum. Kerala is regarded as an urban village where

the Kerala Model has resulted in developing social infrastructure like public distribution system, schools, hospitals, agriculture offices, etc. spatially distributed all over the State. The continuum has avoided the emergence of slum areas and deprived areas in the state. However, like most other developing countries experiencing economic transition, education inequality is still widely observed between rural and urban areas Rural-urban disparities in health and access to care are well-documented, with rural residents tending to fare worse

• Disparities in health and health care access by race and ethnicity are also well-documented, with many groups faring worse than non-Hispanic White individuals

Conclusion

Research should look beyond just disparities in health and health care by rural/urban location and by race and ethnicity

• The intersection of rurality and race and ethnicity is especially important to address

• With rural populations becoming increasingly diverse, this will only become more urgent Rural-Urban Divide In India In simple words, the glaring disparities in income distribution, consumption, and quality of life between rural and urban India is known as rural-urban divide. There is a lack of livelihood opportunities, modern amenities and services, necessary for decent living in rural areas.

There are huge differences in the availability of physical and social infrastructure in rural and urban areas which draws a divide between these two types of areas. Millions of rural workers have moved to cities to work since the introduction of Vietnam's market reform, known as Doi Moi, in 1986. The establishment of industrial zones and the rapidly growing private sector have generated great demand for unskilled labour, which in turn has encouraged rural–urban migration. Rural–urban migration as a share of the migrant population has increased consistently over the period 1999–2014. The increasing pace of migration, together with the high concentration of migrants in a few large cities such as Hanoi and Ho Chi Minh City, has posed significant policy challenges for the Government of Vietnam in terms of how to manage the urbanisation processThis paper has identified and discussed the major demographic and socio-econornic impacts of urbanization, highlighting its role in sustainable population management and improved quality of life. A number of major conclusions have emerged from the evidence and discussion in the paper'

1. Urbanization generally contributes to the lowering of population fertility rates and average family sizes. This is largely a result of the behavioural and lifestyle changes which characterize urbanization, including better education, higher age at first marriage, increased female employment and higher rates of contraceptive use. In addition, the cost of caring for the diverse needs of children, combined with the desire for improved living conditions and higher quality of life, tends to discourage urban residents from having large families. This conclusion is supported by evidence from both developed and developing countries.

2. Evidence on mortality suggests that in developed countries, urbanization initially led to higher mortality rates in urban than in rural areas, largely due to severe overcrowding, combined with very bad sanitation conditions. At present, there is hardly any difference between urban and rural mortality rates in developed countries. However, recent evidence from developing countries suggests that urban areas have lower mortality rates than rural areas. This is largely a result of the greater concentration of medical facilities within urban areas.

3. With regard to general socio-economic development, it is very clear from historical evidence that cities and towns are both the loci and agents of innovation, innovation diffusion and socio-economic transformation. The history of scientific and technological innovation, and that of civilization in general, is inseparable from that of towns and cities. Among the significant manifestations of most of the ancient civilizations were their towns and cities.

4. Worldwide empirical evidence demonstrates clearly that there is a positive correlation between GNP per capita and level of urbanization (measured as the percentage of the total national population resident within urban areas). It is generally recognized that towns and cities are the engines of national economic growth, largely as a result of the agglomeration economies which characterize them.5. At the household level, the net effect of urbanization is an increase in average real income. For individuals and their households, urban areas offer better opportunities of income generation, whether through formal employment or through informal sector activities. It is also clear that expectation of higher incomes is the main factor underlying rural-to-urban migration in developing countries.

6. Finally, evidence from developing countries suggests that urban centres have many positive impacts on their rural hinterlands through a variety of urban-rural linkages. These linkages include: remittances of money by urban residents to their rural kin; transfer of knowledge and skills through migrants returning from urban to rural areas; and the provision of retail, transport, social and administrative services to rural hinterland populations.Historical experience suggests that urbanization is an inevitable process. In light of this observation, combined with the positive impacts or urbanization outlined above, it is clear that the main challenge at present is not that of slowing-down urbanization, but of learning how to cope with rapid urban growth. In recognition of the role of cities as engines of economic development, there has recently been a resurgence of interest in urban management as the main tool for coping with rapid urban growth and maximising the positive demographic and socio-economic impacts of urbanization.

References

There are disparities among rural counties and rural residents by race and ethnicity, with non-Hispanic Black, Hispanic, and Indigenous rural residents tending to fare the Worst Some disparities are mediated by differences in socioeconomic status Investing in rural communities financially and via

employment opportunities may improve access

• Additional work is needed, however, to address lasting

impacts of structural racism in order to improve the health

of all rural residents and communities 1 Dependence of Rural population on Agriculture

About 70% of the population lives in rural areas and about 50% of the overall labour force is still dependent on agriculture that is not productive enough. The GDP contribution of agriculture to the nation is only about 14% while for industries and services sector (employers of people living in urban areas) is 26% and 60% respectively. (Economic Survey 2017-18)

The devastating effects of natural calamities such as droughts and floods further lead to lower incomes for people living in rural areas.

2 Lack of Rural Livelihood & Employment opportunities

The Socio-Economic and Caste Census (SECC) for rural Indiareveals that in 75% households, the monthly income of the highest earning member is less than Rs. 5,000. And more than 80% rural people are without a salaried job.

3 Differential Impact of India s Growth and Development

The impact of economic revival steps taken by the government has benefitted only a very few. For example- in Haryana, only two urban centres- Gurgaon and Faridabad contributing majority of state revenue have been modernised while adjoining rural areas remain neglected.

Also, India s growth in the last decade has been mainly driven by software, financial and consultancy services sector which employ bright, English speaking urban youth. But the majority of rural Indian youth are unfit for these up-end jobs because of lack of professional training.

4 Urban Bias in Social Sectors such as Health and Education

India spends around 1.3% of its GDP on public healthcare and has an insufficient public healthcare infrastructure. A majority of health infrastructure is in the private sector, which is limited to the middle classes in urban India. Rural areas are catered by government-run dispensaries which lack infrastructure and medicines. The doctors too are not willing to serve in rural areas. Meanwhile, patients have to travel far to elite public hospitals like Delhi s AIIMS. As a result, rural India is behind urban India in health indicators such as Infant Mortality Rate, Maternal Mortality Rate, Fertility Rate, Life expectancy and so on.

Similarly, rural areas lack quality educational institutions which are mainly concentrated in urban areas which are out of reach of poor rural people.

5 Poor Rural Infrastructure

Development of rural areas is slow due to the improper and inadequate provision of infrastructure when compared to urban areas. The primary hindrance to growth in rural productivity and prosperity is the lack of basic infrastructures such as connectivity through roads, electricity, housing, clean water and sanitation. Small business enterprises can only flourish in rural areas if they have access to good quality and reliable infrastructure.

6 Emphasis on Smart Cities and neglect of Rural areas

Even after more than 70 years of Independence, the focus of policy-makers has been on few selected cities to be transformed as Smart Cities. The programme excludes rural areas and it will further worsen the rural-urban divide. While the persons living in these smart cities will enjoy digital governance, satellite traffic updates; many people living in rural areas still defecate in open.

7 Dominance of Social Institutions in Rural areas

In closed rural societies, social institutions such as caste system, joint family system and various social customs play a major role in the day to day life of an individual. For example- the rigid caste system does not allow a low caste person to give up his traditional work. While in urban areas, the emphasis is on individual s merit and qualification. Similarly, rural areas have joint family traditions which regulate a person s economic activities whereas, in urban areas, there is mainly nuclear family tradition leading to economic freedom.

8 Improper Implementation of Rural Development schemes, Leakages and Corruption

Although there is no dearth of schemes for rural development, the benefits of these schemes are not able to reach the target population mainly due to corruption in the disbursal of funds, non-transparency in financial transactions, wrong identification of the beneficiaries, lack of involvement of Gram Panchayats in planning and implementation and lack of political and administrative accountability.

MULTI-CULTURAL DIVERSITY OF INDIAN SOCIETY

- NAME :- Mugdha Ranjit Acharekar

- ROLL NO :- 21303A0009

- COURSE AND DIVISION :- BBI (A)

- NAME OF THE TEACHER :- Reshma Suryavanshi

INDEX

INTRODUCTION

Indian society is pluralistic in nature. Pluralism refers to the existence within a nation or society of groups distinctive in ethnic origin, cultural patterns, language, religion etc. The Indian culture followed the concept of "Vasudhaiva Kutumbkam" (The world is one family) resulting in a great cultural heritage.

The main features of Indian culture are :
Multi Religion: The Indian Constitution declare India a
secular state: that is a state in which all
religions and citizens irrespective of their faith would be
treated without bias. Thus India has no
official religion. As per 2011 census, 80.5% of India's
population follows Hinduism, followed
by Islam (13.4%) and 6.1% of the population follow other
religions

Multi Lingual : It is estimated that there are 1652
languages and dialects in India. The
Constitution of India has recognized 22 major languages.
According to the article 343(1), the
official language of the Union shall be Hindi in Devanagri
script. Hindi is the most wieldy
spoken language followed by Bengali and Telugu. The
states have their own official language.
State boundaries are largely based on linguistic groups.

Caste System : The Indian Constitution lists 1108 castes.
Each caste had its own rules and
regulations. The basis of birth replaced occupation as the
criterion to determine ones caste.
During the Vedic period there are four varnas based on
the occupation of an individual :
Brahmins, Kshatriya, Viashya, and Shudra.

Influence of the Western Culture : Indian cultural came
under the Western cultural influence
of Portuguese, British, French and the Dutch. Due to
Western cultural impact, several elements
of Indian culture have undergone several changes in food
habits, music and dance clothing, life
styles, education.

OBJECTIVE OR AIM

1. To present an integrated story of the Evolution of man
and culture with special reference to India;
2. To highlight the richness and diversity of Cultural
patterns in India and its underlying unity;
3.To promote national integration;
4.To organize indoor and outdoor Exhibitions on :-
Human Evolution and Human Variation;
Culture and Society in Pre and proto historic times; and
Patterns of culture;

5. To take steps to salvage and preserve the fast vanishing aspect of the Indian Culture;

6. To promote and conduct research in the related subjects and provide funds and enter into arrangements with other similar institutions for the purpose of furtherance of the objectives of the Samiti;

7. To act as a centre of research and training in museology of the appropriate kind and generate in the course of time a new museum movement in the different regions of India to present and preserve variety of cultural life; and

8. To undertake all such activities as and when considered necessary for the achievement of the said objectives.

CONCLUSION

Though diversity, in and of itself, has not been subject to the same scrutiny and debate as the concept of nation, since it has been used primarily as a descriptive term, discussions about nonhomogeneity almost inevitably extend beyond the merely observational into the discourses of ethics and politics. In this conclusion, I have chosen to briefly discuss diversity, rather than any of its attendant, more ideologically loaded, terms— such as multiculturalism, hybridity, and marginality, for instance— in order to signal my desire to distance myself from the established schools of thought on the value of, and the required response to, diversity, all of which point to specifically Western social problems. Furthermore, as the range of potential sources of exclusion from the nation covered in this book indicates, I do not wish to privilege any one source of difference. Also, while focusing on the specificities of the Indian situation, I contend that conclusions drawn from the Indian experience may have bearing elsewhere and necessarily constitute a significant contribution to the global discussion on diversity.

REFERENCES

A View on Buddhism. (2015). Brief History of Buddhism in India. Retrieved from http://www.viewonbuddhism.org/india.html.

Advameg. (n.d.). India. Retrieved from http://www.everyculture.com/Ge-It/India.html.

Australian Bureau of Statistics. (2017). Census 2016, Country of Birth of Person by Sex (SA2+) [Data set]. http://stat.data.abs.gov.au/Index.aspx?DataSetCode=ABS_C16_T06_SA.

Bukstein, J., George, K., & Jenson, R. (2001). Nonverbal Issues. Retrieved from http://academic.depauw.edu/mkfinney_web/teaching/Com227/culturalPortfolios/india/NONVERBALFINAL.htm.

Central Intelligence Agency. (2017). The World Factbook: India. Retrieved from https://www.cia.gov/the-world-factbook/countries/india/

Corbett, K. (2014). India: Behaviour, communication and culture. Culturescope, 104, 24-27.

Department of Foreign Affairs and Trade. (2017). India country brief. Retrieved from https://dfat.gov.au/geo/india/Pages/india-country-brief.aspx

Department of Home Affairs. (2019). India-born: Community Information Summary. Retrieved from https://www.homeaffairs.gov.au/mca/files/2016-cis-india.PDF

Difference Between. (2016). Difference between Indian Culture and Western Culture. Retrieved from http://www.differencebetween.info/difference-between-indian-culture-and-western-culture.

UNITY IN DIVERSITY

India, national integration alone can be the foundation of a strong, united and prosperous India, especially in these days of extremism and terrorism. Mahatma Gandhi sacrificed his life for communal unity. Though, there are Bengalis, Gujaratis, Punjabis, Maharastrians, Tamilians, etc., in our country. The fact remains that regardless of divisions and distinctions, caste or creed, we have lived together for thousands of years.

Though, there are differences between the Hindu and the Muslim communities in regard to their customs, ideology, and rituals. But since centuries, they were born in and brought up by the same mother-land. They live together and have deep respect for each other. The Hindus send greetings to their Muslim friend on the occasion of Muslim festivals such as Eid, Muharram, etc. Similarly, the Muslims also wishes good luck on the occasion of Hindu festivals such as Diwali, Durga Puja, etc. This explains the growth unity between the Hindus and the Muslims in India. On many matter, they influence one another, and are inspired by the ideals of oriental civilization.

THANK YOU

TITLE :- PROBLEMS FACED BY PHYSICALLY OR MENTALLY CHALLENGED PEOPLE

NAME :- SRUSHTI RAMESH BHILLARE

ROLL NUMBER :- 21303A0010

COURSE AND DIVISION :- BBI / A

NAME OF THE TEACHER :- RESHMA SURYAVANSHI

INDEX

- INTRODUCTION
- OBJECTIVE OR AIM
- CONCLUSION
- REFERENCES

INTRODUCTION

- Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions.

  - An **impairment** is a problem in body function or structure;
  - An **activity limitation** is a difficulty encountered by an individual in executing a task or action;
  - A **participation restriction** is a problem experienced by an individual in involvement in life situations.

- As per Census 2011, in India, out of the total population of 121 crore, about 2.68 Cr persons are 'Disabled' (2.21% of the total population)

  - Out of 2.68 crore, 1.5 crore are males and 1.18 crore are females
  - Majority (69%) of the disabled population resided in rural areas

- Constitutional Frameworks for Disabled in India

- **Article 41** of the Directive Principles of State Policy (DPSP) states that State shall make effective provision for securing right to work, to education and to public assistance in cases of unemployment, old age, sickness and disablement, within the limits of its economic capacity and development.

- The subject of **'relief of the disabled and unemployable'** is specified in **state list of the Seventh Schedule of the constitution.**

- Legislations for Disabled

- **Right of Persons with Disabilities Act 2016**

- The Act replaces the Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act, 1995.

- **"Person with disability"** means a person with long term physical, mental, intellectual or sensory impairments which, in interaction with barriers, hinders his full and effective participation in society equally with others.

- **"Person with benchmark disability"** means a person with not less than 40% of a specified disability where specified disability has not been defined in measurable terms and includes a person with a disability where specified disability has been defined in measurable terms, as certified by the certifying authority.

- Disability has been defined based on an evolving and dynamic concept.

- Principles stated to be implemented for empowerment of persons with disabilities (PWD) are

- Principles stated to be implemented for empowerment of persons with disabilities (PWD) are respect for the inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons.The principle reflects a paradigm shift in thinking about disability from a social welfare concern to a human rights issue.

- The types of disabilities have been increased from 7 to 21. The act added mental illness, autism, spectrum disorder, cerebral palsy, muscular dystrophy, chronic neurological conditions, speech and language disability, thalassemia, hemophilia, sickle cell disease, multiple disabilities including deaf blindness, acid attack victims and Parkinson's disease which were largely ignored in earlier act. In addition, the Government has been authorized to notify any other category of specified disability.

- respect for the inherent dignity, individual autonomy including the freedom to make one's own choices, and independence of persons.The principle reflects a paradigm shift in thinking about disability from a social welfare concern to a human rights issue.

- The types of disabilities have been increased from 7 to 21. The act added mental illness, autism, spectrum disorder, cerebral palsy, muscular dystrophy, chronic neurological conditions, speech and language disability, thalassemia, hemophilia, sickle cell disease, multiple disabilities including deaf blindness, acid attack victims and Parkinson's disease which were largely ignored in earlier act. In addition, the Government has been authorized to notify any other category of specified disability.

OBJECTIVE OR AIM

Education – education is a basic right for all humans, in a perfect world, education would be free and available to everyone, as dreamed by Gurudev Rabindranath Tagore, but the reality is far from it. A large number of children with disabilities remain out of school and thus they are deprived of basic education. They are not able to run the race of life like the other normal kids. To solve this issue, several education institutions have been opened which focuses on the education of these kids with special needs, they learn the Braille System and adaptive technology helps them lead a better life.

- **Feeling of being ignored** – When we interact with a physically challenged person, it does not mean that, he is also suffering from visual or hearing impairment. This thought process often stops us from interacting and communicating with such people. These disability barriers need to be torn down, which is only possible for more awareness.

- **Lack of employment** – Employment of any citizen is based upon his education and skills he has picked up along the way. When these people are deprived of basic education, they are bound to fall behind other candidates for that job. The government has introduced schemes which should guarantee jobs for disabled people.

Accessibility – The world around us is not a walk in the park. We have to face several obstacles in every step we take. This is much worse for physically disabled people. They mostly move around in wheelchairs or use crutches. So, moving around freely is not a luxury that they can afford. Moreover, the public places that we have, are rarely made keeping in mind the comfort of people with disabilities. There are no ramps, or the hallways are too narrow for them to move. Nowadays, many wheelchairs are automated, and buildings are constructing a private residential elevator to make the movement of the [disabled people](#) a little bit easier.

Feeling of being incompetent – Disabled people need more time to do a particular work than other normal people. The disability barriers stop him from performing basic tasks with ease. This makes the person with disabilities that he is pulling his mates down and if filled with sorrow and anger.

Teased and abused – Often people find satisfaction in putting others down. They find superiority in bullying the weak and underprivileged. Disabled people often find themselves at the receiving end of such violent and disgusting actions.

Being patronized – People with special needs often hear things like, "I know what you are going through" or "I know this must be hard." These kinds of words never do justice to the problems those people face and the troubles they go through every day. A normal person can't know exactly what that person is feeling.

CONCLUSION

According to the survey there are approximately 600 million people who are classified as disabled worldwide as of July 2011. Countries around the world are working very hard to give these people better chance at finding and maintaining sufficient employment. In Malaysia itself, as of 2014, there are 531,962 registered disabilities by various category and 8% are working where mainly employed in the private sector. This paper attempts to identify the various challenges faced by disabled at their workplace and propose few ways to empower disabled in Malaysia especially at the workplace. Information has been collected through surveys, interviews, observation and together with secondary data.

REFERENCES

Teased and abused – Often people find satisfaction in putting others down. They find superiority in bullying the weak and underprivileged. Disabled people often find themselves at the receiving end of such violent and disgusting actions.

Being patronized – People with special needs often hear things like, "I know what you are going through" or "I know this must be hard." These kinds of words never do justice to the problems those people face and the troubles they go through every day. A normal person can't know exactly what that person is feeling.

Relationships – Human beings are complicated. They judge others on a set of parameters that may or may not apply to all situations. These prejudices are the root cause of all mistrust and misunderstanding. Most disabled people are desired as life partners, this often brings sadness and loneliness to their lives.

THANK YOU

Name :- ranit yadav
Div :- A.
Roll no :- 1314 A001

Democracy In India

Introduction :-

India is a parliamentary democratic republic in which the president of India is the head of state and the prime minister of India is the head of the government. India follows the dual polity System. i.e. federal in nature, that consists of the central authority at the centre and states at the periphery.

Start up :-

The constituent Assembly adopted the Constitution of India, drafted by a commitee headed by Dr. B. R. ~~Ambedkar~~ Ambedkar on 26 November 1949, India became a sovereign democratic republic after its constitution came into effect on 26 January 1950.

FATHER OF DEMOCRACY IN INDIA :- .

1.) Mahatma Gandhi - Father of the nation.

2.) B. R. Ambedkar - father of Republic of India.

3.) Raja Ram Mohan Roy - father of modern India.

4.) Potti Sreeramulu - father of Linguistic Democracy.

TYPES OF DEMOCRACY:-

- Direct democracy

- Representative democracy.

- Constitutional democracy.

- Monitory democracy.

RULES OF DEMOCRACY:-

One theory holds that democracy requires 3 fundamental principles: upward control, political equality and social norms by which individuals and institution only consider acceptable acts that reflect the first two principles of upward control and political control.

FATHER OF DEMOCRACY:-

Cleisthenes.

→ Although this Athenian democracy would survive for only two centuries, its inventions by "Cleisthenes". The father of Democracy was one of Ancient Greece's most enduring contributions the modern world.

WORLDS OLDEST DEMOCRACY:-

→ San Marino claims to be the oldest constitutional republic in the world founded on 3 Sep 301, by Marious of Rob.

MOTHER OF INDIA:-

→ Sarojini Naidu → Mother of the Nation.

NEED OF DEMOCRACY IN INDIA:-

→ Democracy helps citizens to choose their leaders to run the government. Democracy provides equal rights among citizens on the basis of caste, religion and sex. Democracy enhances the quality of decision making and also improves dignity of citizens.

THANK YOU :.

Religious diversity in India

India has no state religion, it is a secular state. It is the land where almost all the major religions of world are practiced by their respective followers. Nevertheless the religious diversity has been a major source of disunity and disharmony it in the country. This is because in India religious affilia tion appears to be overemphasized and many a time people seem to forget the national unity and express their loyalty more towards their own religion. The glaring example of such feeling is the partition of our country due to the development of the two nation theory, But the matter has not ended there. The communal feeling among different religious group still persists. Among the major religions in India are: Hinduism, Instam Islam, christianity, sikhism, Buddhism and Jainism. Zorastrai nism, Judaism and Babaism are the religions with lesser following. Hinduism is the religion of the majority in India. It comprises of Indo - Aryan, Dravidian and Pre - Dravidian religious elements, The follower of Hinduism belive in the doctrine of 'Karma', 'Dharma', rebirth, immortality of soul, renunciation and salvation. Hindu ism allows a number of possible conceptions of God. It also prescribes various alter natives paths of attaining God. The sakta, the Saiva, the satnami, the lingayat,

the Kabirpanthi, the Brahmo Samaj, the Arya Samaj etc. are different sects of Hinduism. According to 1991 census 697.4 million people (82.6%) in India practise Hinduism and provide a solid base for national unity through common beliefs, festivals, customs and traditions. Islam originated in Arabian as a monolithic religion. It come to India towards the last quarter of the 12th century A.D., with the Mu Muslim invansions. The Muslim rulers in India patronized it. They established long dynasties over large chunks of the country and encouraged conversions from Hinduism and Buddhism. As a result the number of Muslims gradually increased in India. Islam does not belive believe in Idol worship. It professes the fatalistic acceptence of Allah's will and considers prophet Mohammed as the greatest prophet. The 'Quran', sacred book of Islam, ordains for five primary duties of a true and devout Muslim, such as, belief in God (Allah), prayers five times a day, the giving of alms, a month's fast every year; and a pilgrimage to Mecca at least once in the life time of a Muslim. A large number of Muslims in India are are converts "In the conversion of large masses

of the Indians to Islam the use of force was an exception rather than an a rule. Brahminical Hinduism offered a much more solid resistance to the spread of Islam. For the lower castes, acceptance of Islam meant in an escape from the degraded status they had in the Hindu society to at least a theoretical equality with the ruling community." But these large scale conversions to Islam in reality did not actually bring about an acceptence of their higher status either by the caste Hindus, to whom every Muslim was an untouchable or by the Ashraf's the uppermost section of the Muslims, who maintained a social distance from the lower of caste converts in matters of marriage and social inter-course. Even the pollution - purity norms were practiced. Therefore, they are not entirely diffrent from their Hindu neighbours. The descendants of the Muslim aristo crats hailing for from Arabia, Turkey a Afghanistan etc constitute a minor chunk of the Muslim population. During the Pre - Indepen dence Period when the partition of the
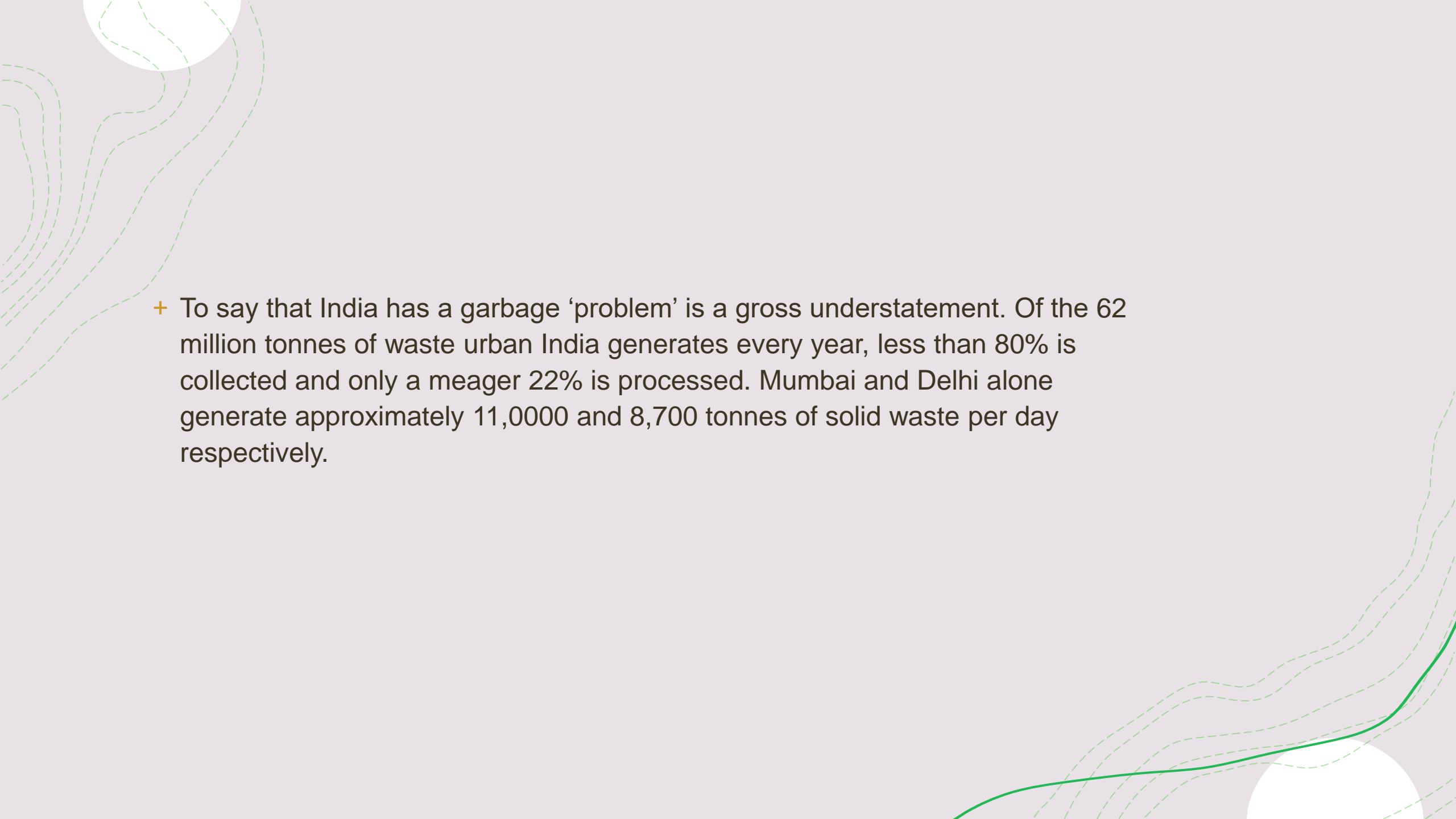
has not been we made, the Muslims in India accounted for 24% of the total population. After Pakistan is carried out from India, in 1947, the muslim population showed a sharp decline Now the Islam is practised by 95.8 million people which comprises of 11.35 per cent of the country's population (1991 census). Christanity came to India through the work of st. thomas, a follower of Jesus. He converted some Mambuthiri Brahmins to Christanity. It is believed that st to thomas, a follower of Jesus. He can converted some Mambuthiri Brahmins to christanity. It is beleve believed that st to thomas has landed in the ancient port of Muzinis is 52 A.D However in the 16th century the Portuguese arrived in India for the trade and established christian church. In 1544, francis Xavier arrived in Goa and began his work among the f fisher-folk in the coroman dal coast. The Dutch followed the Portuguese in the process of colonisation. But they were not Interested in spreading the Christian Faith. The Britishers followed the Dutch. They had to
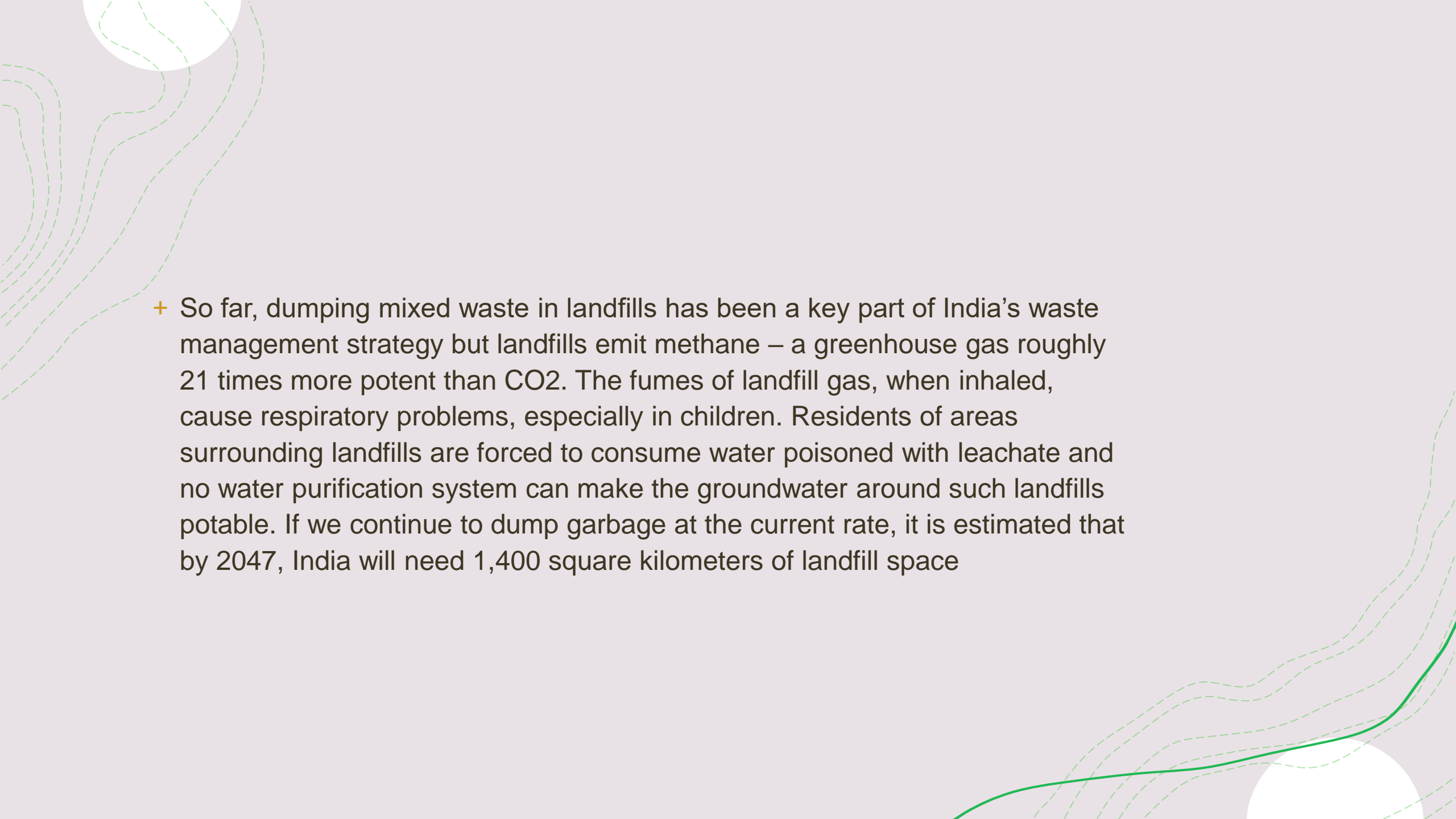
spread christanity through missioners. All the christians belive in jesus was born to virgin Mary. They also believe that Jesus is the th son of God. The Bible is the sacred book of the christians. The christians believe that the universe to has been divinely created and that man is sinfull. They also belive the Jesus was sent to earth to reconcile men and God. All christians have have faith in the day of Judgement which must come after the closure of human history. On the day of Judgement peoples will either be remarded or punished according to the type of life they have led.
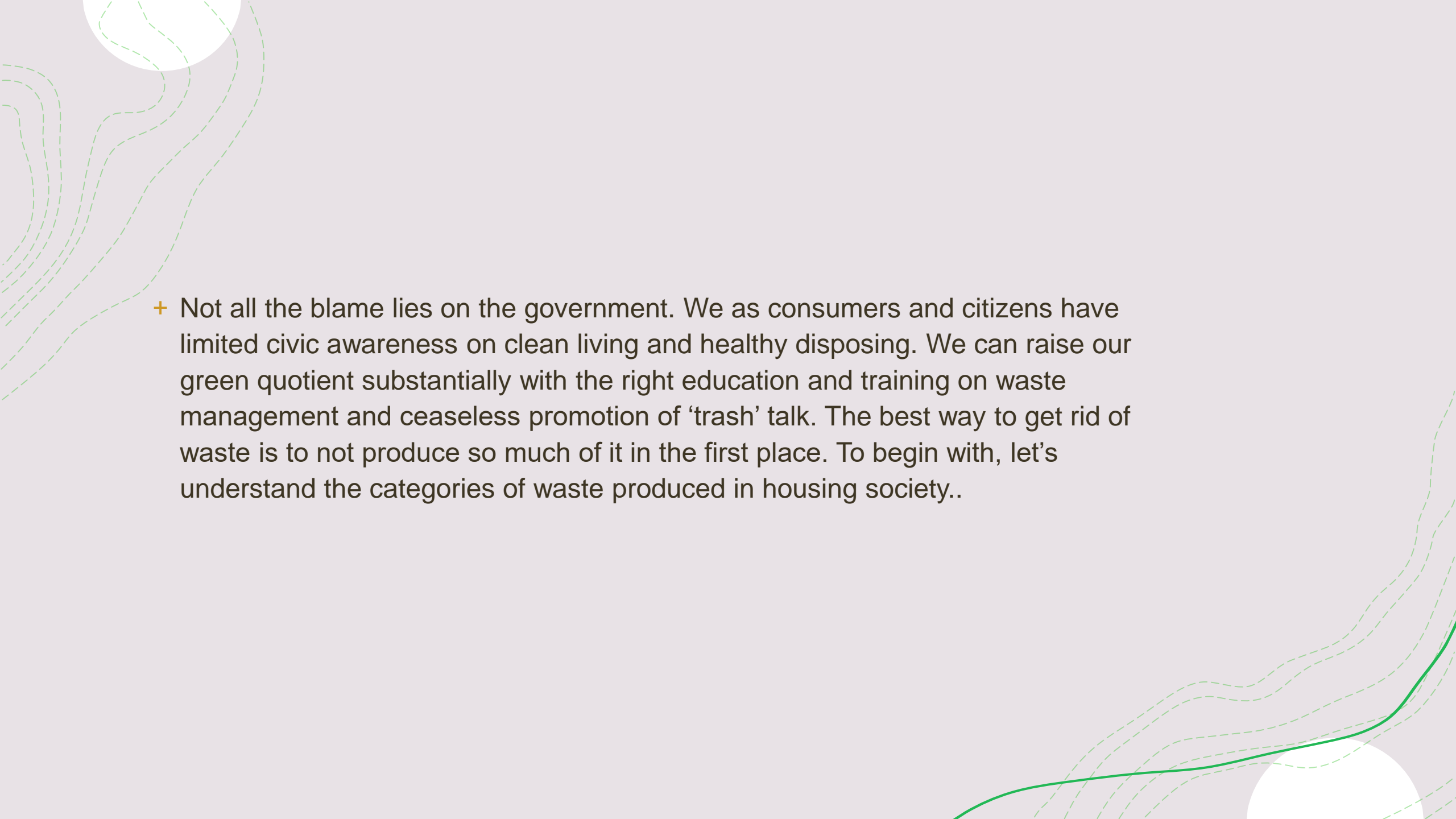
+ To say that India has a garbage 'problem' is a gross understatement. Of the 62 million tonnes of waste urban India generates every year, less than 80% is collected and only a meager 22% is processed. Mumbai and Delhi alone generate approximately 11,0000 and 8,700 tonnes of solid waste per day respectively.

+ So far, dumping mixed waste in landfills has been a key part of India's waste management strategy but landfills emit methane – a greenhouse gas roughly 21 times more potent than CO_2. The fumes of landfill gas, when inhaled, cause respiratory problems, especially in children. Residents of areas surrounding landfills are forced to consume water poisoned with leachate and no water purification system can make the groundwater around such landfills potable. If we continue to dump garbage at the current rate, it is estimated that by 2047, India will need 1,400 square kilometers of landfill space

+ Not all the blame lies on the government. We as consumers and citizens have limited civic awareness on clean living and healthy disposing. We can raise our green quotient substantially with the right education and training on waste management and ceaseless promotion of 'trash' talk. The best way to get rid of waste is to not produce so much of it in the first place. To begin with, let's understand the categories of waste produced in housing society..

Types of household waste

Organic Waste

Liquid waste – Food leftovers, fruit/vegetable peels, waste tea powder, coffee beans, landscape and pruning waste, other green waste, processed food, raw food materials, meat and bones, food-soiled paper, eggshells, leaf plates.

Dry waste – Newspapers, magazines, brown paper, paper bags, paper packaging materials, ribbons, strings, leaflets, notebooks, wood, furniture.
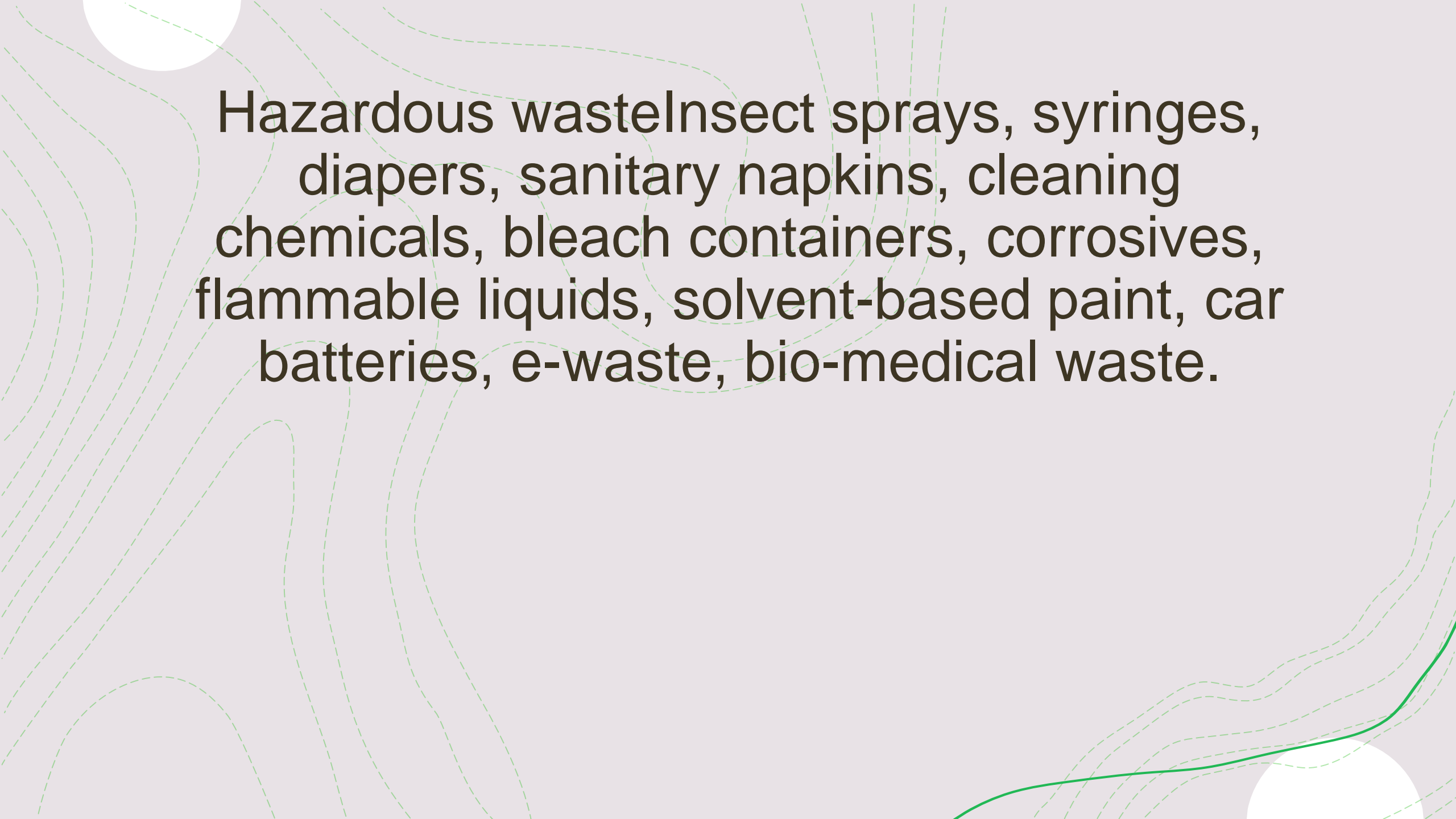
Non-organic Recyclable waste

Plastic – Plastic bags, containers, jars, bottles, covers, caps, milk pouches, food packets, soda bottles, wrappers.

Metals– Utensils, batteries, pipes, nails, tools, aluminium foils, metal scraps, tetra packs, wires.
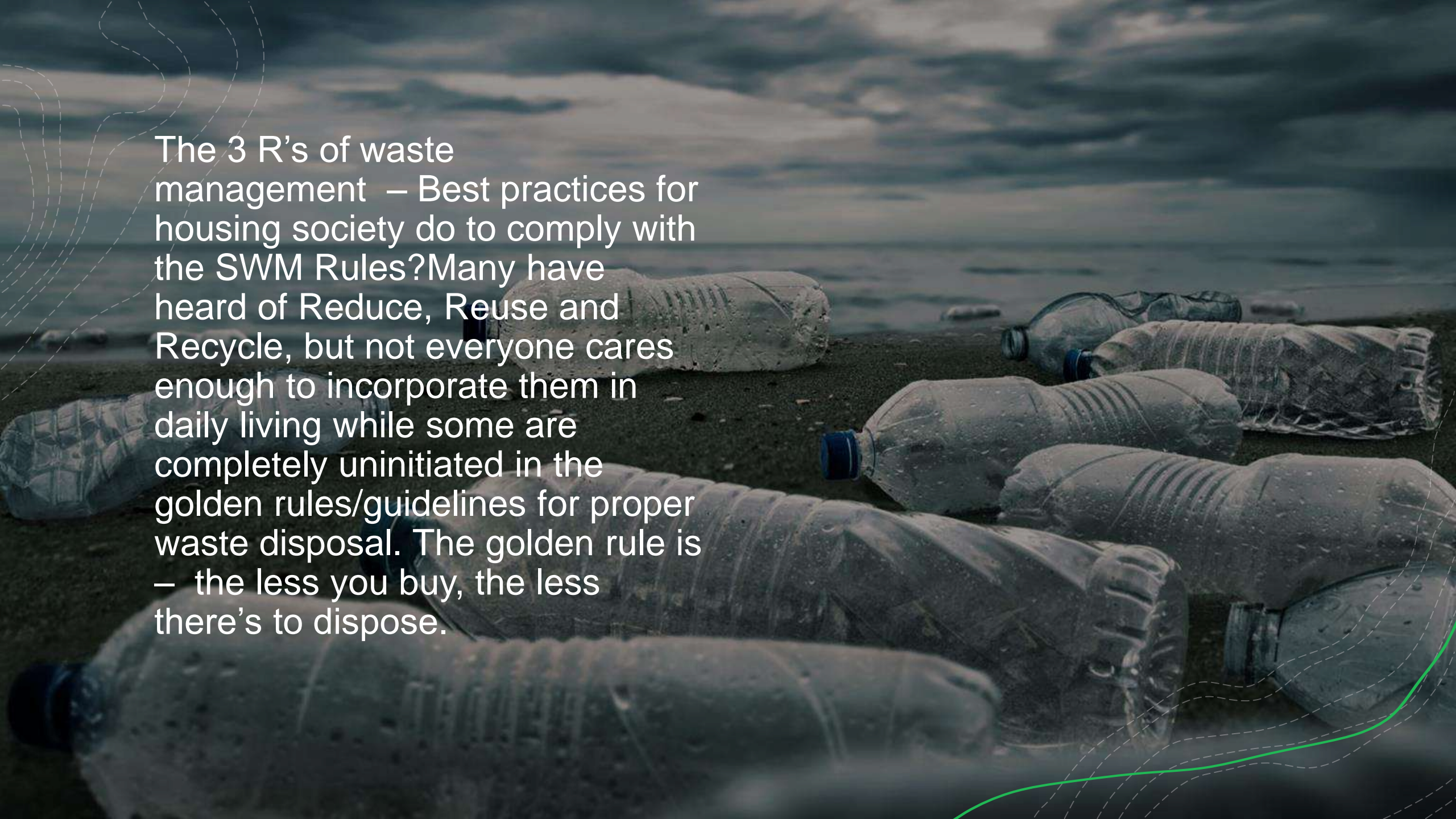
Glass– Bottles, plates, cups, shards, mirrors, ceramics.

Hazardous wasteInsect sprays, syringes, diapers, sanitary napkins, cleaning chemicals, bleach containers, corrosives, flammable liquids, solvent-based paint, car batteries, e-waste, bio-medical waste.

Inert WasteSand, concrete, clay, subsoil, rubble

The 3 R's of waste management – Best practices for housing society do to comply with the SWM Rules?Many have heard of Reduce, Reuse and Recycle, but not everyone cares enough to incorporate them in daily living while some are completely uninitiated in the golden rules/guidelines for proper waste disposal. The golden rule is – the less you buy, the less there's to dispose.

Reduce:

Avoid disposable products like paper plates, razors, paper towels, gloves, etc. Instead, buy long-lasting items that need not be bought again and again.

Carry your own shopping bag or a jute bag while going shopping to avoid plastic bags.

Buy products in bulk and with minimal/recyclable wrapping so there's that much less packaging to throw away.

Switch to digital news/content, don't accept flyers/leaflets, use fewer notebooks and physical cards/gift wrappers.Switch to organic diapers and sanitary napkins.Reuse:Repurpose broken furniture and used bottles to create new DIY products like trays, hangers, toilet holders.Recreate bags, wash clothes cushion covers from worn clothes.

Reuse fruit skins to make face masks, and wet tea powder to fertilize plants.Reuse old jars, cloth bags, metal containers, boxes for storage .Make arrangements to compost organic waste in-house, sell it or use it for community gardeningRecycle:While shopping, look for recycling symbols on the wrapping that tell if the product is made of recycled material or if it can be recycled.
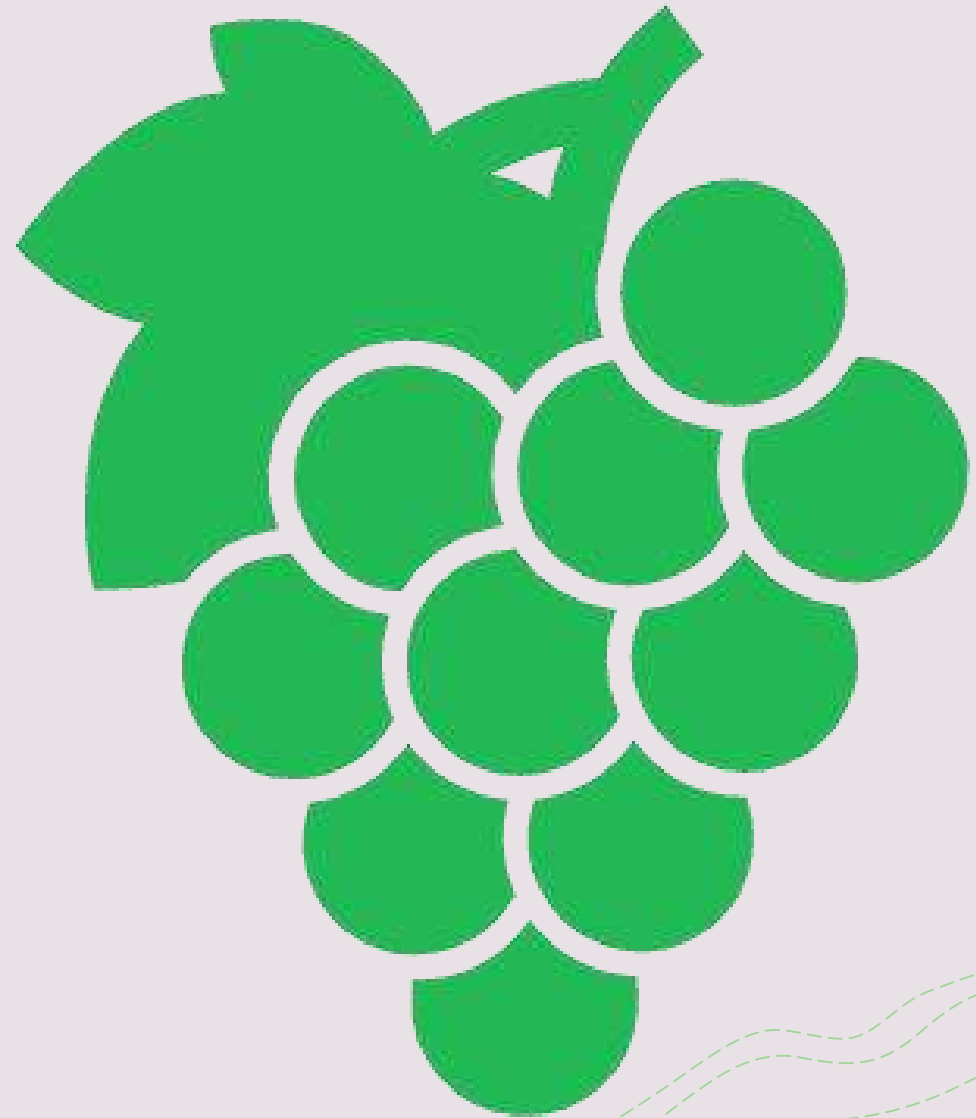
Have a monthly tie-up with a local recycler/scrap dealer who can collect dry paper, newspaper and plastic waste from the society.Recycle dry cell batteries and electronic items at your local electronics store that accepts recycling options.Use eco-friendly alternatives such as biodegradable decorations, cutlery and gift wrap

Midterm Foundation Course.

Name :- Yash Arvind Bhakrao.

Roll no :- 21314B0017

Date :- 24-1-2022

Topic :- Religious
Diversity
of India.

* Religion in India is characterized by a diversi-
ty of religious beliefs and practices. The
Indian Subcontinent is the birth place of four
of the world's major religions :- namely Hinduism
, Buddhism, Jainism and Sikhism. Religious Diversity
and religious tolerance are established by the law
the constitution of India defines freedom of
religion a fundamental right and holds India
to be a secular state.

According to 2011 census 79.8% of the
population of India practices Hinduism 14.2%
adhere to Islam 2.3% adhere to christianity
1.7% adhere to Sikhism, 0.7% adhere to
christianity 1.7% adhere to Sikhism 0.7%
adhere to Buddhism, and 0.4% adhere
to Jainism. Zoroastrianism, Yungdrung Bon
the Bahai faith, Sanamahism and Judais
m also have a history in India. and each
has atleast several thousand adherents in.

India. India has given refuge to followers of persecuted religions across its history in the post classical period Sanctuary was granted to Hebrew Jews who fled captivity in Babylonia, Aramaic christians who fled the captivity Islamic invasion of Syria in the 7th century and Persian Zoroastrians who fled persecution in Persia in the 9th century following the Muslim conquest of Persia as a result India has the largest population of people adhering to zoroastrianism Parsis or Iranis in In the world. In the 20th to 21 centuries, Sanctuary was granted to Russian Persian and Afgan Jews christians Jains Sikhs Hindus and Ahmadiyyas who fled persecution in Pakistan. when the Dalai Lana fled Tibet and took refuge in India after it was invaded by china. many Tibetans followed his example and continue to seek refuge in India. Today India is home to around 94% of the global population of Hindus. Most Hindus Shrines and temples are located in India, as are the birthplace of most Hindu sounds. Prayagray Host the worlds largest religious pilgrimage, Prayag Kumbh Mela, where Hindus from across the world come together to bathe in the confluence of three sacred rivers of india the Ganga, The Yamuna and the Sarasioti

The influence of Indian religions has been significant all over the world. Several Hindu-based organizations such as the International Society for Krishna Consciousness the Ramakrishna Mission the Brahma Kumaris the Indian Ananda Marga and others have spread Hindu spiritual beliefs and practice The Indian sub-continent also contains the largest population of Muslim in the world with about one third of all Muslim being from South Asia. By 2050 the Muslim population of India will retain a Hindu majority about 77% India is also the cradle of Ahmadiyya Islam. The shrines of some of the most famous saints of Sufism like Moinuddin chishti and Nizzamuddin Al Auliya are found in India and attracts visitor from all over the world. Before the Mugal Empire and Delhi Sultanate as much as 90% of the population may have fallen under the Hindu umbrella demographic information on pre-modern polities is obscure. The elites of those empire came from historically Muslim ethnicities and many sought to harmonize their personal religion with the Hinduism of their subjects Nevertheless and a backlash during the 17th, 18th and 19th centuries re-established confessional boundaries and genealogical evidence suggest that many modern-day Muslim have some

Religious diversity is the fact that there are significant differences in religious belief and practice. It has always been recognized by people outside the smallest and most isolated communities. But smallest and most isolated communities But since early modern times, increasing information from travel, publishing and emigration have more deeply on religious diversity say that within bounds, one religion is as good as any other. In contrast, exclusivist approaches say that only one religion is uniquely valuable. Finally include theories Any to steer a middle course by agreeing with exclusivism the one religion has the most value while also agreeing with pluralism that others still have significant religious value. what are at issue literature since 1950 focuses on the truth or rationally of religious teachings the vindicability (conformity with reality) of religious should provide. all alleged directedness towards one and the same ultimate religious object the exclusivist-inclusivist pluralist dichotomy has become standard since since the 1980s unfortunately, it is often used with some one of the above values in mind leaving it unclear exactly which values are current pertinent. while this dichotomy is

Sometimes thought of in terms of general attitude that has a religious person may draw towards other religions. Approximately are the attitudes of rejection, limited openness, and wide acceptance respectively. In this article they figure as theories in this article they for the basis of religious diversity. Religious pluralism in some contexts means an informed tolerant and appreciative or sympathetic view of the various religious. In other context religious pluralism is a normative principle requiring that people of all or most religions pluralism is a normative principle the all religion people should be treated same. In this article religious pluralism refers to a theory about the diversity of religions. Finally some authors use descriptive religious pluralism to mean what is here called religious diversity calling normative religious diversity calling normative religious pluralism views that are here called varieties of religious pluralism while the dichotomy among has been repeatedly challenged, it is still widely use, and can be precisely defined in various ways. The Table of contents are Facts and the theories of Religious diversity, Religious Pluralism, Exclusivism, Inclusivism, References and further Reading.

Name of the Project

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (DATA SCIENCE)

By

Student's name-Tejas Pramod Kadam

Roll Number: 21315A0022

Under the esteemed guidance of

Ms. Seema Vishwakarma

Assistant Professor, Department of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Class Note Book Web Application "**, is bonafied work of **TEJAS PRAMOD KADAM 0909**bearing Seat No: _____21315A0022___ submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in DATA SCIENCE in the subject Environmental Science from University of Mumbai.

Internal Guide:

Internal Examiner:

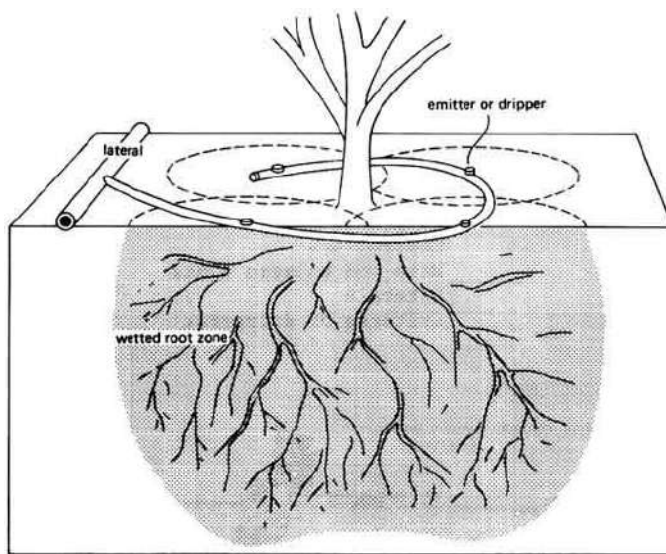**Date:**   **College Seal**   **Principal**

INDEX
Environmental Science

No.	Title/Aim	Date	Faculty Sign	Grade	Student Sign
1	Topic selection details				
2	Introduction of the topic				
3	Review of Literature of the selected topic				
4	Methodology used for the topic				
5	Video/photos of the Model				
6	Conclusion				
7	References				
8	Model/ Poster Presentation				

DRIP IRRIGATION

TOPIC SELECTION DETAILS:

Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish.

Drip irrigation system delivers water to the crop using a network of mainlines, sub-mains and lateral lines with emission points spaced along their lengths. Each dripper/emitter, orifice supplies a measured, precisely controlled uniform application of water, nutrients, and other required growth substances directly into the root zone of the plant.

Water and nutrients enter the soil from the emitters, moving into the root zone of the plants through the combined forces of gravity and capillary. In this way, the plant's withdrawal of moisture and nutrients are replenished almost immediately, ensuring that the plant never suffers from water stress, thus enhancing quality, its ability to achieve optimum growth and high yield.

INTRODUCTION OF THE TOPIC:

Drip irrigation or **trickle irrigation** is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. Depending on how well designed, installed, maintained, and operated it is, a drip irrigation system can be more efficient than other types of irrigation systems, such as surface irrigation or sprinkler irrigation.

Drip and subsurface drip irrigation is used almost exclusively when using recycled municipal wastewater. Regulations typically do not permit spraying water through the air that has not been fully treated to potable water standards.

HISTORY:

Primitive drip irrigation has been used since ancient times. *Fan Shengzhi shu*, written in China during the first century BCE, describes the use of buried, unglazed clay pots filled with water, sometimes referred to as Ollas, as a means of irrigation.

Modern drip irrigation began its development in Germany in 1860 when researchers began experimenting with subsurface irrigation using clay pipe to create combination irrigation and drainage systems
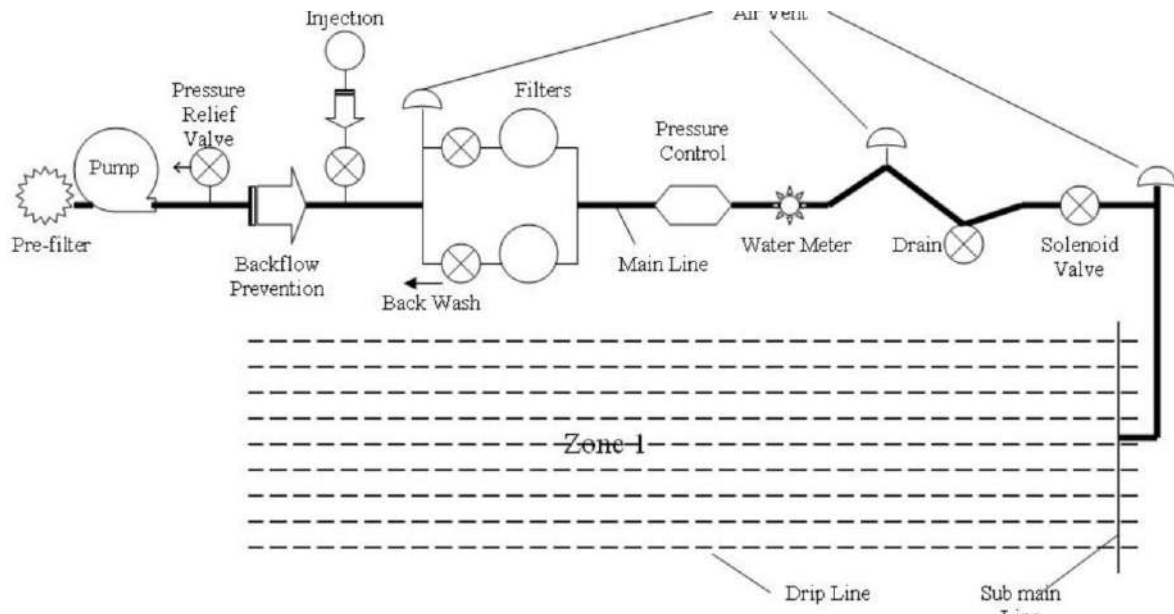
TRICKLE RING:

A trickle ring is a circular device which evenly distributes water around the base of a tree or shrub. Connected to a water supply by a garden hose or tubing adapter fitting, trickle rings may be integrated into an irrigation network which waters many plants at the same time. By regulating the flow of water through the trickle ring, soil can be saturated at a rate which conserves water by minimizing wasteful surface runoff and losses due to evaporation.

Drip irrigation can help you use water efficiently. A well-designed drip irrigation system loses practically no water to runoff, deep percolation, or evaporation. Drip irrigation reduces water contact with crop leaves, stems, and fruit. Thus conditions may be less favorable for the onset of diseases. Irrigation scheduling can be managed precisely to meet crop demands, holding the promise of increased yield and quality.

Growers and irrigation professionals often refer to "subsurface drip irrigation," or SDI. When a drip tape or tube is buried below the soil surface, it is less vulnerable to damage during cultivation or weeding. With SDI, water use efficiency is maximized because there is even less evaporation or runoff.

Agricultural chemicals can be applied more efficiently with drip irrigation. Since only the crop root zone is irrigated, nitrogen already in the soil is less subject to leaching losses, and applied fertilizer N can be used more efficiently. In the case of insecticides, less product might be needed. Make sure the insecticide is labeled for application through drip irrigation.

A wide range of components and system design options is available. The Drip Directory lists equipment and suppliers. Drip tape varies greatly in its specifications, depending on the manufacturer and its use . The distribution system, valves, and pumps must match the supply requirements of the tape. Tape, depth of tape placement, distance between tapes, emitter spacing and flow, and irrigation management all must be chosen carefully based on crop water requirements and the soil's properties. Drip tubing rather than drip tape is usually used for perennial crops such as grapes or poplar trees.

- Pump or pressurized water source
- Water filter(s) or filtration systems: sand separator, Fertigation systems (Venturi injector) and chemigation equipment (optional)
- Backwash controller (Backflow prevention device)
- Pressure control valve (pressure regulator)
- Distribution lines (main larger diameter pipe, maybe secondary smaller, pipe fittings)
- Hand-operated, electronic, or hydraulic control valves and safety valves
- Smaller diameter polyethylene tube (often called "laterals")
- Poly fittings and accessories (to make connections)
- Emitting devices at plants (emitter or dripper, micro spray head, inline dripper or inline drip tube)

In drip irrigation systems, pump and valves may be manually or automatically operated by a controller.

Most large drip irrigation systems employ some type of filter to prevent clogging of the small emitter flow path by small waterborne particles. New technologies are now[when?] being offered that minimize clogging. Some residential systems are installed without additional filters since potable water is already filtered at the water treatment plant. Virtually all drip irrigation equipment manufacturers recommend that filters be employed and generally will not honor warranties unless this is done. Last line filters just before the final delivery pipe are

strongly recommended in addition to any other filtration system due to fine particle settlement and accidental insertion of particles in the intermediate lines.

Drip and subsurface drip irrigation is used almost exclusively when using recycled municipal wastewater. Regulations typically do not permit spraying water through the air that has not been fully treated to potable water standards.

Because of the way the water is applied in a drip system, traditional surface applications of timed-release fertilizer are sometimes ineffective, so drip systems often mix liquid fertilizer with the irrigation water. This is called fertigation; fertigation and chemigation (application of pesticides and other chemicals to periodically clean out the system, such as chlorine or sulfuric acid) use chemical injectors such as diaphragm pumps, piston pumps, or aspirators. The chemicals may be added constantly whenever the system is irrigating or at intervals. Fertilizer savings of up to 95% are being reported from recent university field tests using drip fertigation and slow water delivery as compared to timed-release and irrigation by micro spray heads.

Properly designed, installed, and managed, drip irrigation may help achieve water conservation by reducing evaporation and deep drainage when compared to other types of irrigation such as flood or overhead sprinklers since water can be more precisely applied to the plant roots. In addition, drip can eliminate many diseases that are spread through water contact with the foliage. Finally, in regions where water supplies are severely limited, there may be no actual water savings, but rather simply an increase in production while using the same amount of water as before. In very arid regions or on sandy soils, the preferred method is to apply the irrigation water as slowly as possible.

Pulsed irrigation is sometimes used to decrease the amount of water delivered to the plant at any one time, thus reducing runoff or deep percolation. Pulsed systems are typically expensive and require extensive maintenance. Therefore, the latest efforts by emitter manufacturers are focused on developing new technologies that deliver irrigation water at ultra-low flow rates, i.e. less than 1.0 L (2.1 US pints; 1.8 imperial pints) per hour. Slow-and-even delivery further improves water use efficiency without incurring the expense and complexity of pulsed delivery equipment.

An emitting pipe is a type of drip irrigation tubing with emitters pre-installed at the factory with specific distance and flow per hour as per crop distance.

An emitter restricts water flow passage through it, thus creating head loss required (to the extent of atmospheric pressure) to emit water in the form of droplets. This head loss is achieved by friction/turbulence within the emitter

Drip irrigation is an efficient and economical way to water your yard and garden. Used commonly in drier areas of the country, drip irrigation is becoming more popular in the Northeast. Unlike other forms of irrigation, such as sprinklers that are only 65-75% efficient, drip irrigation **90%** efficient at allowing plants to use the water applied. And, it reduces runoff and evaporation. Drip irrigation applies the water slowly at the plant root zone where it is needed most.

Drip irrigation has more commonly been used in commercial nursery and farm operations, however, homeowners are beginning to take advantage of its uses and benefits. As a homeowner, you can use drip irrigation in your vegetable and perennial gardens, and to water trees and shrubs.

Benefits of Drip Irrigation

Drip irrigation involves placing tubing with emitters on the ground along side the plants. The emitters slowly drip water into the soil at the root zone. Because moisture levels are kept at an optimal range, plant productivity and quality improve. In addition, drip irrigation:

- Prevents disease by minimizing water contact with the leaves, stems, and fruit of plants.
- Allows the rows between plants to remain dry, improving access and reducing weed growth.
- Saves time, money, and water because the system is so efficient.
- Decreases labor.
- Increases effectiveness on uneven ground.
- Reduces leaching of water and nutrients below the root zone.

Drip Irrigation System Design and Components

The main components of a drip irrigation system (see graphic below) include the mainline, valve, sub-main, backflow preventer, pressure regulator, filter, tubing adapters and fittings, drip tubing, emitters, and end caps. The mainline is the pipe that runs from the water source – typically your outdoor faucet – to the valve; and the sub-main runs from the valve to the point where the drip tubing is connected. Generally, sub-mains are used only when there are multiple lines of drip tubing and zones feeding off of the same mainline water source. The combined length of the mainline and sub-main should not exceed 400 feet.

The valve controls water flow into the system and can be set for either automatic or manual control. Backflow preventers are necessary to ensure that irrigation water doesn't flow back into the pipes and contaminate your main water source.

Pressure regulators are needed if the water pressure is over 40 pounds per square inch. If you do not know your water pressure it is a good idea to install one just in case.
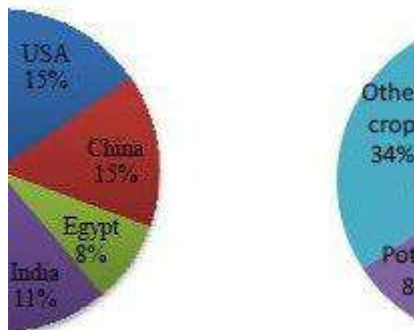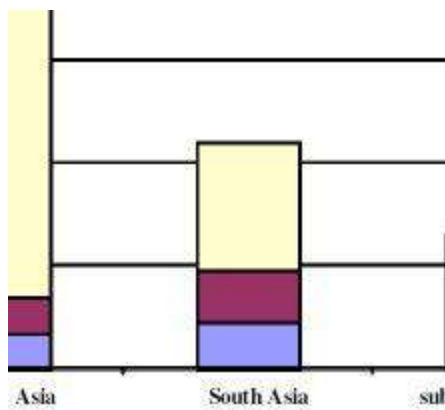
Filters keep dissolved substances in your water from clogging the emitters over time. Install filters either at the emitters or at the water source to protect both the valve and pressure regulator in addition to the emitters. It is best if the filter has at least a 150 mesh screen or higher.

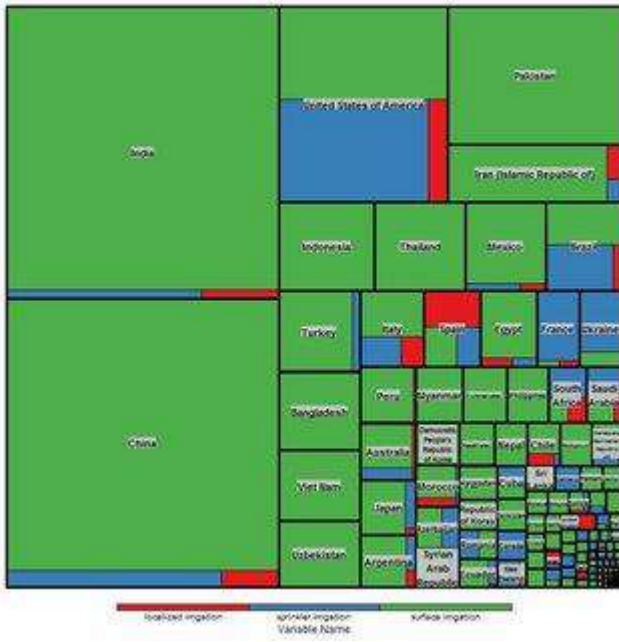Tubing adapters and fittings are used to attach the drip tubing to the rest.

Land and water represent the country's fundamental needs for agriculture and economic growth. By 2025, 1/3 of the world's population will face total water shortage. Agriculture consumes over eighty percentage of the exploitable water supplies of the world. The global productivity of the agricultural sector & the expected rate of development in GDP entirely rely primarily on the sagacious utilize of the obtainable water supplies. Therefore, this Micro Irrigation scheme which aim to increase the region under the efficient irrigation techniques via irrigation by Drip technique. Drip irrigation is the effective way of delivering irrigation of water directly to soil in the plant's root areas, reducing typical mislaying such as soil erosion, deep percolation and runoff. This also permits fertilizers, nutrients, & other water-soluble substances to be used along with irrigation water, leading to higher yields and improved production results. Drip irrigation systems is seen the solution to several challenges of dry land cultivation and increasing the output of irrigated cultivation. In view of all these, the present research was planned to research the degree of advantages obtained from drip irrigation in horticultural crops and to recognize the constraints faced by farmers in the adoption of the drip irrigation in horticultural crops.

The main focus of this paper was to review the present status and performance of drip irrigation system. Place and Duration of Study: College of Water Conservancy, Shenyang Agricultural University, China. During March to July, 2016. Methodology: This study compared drip irrigation with most common irrigation methods used for finding water-savings, efficient and sustainable agricultural production in arid and semi-arid regions on the basis available information. Results: Increasing water demand in various sectors and inefficient water uses especially in agriculture, pose huge challenges in future water availability. Therefore, the future is seeking a more efficient method of water

use. However, drip irrigation system is spreading rapidly all over the world as a water saving methods. Various types of crops grown under drip irrigation were compared with surface and sprinkler irrigation. Saline and reclaimed water application is also increasing alternatively as fresh water scarcity is increasing. Conclusion: Review observation implies that, surface water irrigation will necessarily be reducing due to low efficiency and considerable conveyance losses.

localized irrigation sprinkler irrigation surface irrigation
Variable Name

Drip Irrigation method, also called drop by drop irrigation, and underground irrigation, functions as its name imply. Drop by drop, water is distributed to the active root zone of plants. This method, if managed properly, might be the most water-supply-efficient way of irrigation, because runoff and evaporation reduced significantly. Drip irrigation in today's agriculture, is frequently integrated with plastic sheet, further diminishing evaporation, and is also a method of fertilizers delivery to the plants. This process called fertigation (fertilizer + irrigation). DIY DripKits, complete professional drip systems.

Deep trickle (percolation), where water moves below the active root zone, can happen if a drip system is running for too long time or if the irrigation application rate is too high. Drip irrigation systems vary from high-end and computer controlled to simple low-tech with intensive labor involved. Relatively low pressures, is required for most types of micro irrigation systems. System can be planned with uniformity within the field or for exact water conduction to individual plants in a field containing a mix of plant types.

Even though it is complex to regulate water pressure on steep slopes, PC emitters (pressure compensating) available, so drip systems can handle you can handle un-leveled fields as well. Water pressure regulation and filtration to remove particles are primordial in any drip system. Drip systems tubes are usually black, however there are also brown, blue and even white tubes. Some drip tubes are buried under soil or mulch to prevent the growth of algae and to protect the PE (polyethylene) from degradation due to ultra-violet radiation. Sometimes a drip irrigation system can also be a porous clay vessel inserted into the soil and periodically filled from a hose or a watering can. Successful farmers around the globe use drip systems to irrigate almost any intensive crop or plant. find more information on drip irrigation equipment.

Latest drip irrigation technology called hydro-pc, guarantee a wide, efficient labyrinth leading the water into a flow control cell, where a special diaphragm compensate the stream, and keeps a stable flow rate at changeable inlet pressures. IG hydropc drip line is highly resistant to clogging. The dripper inlet filter, located closer to the tube center, guarantees an excellent constant flushing treatment. The relatively small diameter drip line makes a better drip irrigation efficiency. Decrease retained water in the system, causing a shorter refilling time with less redundant drained water, on sloppy terrains, no excessive water wetting in the lower parts of the field. Competitive low cost and big saving on transportation volume and weight. Applications for hydro-pc: All kind of crops on sloping terrain. Or where long run drip lines are a must, look at our irrigation systems design section.

The present study enlists various sources of irrigation, their spatial patterns and growth trends in Uttar Pradesh state of India. This study tries to explore the humanwater interactions in irrigated agriculture of the state adapting socio-hydrological approach. Being the most populated state in the country, water demand in agriculture is high to produce adequate food for sustaining the population of the state. As a result, more use of groundwater through water extraction devices mainly through tubewells is prevalent since mid-1960s, which has resulted into change in land use dynamics focusing mainly on wheat and rice crops. The plentiful availability of ground water in the state has led to high level of development in certain parts of the state. Uneven patterns of human-water relation occur where indiscriminate exploitation of groundwater resources prevails, which led to decline in water tables in many pockets of the state. Hence, irrigation water management is a prerequisite condition for achieving sustainable agricultural development in the state. This research deals with the development of irrigated agriculture in the state during 20 years of time period since 1995–1996 to 2014–2015 which has been further divided into four quinquennial periods, i.e., 1995–2000, 2000–2005, 2005–2010 and 2010–2015 so as to make a comparative assessment. From the analysis, it can be explained that, there has been a significant increase in gross irrigated area in the state from 67.28% (17.59 million ha.) to 77.85% (20.11 million ha.) during the periods of 1995–2000 and 2010–2015. Bundelkhand region of the state recorded the highest positive growth in gross irrigated area, followed by central and eastern parts, whereas its growth in western region has been negative during the periods 1995– 2000 to 2000–2005 and 2005–2010 to 2010–2015. The number of districts almost tripled having above 85% of gross irrigated area from 1995–2000 to 2010–2015, and most of the growth in gross irrigated area was observed in the districts confined to Awadh and Purvanchal regions of the state. It is evident from the study that, net irrigated area was high in almost all the districts of the state, except some districts of Bundelkhand and north-eastern tarai belt of the state. Net irrigated area has been positive with a growth of above 3% during the respective periods of study.

until 1960s, water was not recognised as a scarce resource. At that time, there were fewer than half the current number of people on the planet. People were not as wealthy as today, consumed fewer calories and ate less meat, so less water was needed to produce their food. They required a third of the volume of water we presently take from rivers. Today, the competition for water resources is much more intense. This is because there are now more than seven billion people on the planet, increasing the likely hood of overconsumption of food produced by water-thirsty animal agriculture and intensive farming practices, and there is increasing competition for water from industry, urbanisation and biofuel crops. To avoid a global water crisis, farmers will have to strive to increase productivity to meet growing demands for food, while industry and cities find ways to use water more efficiently.[49]

Increased irrigation efficiency has a number of positive outcomes for the farmer, the community and the wider environment. Low application efficiency infers that the amount of water applied to the field is in excess of the crop or field requirements. Increasing the application efficiency means that the amount of crop produced per unit of water increases. Improved efficiency may either be achieved by applying less water to an existing field or by using water more wisely thereby achieving higher yields in the same area of land. In some parts of the world, farmers are charged for irrigation water hence over-application has a direct financial cost to the farmer. Irrigation often requires pumping energy (either electricity or fossil fuel) to deliver water to the field or supply the correct operating pressure. Hence increased efficiency will reduce both the water cost and energy cost per unit of agricultural production. A reduction of water use on one field may mean that the farmer is able to irrigate a larger area of land, increasing total agricultural production. Low efficiency usually means that excess water is lost through seepage or runoff, both of which can result in loss of crop nutrients or pesticides with potential adverse impacts on the surrounding environment.

Drip irrigation reference Drip irrigation reference
Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Name of the Project

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (DATA SCIENCE)

By

Student's name-Tejas Pramod Kadam

Roll Number: 21315A0022

Under the esteemed guidance of

Ms. Seema Vishwakarma

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of
Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Class Note Book Web Application "**, is bonafied work of **TEJAS PRAMOD KADAM 0909**bearing Seat No: ___21315A0022___ submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in DATA SCIENCE in the subject Environmental Science from University of Mumbai.

Internal Guide:

Internal Examiner:

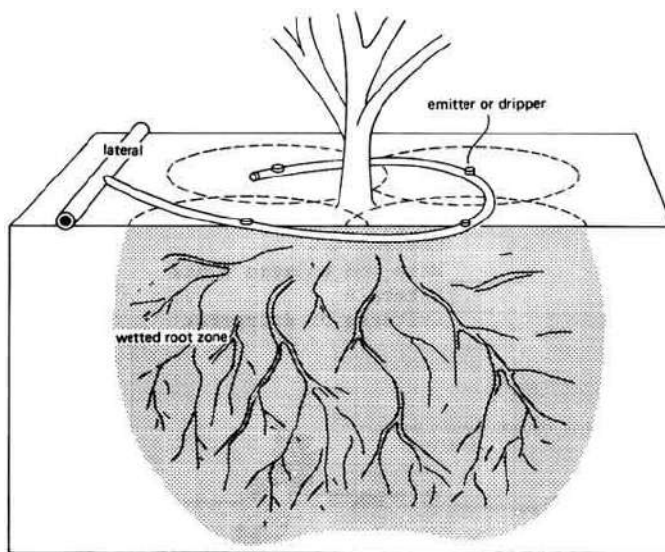**Date:**   **College Seal**   **Principal**

INDEX
Environmental Science

No.	Title/Aim	Date	Faculty Sign	Grade	Student Sign
1	Topic selection details				
2	Introduction of the topic				
3	Review of Literature of the selected topic				
4	Methodology used for the topic				
5	Video/photos of the Model				
6	Conclusion				
7	References				
8	Model/ Poster Presentation				

DRIP IRRIGATION

TOPIC SELECTION DETAILS:

            Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish.

Drip irrigation system delivers water to the crop using a network of mainlines, sub-mains and lateral lines with emission points spaced along their lengths. Each dripper/emitter, orifice supplies a measured, precisely controlled uniform application of water, nutrients, and other required growth substances directly into the root zone of the plant.

Water and nutrients enter the soil from the emitters, moving into the root zone of the plants through the combined forces of gravity and capillary. In this way, the plant's withdrawal of moisture and nutrients are replenished almost immediately, ensuring that the plant never suffers from water stress, thus enhancing quality, its ability to achieve optimum growth and high yield.

INTRODUCTION OF THE TOPIC:

Drip irrigation or **trickle irrigation** is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. Depending on how well designed, installed, maintained, and operated it is, a drip irrigation system can be more efficient than other types of irrighion systems, such as surface irrigation or sprinkler irrigation.

Drip and subsurface drip irrigation is used almost exclusively when using recycled municipal wastewater. Regulations typically do not permit spraying water through the air that has not been fully treated to potable water standards.

HISTORY:

Primitive drip irrigation has been used since ancient times. *Fan Shengzhi shu*, written in China during the first century BCE, describes the use of buried, unglazed clay pots filled with water, sometimes referred to as Ollas, as a means of irrigation.

Modern drip irrigation began its development in Germany in 1860 when researchers began experimenting with subsurface irrigation using clay pipe to create combination irrigation and drainage systems
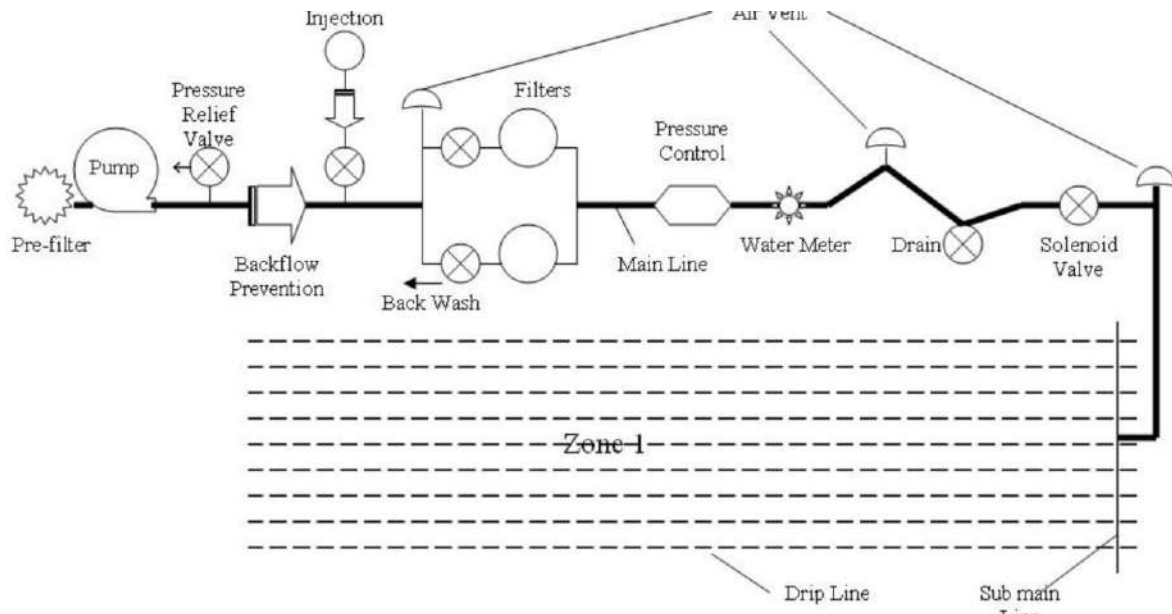
TRICKLE RING:

A trickle ring is a circular device which evenly distributes water around the base of a tree or shrub. Connected to a water supply by a garden hose or tubing adapter fitting, trickle rings may be integrated into an irrigation network which waters many plants at the same time. By regulating the flow of water through the trickle ring, soil can be saturated at a rate which conserves water by minimizing wasteful surface runoff and losses due to evaporation.

Drip irrigation can help you use water efficiently. A well-designed drip irrigation system loses practically no water to runoff, deep percolation, or evaporation. Drip irrigation reduces water contact with crop leaves, stems, and fruit. Thus conditions may be less favorable for the onset of diseases. Irrigation scheduling can be managed precisely to meet crop demands, holding the promise of increased yield and quality.

Growers and irrigation professionals often refer to "subsurface drip irrigation," or SDI. When a drip tape or tube is buried below the soil surface, it is less vulnerable to damage during cultivation or weeding. With SDI, water use efficiency is maximized because there is even less evaporation or runoff.

Agricultural chemicals can be applied more efficiently with drip irrigation. Since only the crop root zone is irrigated, nitrogen already in the soil is less subject to leaching losses, and applied fertilizer N can be used more efficiently. In the case of insecticides, less product might be needed. Make sure the insecticide is labeled for application through drip irrigation.

A wide range of components and system design options is available. The Drip Directory lists equipment and suppliers. Drip tape varies greatly in its specifications, depending on the manufacturer and its use . The distribution system, valves, and pumps must match the supply requirements of the tape. Tape, depth of tape placement, distance between tapes, emitter spacing and flow, and irrigation management all must be chosen carefully based on crop water requirements and the soil's properties. Drip tubing rather than drip tape is usually used for perennial crops such as grapes or poplar trees.

Injection

Air vent

Pressure
Relief
Valve

Filters

Pressure
Control

Pump

Pre-filter

Backflow
Prevention

Back Wash

Main Line

Water Meter

Drain

Solenoid
Valve

Zone 1

Drip Line

Sub main
Line

- Pump or pressurized water source
- Water filter(s) or filtration systems: sand separator, Fertigation systems (Venturi injector) and chemigation equipment (optional)
- Backwash controller (Backflow prevention device)
- Pressure control valve (pressure regulator)
- Distribution lines (main larger diameter pipe, maybe secondary smaller, pipe fittings)
- Hand-operated, electronic, or hydraulic control valves and safety valves
- Smaller diameter polyethylene tube (often called "laterals")
- Poly fittings and accessories (to make connections)
- Emitting devices at plants (emitter or dripper, micro spray head, inline dripper or inline drip tube)

In drip irrigation systems, pump and valves may be manually or automatically operated by a controller.

Most large drip irrigation systems employ some type of filter to prevent clogging of the small emitter flow path by small waterborne particles. New technologies are now[when?] being offered that minimize clogging. Some residential systems are installed without additional filters since potable water is already filtered at the water treatment plant. Virtually all drip irrigation equipment manufacturers recommend that filters be employed and generally will not honor warranties unless this is done. Last line filters just before the final delivery pipe are

strongly recommended in addition to any other filtration system due to fine particle settlement and accidental insertion of particles in the intermediate lines.

Drip and subsurface drip irrigation is used almost exclusively when using recycled municipal wastewater. Regulations typically do not permit spraying water through the air that has not been fully treated to potable water standards.

Because of the way the water is applied in a drip system, traditional surface applications of timed-release fertilizer are sometimes ineffective, so drip systems often mix liquid fertilizer with the irrigation water. This is called fertigation; fertigation and chemigation (application of pesticides and other chemicals to periodically clean out the system, such as chlorine or sulfuric acid) use chemical injectors such as diaphragm pumps, piston pumps, or aspirators. The chemicals may be added constantly whenever the system is irrigating or at intervals. Fertilizer savings of up to 95% are being reported from recent university field tests using drip fertigation and slow water delivery as compared to timed-release and irrigation by micro spray heads.

Properly designed, installed, and managed, drip irrigation may help achieve water conservation by reducing evaporation and deep drainage when compared to other types of irrigation such as flood or overhead sprinklers since water can be more precisely applied to the plant roots. In addition, drip can eliminate many diseases that are spread through water contact with the foliage. Finally, in regions where water supplies are severely limited, there may be no actual water savings, but rather simply an increase in production while using the same amount of water as before. In very arid regions or on sandy soils, the preferred method is to apply the irrigation water as slowly as possible.

Pulsed irrigation is sometimes used to decrease the amount of water delivered to the plant at any one time, thus reducing runoff or deep percolation. Pulsed systems are typically expensive and require extensive maintenance. Therefore, the latest efforts by emitter manufacturers are focused on developing new technologies that deliver irrigation water at ultra-low flow rates, i.e. less than 1.0 L (2.1 US pints; 1.8 imperial pints) per hour. Slow-and-even delivery further improves water use efficiency without incurring the expense and complexity of pulsed delivery equipment.

An emitting pipe is a type of drip irrigation tubing with emitters pre-installed at the factory with specific distance and flow per hour as per crop distance.

An emitter restricts water flow passage through it, thus creating head loss required (to the extent of atmospheric pressure) to emit water in the form of droplets. This head loss is achieved by friction/turbulence within the emitter

Drip irrigation is an efficient and economical way to water your yard and garden. Used commonly in drier areas of the country, drip irrigation is becoming more popular in the Northeast. Unlike other forms of irrigation, such as sprinklers that are only 65-75% efficient, drip irrigation **90%** efficient at allowing plants to use the water applied. And, it reduces runoff and evaporation. Drip irrigation applies the water slowly at the plant root zone where it is needed most.

Drip irrigation has more commonly been used in commercial nursery and farm operations, however, homeowners are beginning to take advantage of its uses and benefits. As a homeowner, you can use drip irrigation in your vegetable and perennial gardens, and to water trees and shrubs.

Benefits of Drip Irrigation

Drip irrigation involves placing tubing with emitters on the ground along side the plants. The emitters slowly drip water into the soil at the root zone. Because moisture levels are kept at an optimal range, plant productivity and quality improve. In addition, drip irrigation:

- Prevents disease by minimizing water contact with the leaves, stems, and fruit of plants.
- Allows the rows between plants to remain dry, improving access and reducing weed growth.
- Saves time, money, and water because the system is so efficient.
- Decreases labor.
- Increases effectiveness on uneven ground.
- Reduces leaching of water and nutrients below the root zone.

Drip Irrigation System Design and Components

The main components of a drip irrigation system (see graphic below) include the mainline, valve, sub-main, backflow preventer, pressure regulator, filter, tubing adapters and fittings, drip tubing, emitters, and end caps. The mainline is the pipe that runs from the water source – typically your outdoor faucet – to the valve; and the sub-main runs from the valve to the point where the drip tubing is connected. Generally, sub-mains are used only when there are multiple lines of drip tubing and zones feeding off of the same mainline water source. The combined length of the mainline and sub-main should not exceed 400 feet.

The valve controls water flow into the system and can be set for either automatic or manual control. Backflow preventers are necessary to ensure that irrigation water doesn't flow back into the pipes and contaminate your main water source.

Pressure regulators are needed if the water pressure is over 40 pounds per square inch. If you do not know your water pressure it is a good idea to install one just in case.
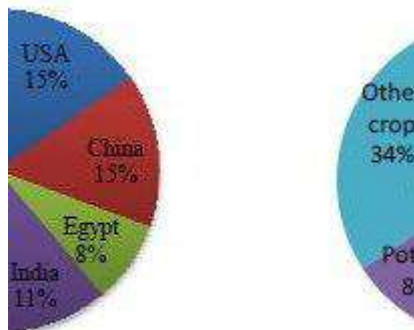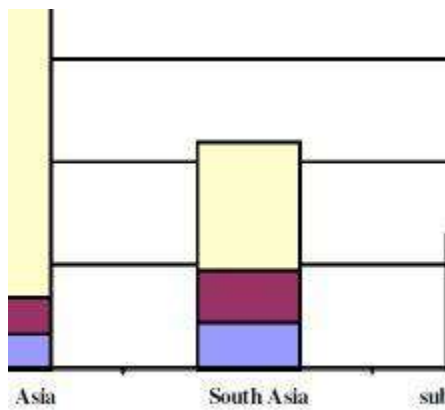
Filters keep dissolved substances in your water from clogging the emitters over time. Install filters either at the emitters or at the water source to protect both the valve and pressure regulator in addition to the emitters. It is best if the filter has at least a 150 mesh screen or higher.

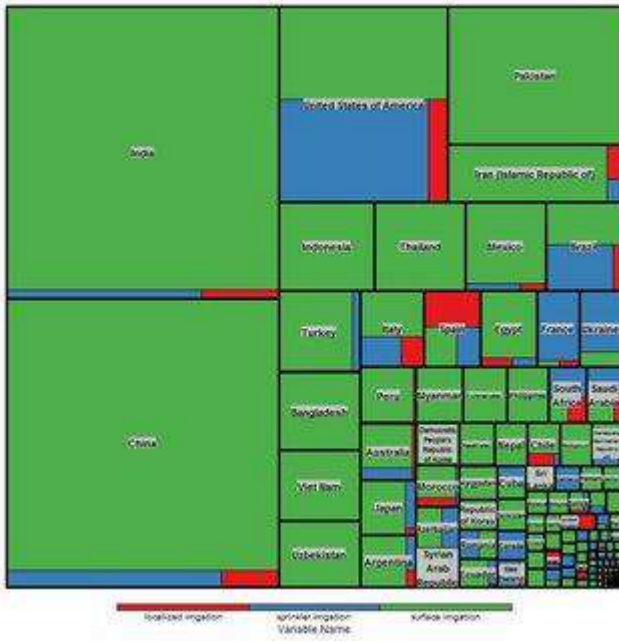Tubing adapters and fittings are used to attach the drip tubing to the rest.

Land and water represent the country's fundamental needs for agriculture and economic growth. By 2025, 1/3 of the world's population will face total water shortage. Agriculture consumes over eighty percentage of the exploitable water supplies of the world. The global productivity of the agricultural sector & the expected rate of development in GDP entirely rely primarily on the sagacious utilize of the obtainable water supplies. Therefore, this Micro Irrigation scheme which aim to increase the region under the efficient irrigation techniques via irrigation by Drip technique. Drip irrigation is the effective way of delivering irrigation of water directly to soil in the plant's root areas, reducing typical mislaying such as soil erosion, deep percolation and runoff. This also permits fertilizers, nutrients, & other water-soluble substances to be used along with irrigation water, leading to higher yields and improved production results. Drip irrigation systems is seen the solution to several challenges of dry land cultivation and increasing the output of irrigated cultivation. In view of all these, the present research was planned to research the degree of advantages obtained from drip irrigation in horticultural crops and to recognize the constraints faced by farmers in the adoption of the drip irrigation in horticultural crops.

The main focus of this paper was to review the present status and performance of drip irrigation system. Place and Duration of Study: College of Water Conservancy, Shenyang Agricultural University, China. During March to July, 2016. Methodology: This study compared drip irrigation with most common irrigation methods used for finding water-savings, efficient and sustainable agricultural production in arid and semi-arid regions on the basis available information. Results: Increasing water demand in various sectors and inefficient water uses especially in agriculture, pose huge challenges in future water availability. Therefore, the future is seeking a more efficient method of water

use. However, drip irrigation system is spreading rapidly all over the world as a water saving methods. Various types of crops grown under drip irrigation were compared with surface and sprinkler irrigation. Saline and reclaimed water application is also increasing alternatively as fresh water scarcity is increasing. Conclusion: Review observation implies that, surface water irrigation will necessarily be reducing due to low efficiency and considerable conveyance losses.

localized irrigation   sprinkler irrigation   surface irrigation
Variable Name

Drip Irrigation method, also called drop by drop irrigation, and underground irrigation, functions as its name imply. Drop by drop, water is distributed to the active root zone of plants. This method, if managed properly, might be the most water-supply-efficient way of irrigation, because runoff and evaporation reduced significantly. Drip irrigation in today's agriculture, is frequently integrated with plastic sheet, further diminishing evaporation, and is also a method of fertilizers delivery to the plants. This process called fertigation (fertilizer + irrigation). DIY DripKits, complete professional drip systems.

Deep trickle (percolation), where water moves below the active root zone, can happen if a drip system is running for too long time or if the irrigation application rate is too high. Drip irrigation systems vary from high-end and computer controlled to simple low-tech with intensive labor involved. Relatively low pressures, is required for most types of micro irrigation systems. System can be planned with uniformity within the field or for exact water conduction to individual plants in a field containing a mix of plant types.

Even though it is complex to regulate water pressure on steep slopes, PC emitters (pressure compensating) available, so drip systems can handle you can handle un-leveled fields as well. Water pressure regulation and filtration to remove particles are primordial in any drip system. Drip systems tubes are usually black, however there are also brown, blue and even white tubes. Some drip tubes are buried under soil or mulch to prevent the growth of algae and to protect the PE (polyethylene) from degradation due to ultra-violet radiation. Sometimes a drip irrigation system can also be a porous clay vessel inserted into the soil and periodically filled from a hose or a watering can. Successful farmers around the globe use drip systems to irrigate almost any intensive crop or plant. find more information on drip irrigation equipment.

Latest drip irrigation technology called hydro-pc, guarantee a wide, efficient labyrinth leading the water into a flow control cell, where a special diaphragm compensate the stream, and keeps a stable flow rate at changeable inlet pressures. IG hydropc drip line is highly resistant to clogging. The dripper inlet filter, located closer to the tube center, guarantees an excellent constant flushing treatment. The relatively small diameter drip line makes a better drip irrigation efficiency. Decrease retained water in the system, causing a shorter refilling time with less redundant drained water, on sloppy terrains, no excessive water wetting in the lower parts of the field. Competitive low cost and big saving on transportation volume and weight. Applications for hydro-pc: All kind of crops on sloping terrain. Or where long run drip lines are a must, look at our irrigation systems design section.

The present study enlists various sources of irrigation, their spatial patterns and growth trends in Uttar Pradesh state of India. This study tries to explore the humanwater interactions in irrigated agriculture of the state adapting socio-hydrological approach. Being the most populated state in the country, water demand in agriculture is high to produce adequate food for sustaining the population of the state. As a result, more use of groundwater through water extraction devices mainly through tubewells is prevalent since mid-1960s, which has resulted into change in land use dynamics focusing mainly on wheat and rice crops. The plentiful availability of ground water in the state has led to high level of development in certain parts of the state. Uneven patterns of human-water relation occur where indiscriminate exploitation of groundwater resources prevails, which led to decline in water tables in many pockets of the state. Hence, irrigation water management is a prerequisite condition for achieving sustainable agricultural development in the state. This research deals with the development of irrigated agriculture in the state during 20 years of time period since 1995–1996 to 2014–2015 which has been further divided into four quinquennial periods, i.e., 1995–2000, 2000–2005, 2005–2010 and 2010–2015 so as to make a comparative assessment. From the analysis, it can be explained that, there has been a significant increase in gross irrigated area in the state from 67.28% (17.59 million ha.) to 77.85% (20.11 million ha.) during the periods of 1995–2000 and 2010–2015. Bundelkhand region of the state recorded the highest positive growth in gross irrigated area, followed by central and eastern parts, whereas its growth in western region has been negative during the periods 1995– 2000 to 2000–2005 and 2005– 2010 to 2010–2015. The number of districts almost tripled having above 85% of gross irrigated area from 1995–2000 to 2010–2015, and most of the growth in gross irrigated area was observed in the districts confined to Awadh and Purvanchal regions of the state. It is evident from the study that, net irrigated area was high in almost all the districts of the state, except some districts of Bundelkhand and north-eastern tarai belt of the state. Net irrigated area has been positive with a growth of above 3% during the respective periods of study.

until 1960s, water was not recognised as a scarce resource. At that time, there were fewer than half the current number of people on the planet. People were not as wealthy as today, consumed fewer calories and ate less meat, so less water was needed to produce their food. They required a third of the volume of water we presently take from rivers. Today, the competition for water resources is much more intense. This is because there are now more than seven billion people on the planet, increasing the likely hood of overconsumption of food produced by water-thirsty animal agriculture and intensive farming practices, and there is increasing competition for water from industry, urbanisation and biofuel crops. To avoid a global water crisis, farmers will have to strive to increase productivity to meet growing demands for food, while industry and cities find ways to use water more efficiently.[49]

Increased irrigation efficiency has a number of positive outcomes for the farmer, the community and the wider environment. Low application efficiency infers that the amount of water applied to the field is in excess of the crop or field requirements. Increasing the application efficiency means that the amount of crop produced per unit of water increases. Improved efficiency may either be achieved by applying less water to an existing field or by using water more wisely thereby achieving higher yields in the same area of land. In some parts of the world, farmers are charged for irrigation water hence over-application has a direct financial cost to the farmer. Irrigation often requires pumping energy (either electricity or fossil fuel) to deliver water to the field or supply the correct operating pressure. Hence increased efficiency will reduce both the water cost and energy cost per unit of agricultural production. A reduction of water use on one field may mean that the farmer is able to irrigate a larger area of land, increasing total agricultural production. Low efficiency usually means that excess water is lost through seepage or runoff, both of which can result in loss of crop nutrients or pesticides with potential adverse impacts on the surrounding environment.

Drip irrigation reference Drip irrigation reference

Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Name of the Project

A Project Report

Submitted in partial fulfilment of the
requirements for the completion of

FIRST YEAR BACHELOR OF SCIENCE (DATA SCIENCE)

By

Student's name-Tejas Pramod Kadam

Roll Number: 21315A0022

Under the esteemed guidance of

Ms. Seema Vishwakarma

Assistant Professor, Department of Information Technology

VSIT | Vidyalankar School of Information Technology

DEPARTMENT OF INFORMATION TECHNOLOGY

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI, 400 037

MAHARASHTRA

2021 - 2022

VIDYALANKAR SCHOOL OF INFORMATION TECHNOLOGY

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400037

DEPARTMENT OF INFORMATION TECHNOLOGY

VSIT | Vidyalankar School of Information Technology

<u>CERTIFICATE</u>

This is to certify that the project entitled, **"Class Note Book Web Application "**, is bonafied work of **TEJAS PRAMOD KADAM 0909**bearing Seat No: ____21315A0022___ submitted in partial fulfilment of the requirements for the completion of FIRST YEAR BACHELOR OF SCIENCE in DATA SCIENCE in the subject Environmental Science from University of Mumbai.

Internal Guide:

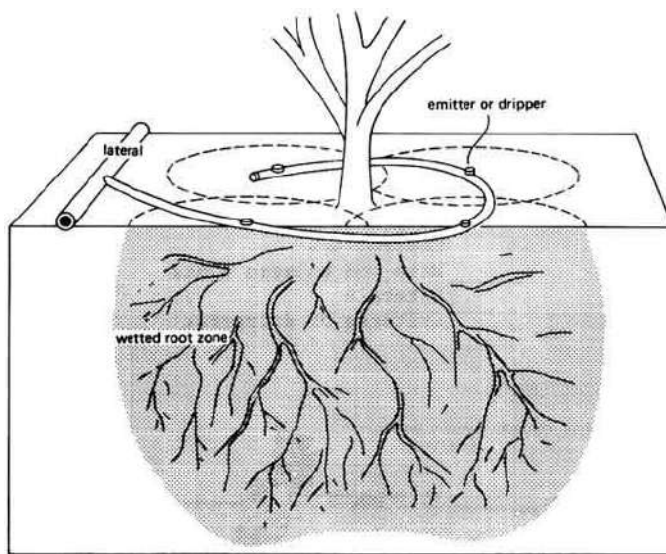**Internal Examiner:**

Date: **College Seal**   **Principal**

INDEX
Environmental Science

No.	Title/Aim	Date	Faculty Sign	Grade	Student Sign
1	Topic selection details				
2	Introduction of the topic				
3	Review of Literature of the selected topic				
4	Methodology used for the topic				
5	Video/photos of the Model				
6	Conclusion				
7	References				
8	Model/ Poster Presentation				

DRIP IRRIGATION

TOPIC SELECTION DETAILS:

Drip irrigation is sometimes called trickle irrigation and involves dripping water onto the soil at very low rates (2-20 litres/hour) from a system of small diameter plastic pipes fitted with outlets called emitters or drippers. Water is applied close to plants so that only part of the soil in which the roots grow is wetted, unlike surface and sprinkler irrigation, which involves wetting the whole soil profile. With drip irrigation water, applications are more frequent (usually every 1-3 days) than with other methods and this provides a very favourable high moisture level in the soil in which plants can flourish.

Drip irrigation system delivers water to the crop using a network of mainlines, sub-mains and lateral lines with emission points spaced along their lengths. Each dripper/emitter, orifice supplies a measured, precisely controlled uniform application of water, nutrients, and other required growth substances directly into the root zone of the plant.

Water and nutrients enter the soil from the emitters, moving into the root zone of the plants through the combined forces of gravity and capillary. In this way, the plant's withdrawal of moisture and nutrients are replenished almost immediately, ensuring that the plant never suffers from water stress, thus enhancing quality, its ability to achieve optimum growth and high yield.

INTRODUCTION OF THE TOPIC:

Drip irrigation or **trickle irrigation** is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface. The goal is to place water directly into the root zone and minimize evaporation. Drip irrigation systems distribute water through a network of valves, pipes, tubing, and emitters. Depending on how well designed, installed, maintained, and operated it is, a drip irrigation system can be more efficient than other types of irrigation systems, such as surface irrigation or sprinkler irrigation.

Drip and subsurface drip irrigation is used almost exclusively when using recycled municipal wastewater. Regulations typically do not permit spraying water through the air that has not been fully treated to potable water standards.

HISTORY:

Primitive drip irrigation has been used since ancient times. *Fan Shengzhi shu*, written in China during the first century BCE, describes the use of buried, unglazed clay pots filled with water, sometimes referred to as Ollas, as a means of irrigation.

Modern drip irrigation began its development in Germany in 1860 when researchers began experimenting with subsurface irrigation using clay pipe to create combination irrigation and drainage systems
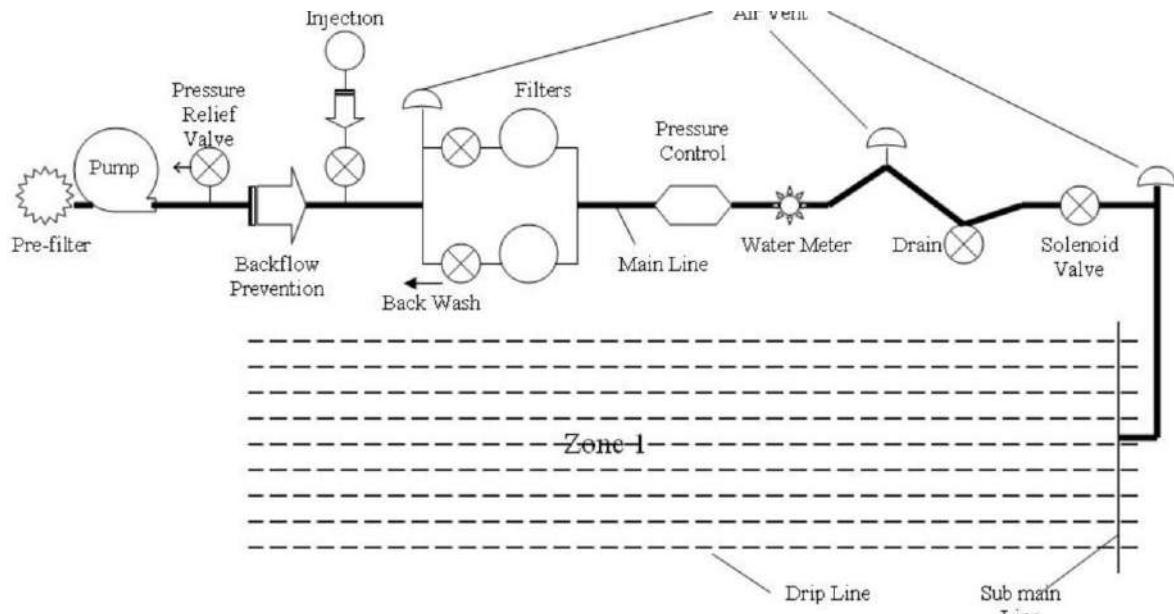
TRICKLE RING:

A trickle ring is a circular device which evenly distributes water around the base of a tree or shrub. Connected to a water supply by a garden hose or tubing adapter fitting, trickle rings may be integrated into an irrigation network which waters many plants at the same time. By regulating the flow of water through the trickle ring, soil can be saturated at a rate which conserves water by minimizing wasteful surface runoff and losses due to evaporation.

Drip irrigation can help you use water efficiently. A well-designed drip irrigation system loses practically no water to runoff, deep percolation, or evaporation. Drip irrigation reduces water contact with crop leaves, stems, and fruit. Thus conditions may be less favorable for the onset of diseases. Irrigation scheduling can be managed precisely to meet crop demands, holding the promise of increased yield and quality.

Growers and irrigation professionals often refer to "subsurface drip irrigation," or SDI. When a drip tape or tube is buried below the soil surface, it is less vulnerable to damage during cultivation or weeding. With SDI, water use efficiency is maximized because there is even less evaporation or runoff.

Agricultural chemicals can be applied more efficiently with drip irrigation. Since only the crop root zone is irrigated, nitrogen already in the soil is less subject to leaching losses, and applied fertilizer N can be used more efficiently. In the case of insecticides, less product might be needed. Make sure the insecticide is labeled for application through drip irrigation.

A wide range of components and system design options is available. The Drip Directory lists equipment and suppliers. Drip tape varies greatly in its specifications, depending on the manufacturer and its use . The distribution system, valves, and pumps must match the supply requirements of the tape. Tape, depth of tape placement, distance between tapes, emitter spacing and flow, and irrigation management all must be chosen carefully based on crop water requirements and the soil's properties. Drip tubing rather than drip tape is usually used for perennial crops such as grapes or poplar trees.

- Pump or pressurized water source
- Water filter(s) or filtration systems: sand separator, Fertigation systems (Venturi injector) and chemigation equipment (optional)
- Backwash controller (Backflow prevention device)
- Pressure control valve (pressure regulator)
- Distribution lines (main larger diameter pipe, maybe secondary smaller, pipe fittings)
- Hand-operated, electronic, or hydraulic control valves and safety valves
- Smaller diameter polyethylene tube (often called "laterals")
- Poly fittings and accessories (to make connections)
- Emitting devices at plants (emitter or dripper, micro spray head, inline dripper or inline drip tube)

In drip irrigation systems, pump and valves may be manually or automatically operated by a controller.

Most large drip irrigation systems employ some type of filter to prevent clogging of the small emitter flow path by small waterborne particles. New technologies are now[when?] being offered that minimize clogging. Some residential systems are installed without additional filters since potable water is already filtered at the water treatment plant. Virtually all drip irrigation equipment manufacturers recommend that filters be employed and generally will not honor warranties unless this is done. Last line filters just before the final delivery pipe are

strongly recommended in addition to any other filtration system due to fine particle settlement and accidental insertion of particles in the intermediate lines.

Drip and subsurface drip irrigation is used almost exclusively when using recycled municipal wastewater. Regulations typically do not permit spraying water through the air that has not been fully treated to potable water standards.

Because of the way the water is applied in a drip system, traditional surface applications of timed-release fertilizer are sometimes ineffective, so drip systems often mix liquid fertilizer with the irrigation water. This is called fertigation; fertigation and chemigation (application of pesticides and other chemicals to periodically clean out the system, such as chlorine or sulfuric acid) use chemical injectors such as diaphragm pumps, piston pumps, or aspirators. The chemicals may be added constantly whenever the system is irrigating or at intervals. Fertilizer savings of up to 95% are being reported from recent university field tests using drip fertigation and slow water delivery as compared to timed-release and irrigation by micro spray heads.

Properly designed, installed, and managed, drip irrigation may help achieve water conservation by reducing evaporation and deep drainage when compared to other types of irrigation such as flood or overhead sprinklers since water can be more precisely applied to the plant roots. In addition, drip can eliminate many diseases that are spread through water contact with the foliage. Finally, in regions where water supplies are severely limited, there may be no actual water savings, but rather simply an increase in production while using the same amount of water as before. In very arid regions or on sandy soils, the preferred method is to apply the irrigation water as slowly as possible.

Pulsed irrigation is sometimes used to decrease the amount of water delivered to the plant at any one time, thus reducing runoff or deep percolation. Pulsed systems are typically expensive and require extensive maintenance. Therefore, the latest efforts by emitter manufacturers are focused on developing new technologies that deliver irrigation water at ultra-low flow rates, i.e. less than 1.0 L (2.1 US pints; 1.8 imperial pints) per hour. Slow-and-even delivery further improves water use efficiency without incurring the expense and complexity of pulsed delivery equipment.

An emitting pipe is a type of drip irrigation tubing with emitters pre-installed at the factory with specific distance and flow per hour as per crop distance.

An emitter restricts water flow passage through it, thus creating head loss required (to the extent of atmospheric pressure) to emit water in the form of droplets. This head loss is achieved by friction/turbulence within the emitter

Drip irrigation is an efficient and economical way to water your yard and garden. Used commonly in drier areas of the country, drip irrigation is becoming more popular in the Northeast. Unlike other forms of irrigation, such as sprinklers that are only 65-75% efficient, drip irrigation **90%** efficient at allowing plants to use the water applied. And, it reduces runoff and evaporation. Drip irrigation applies the water slowly at the plant root zone where it is needed most.

Drip irrigation has more commonly been used in commercial nursery and farm operations, however, homeowners are beginning to take advantage of its uses and benefits. As a homeowner, you can use drip irrigation in your vegetable and perennial gardens, and to water trees and shrubs.

Benefits of Drip Irrigation

Drip irrigation involves placing tubing with emitters on the ground along side the plants. The emitters slowly drip water into the soil at the root zone. Because moisture levels are kept at an optimal range, plant productivity and quality improve. In addition, drip irrigation:

- Prevents disease by minimizing water contact with the leaves, stems, and fruit of plants.
- Allows the rows between plants to remain dry, improving access and reducing weed growth.
- Saves time, money, and water because the system is so efficient.
- Decreases labor.
- Increases effectiveness on uneven ground.
- Reduces leaching of water and nutrients below the root zone.

Drip Irrigation System Design and Components

The main components of a drip irrigation system (see graphic below) include the mainline, valve, sub-main, backflow preventer, pressure regulator, filter, tubing adapters and fittings, drip tubing, emitters, and end caps. The mainline is the pipe that runs from the water source – typically your outdoor faucet – to the valve; and the sub-main runs from the valve to the point where the drip tubing is connected. Generally, sub-mains are used only when there are multiple lines of drip tubing and zones feeding off of the same mainline water source. The combined length of the mainline and sub-main should not exceed 400 feet.

The valve controls water flow into the system and can be set for either automatic or manual control. Backflow preventers are necessary to ensure that irrigation water doesn't flow back into the pipes and contaminate your main water source.

Pressure regulators are needed if the water pressure is over 40 pounds per square inch. If you do not know your water pressure it is a good idea to install one just in case.
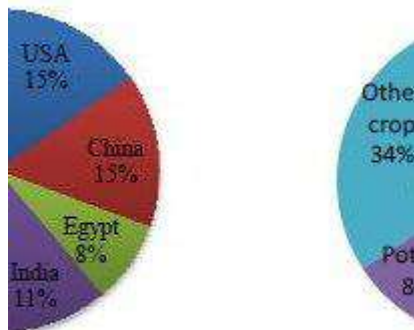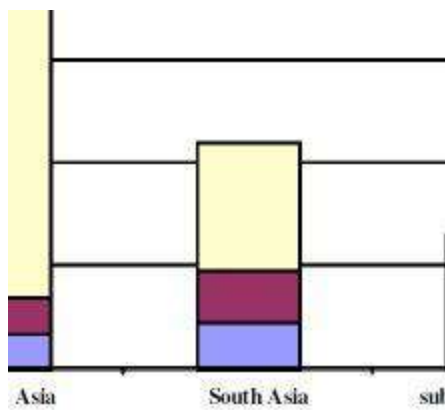
Filters keep dissolved substances in your water from clogging the emitters over time. Install filters either at the emitters or at the water source to protect both the valve and pressure regulator in addition to the emitters. It is best if the filter has at least a 150 mesh screen or higher.

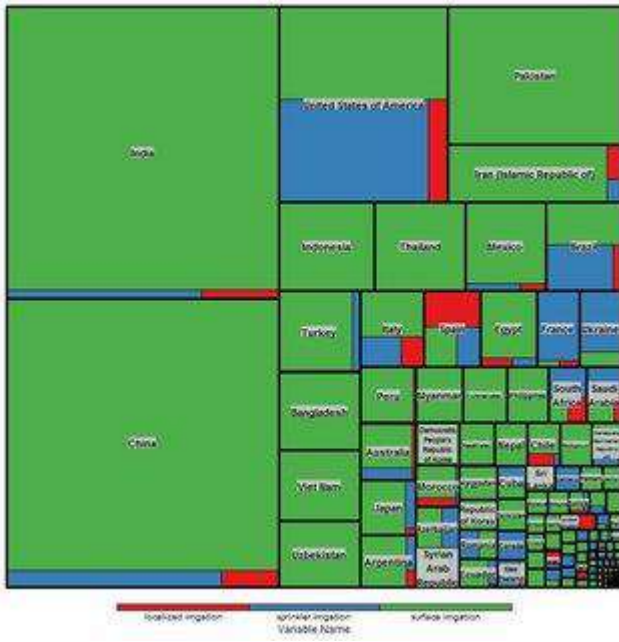Tubing adapters and fittings are used to attach the drip tubing to the rest.

Land and water represent the country's fundamental needs for agriculture and economic growth. By 2025, 1/3 of the world's population will face total water shortage. Agriculture consumes over eighty percentage of the exploitable water supplies of the world. The global productivity of the agricultural sector & the expected rate of development in GDP entirely rely primarily on the sagacious utilize of the obtainable water supplies. Therefore, this Micro Irrigation scheme which aim to increase the region under the efficient irrigation techniques via irrigation by Drip technique. Drip irrigation is the effective way of delivering irrigation of water directly to soil in the plant's root areas, reducing typical mislaying such as soil erosion, deep percolation and runoff. This also permits fertilizers, nutrients, & other water-soluble substances to be used along with irrigation water, leading to higher yields and improved production results. Drip irrigation systems is seen the solution to several challenges of dry land cultivation and increasing the output of irrigated cultivation. In view of all these, the present research was planned to research the degree of advantages obtained from drip irrigation in horticultural crops and to recognize the constraints faced by farmers in the adoption of the drip irrigation in horticultural crops.

The main focus of this paper was to review the present status and performance of drip irrigation system. Place and Duration of Study: College of Water Conservancy, Shenyang Agricultural University, China. During March to July, 2016. Methodology: This study compared drip irrigation with most common irrigation methods used for finding water-savings, efficient and sustainable agricultural production in arid and semi-arid regions on the basis available information. Results: Increasing water demand in various sectors and inefficient water uses especially in agriculture, pose huge challenges in future water availability. Therefore, the future is seeking a more efficient method of water

use. However, drip irrigation system is spreading rapidly all over the world as a water saving methods. Various types of crops grown under drip irrigation were compared with surface and sprinkler irrigation. Saline and reclaimed water application is also increasing alternatively as fresh water scarcity is increasing. Conclusion: Review observation implies that, surface water irrigation will necessarily be reducing due to low efficiency and considerable conveyance losses.

localized irrigation	sprinkler irrigation	surface irrigation

Variable Name

Drip Irrigation method, also called drop by drop irrigation, and underground irrigation, functions as its name imply. Drop by drop, water is distributed to the active root zone of plants. This method, if managed properly, might be the most water-supply-efficient way of irrigation, because runoff and evaporation reduced significantly. Drip irrigation in today's agriculture, is frequently integrated with plastic sheet, further diminishing evaporation, and is also a method of fertilizers delivery to the plants. This process called fertigation (fertilizer + irrigation). DIY DripKits, complete professional drip systems.

Deep trickle (percolation), where water moves below the active root zone, can happen if a drip system is running for too long time or if the irrigation application rate is too high. Drip irrigation systems vary from high-end and computer controlled to simple low-tech with intensive labor involved. Relatively low pressures, is required for most types of micro irrigation systems. System can be planned with uniformity within the field or for exact water conduction to individual plants in a field containing a mix of plant types.

Even though it is complex to regulate water pressure on steep slopes, PC emitters (pressure compensating) available, so drip systems can handle you can handle un-leveled fields as well. Water pressure regulation and filtration to remove particles are primordial in any drip system. Drip systems tubes are usually black, however there are also brown, blue and even white tubes. Some drip tubes are buried under soil or mulch to prevent the growth of algae and to protect the PE (polyethylene) from degradation due to ultra-violet radiation. Sometimes a drip irrigation system can also be a porous clay vessel inserted into the soil and periodically filled from a hose or a watering can. Successful farmers around the globe use drip systems to irrigate almost any intensive crop or plant. find more information on drip irrigation equipment.

Latest drip irrigation technology called hydro-pc, guarantee a wide, efficient labyrinth leading the water into a flow control cell, where a special diaphragm compensate the stream, and keeps a stable flow rate at changeable inlet pressures. IG hydropc drip line is highly resistant to clogging. The dripper inlet filter, located closer to the tube center, guarantees an excellent constant flushing treatment. The relatively small diameter drip line makes a better drip irrigation efficiency. Decrease retained water in the system, causing a shorter refilling time with less redundant drained water, on sloppy terrains, no excessive water wetting in the lower parts of the field. Competitive low cost and big saving on transportation volume and weight. Applications for hydro-pc: All kind of crops on sloping terrain. Or where long run drip lines are a must, look at our irrigation systems design section.

The present study enlists various sources of irrigation, their spatial patterns and growth trends in Uttar Pradesh state of India. This study tries to explore the humanwater interactions in irrigated agriculture of the state adapting socio-hydrological approach. Being the most populated state in the country, water demand in agriculture is high to produce adequate food for sustaining the population of the state. As a result, more use of groundwater through water extraction devices mainly through tubewells is prevalent since mid-1960s, which has resulted into change in land use dynamics focusing mainly on wheat and rice crops. The plentiful availability of ground water in the state has led to high level of development in certain parts of the state. Uneven patterns of human-water relation occur where indiscriminate exploitation of groundwater resources prevails, which led to decline in water tables in many pockets of the state. Hence, irrigation water management is a prerequisite condition for achieving sustainable agricultural development in the state. This research deals with the development of irrigated agriculture in the state during 20 years of time period since 1995–1996 to 2014–2015 which has been further divided into four quinquennial periods, i.e., 1995–2000, 2000–2005, 2005–2010 and 2010–2015 so as to make a comparative assessment. From the analysis, it can be explained that, there has been a significant increase in gross irrigated area in the state from 67.28% (17.59 million ha.) to 77.85% (20.11 million ha.) during the periods of 1995–2000 and 2010–2015. Bundelkhand region of the state recorded the highest positive growth in gross irrigated area, followed by central and eastern parts, whereas its growth in western region has been negative during the periods 1995– 2000 to 2000–2005 and 2005–2010 to 2010–2015. The number of districts almost tripled having above 85% of gross irrigated area from 1995–2000 to 2010–2015, and most of the growth in gross irrigated area was observed in the districts confined to Awadh and Purvanchal regions of the state. It is evident from the study that, net irrigated area was high in almost all the districts of the state, except some districts of Bundelkhand and north-eastern tarai belt of the state. Net irrigated area has been positive with a growth of above 3% during the respective periods of study.

until 1960s, water was not recognised as a scarce resource. At that time, there were fewer than half the current number of people on the planet. People were not as wealthy as today, consumed fewer calories and ate less meat, so less water was needed to produce their food. They required a third of the volume of water we presently take from rivers. Today, the competition for water resources is much more intense. This is because there are now more than seven billion people on the planet, increasing the likely hood of overconsumption of food produced by water-thirsty animal agriculture and intensive farming practices, and there is increasing competition for water from industry, urbanisation and biofuel crops. To avoid a global water crisis, farmers will have to strive to increase productivity to meet growing demands for food, while industry and cities find ways to use water more efficiently.[49]

Increased irrigation efficiency has a number of positive outcomes for the farmer, the community and the wider environment. Low application efficiency infers that the amount of water applied to the field is in excess of the crop or field requirements. Increasing the application efficiency means that the amount of crop produced per unit of water increases. Improved efficiency may either be achieved by applying less water to an existing field or by using water more wisely thereby achieving higher yields in the same area of land. In some parts of the world, farmers are charged for irrigation water hence over-application has a direct financial cost to the farmer. Irrigation often requires pumping energy (either electricity or fossil fuel) to deliver water to the field or supply the correct operating pressure. Hence increased efficiency will reduce both the water cost and energy cost per unit of agricultural production. A reduction of water use on one field may mean that the farmer is able to irrigate a larger area of land, increasing total agricultural production. Low efficiency usually means that excess water is lost through seepage or runoff, both of which can result in loss of crop nutrients or pesticides with potential adverse impacts on the surrounding environment.

Drip irrigation reference Drip irrigation reference

Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.

Drip irrigation or trickle irrigation is a type of micro-irrigation system that has the potential to save water and nutrients by allowing water to drip slowly to the roots of plants, either from above the soil surface or buried below the surface.