

A PROJECT REPORT**ON****“ANDROID APPLICATION FOR EMPLOYING SKILLED AND
UNSKILLED PEOPLE”****Submitted to****UNIVERSITY OF MUMBAI****In Partial Fulfilment of the Requirement for the Award of****BACHELOR'S DEGREE IN
COMPUTER ENGINEERING****BY**

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**UNDER THE GUIDANCE OF
PROF. MUKHTAR ANSARI****DEPARTMENT OF COMPUTER ENGINEERING
Anjuman-I-Islam's Kalsekar Technical Campus
SCHOOL OF ENGINEERING & TECHNOLOGY****Plot No. 2 3, Sector - 16, Near Thana Naka,
Khandagaon, New Panvel - 410206****2018-2019****AFFILIATED TO
UNIVERSITY OF MUMBAI**

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CERTIFICATE

This is certify that the project entitled

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submitted by

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is a record of bonafide work carried out by them, in the partial fulfilment of the requirement for the award of Degree of Bachelor of Engineering (Computer Engineering) at *Anjuman-I-Islam's Kalsekar Technical Campus, Navi Mumbai* under the University of MUMBAI. This work is done during year 2018-2019, under our guidance.

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SIDDIQUE FAIZAN ASHRAF ALI MUNIRA

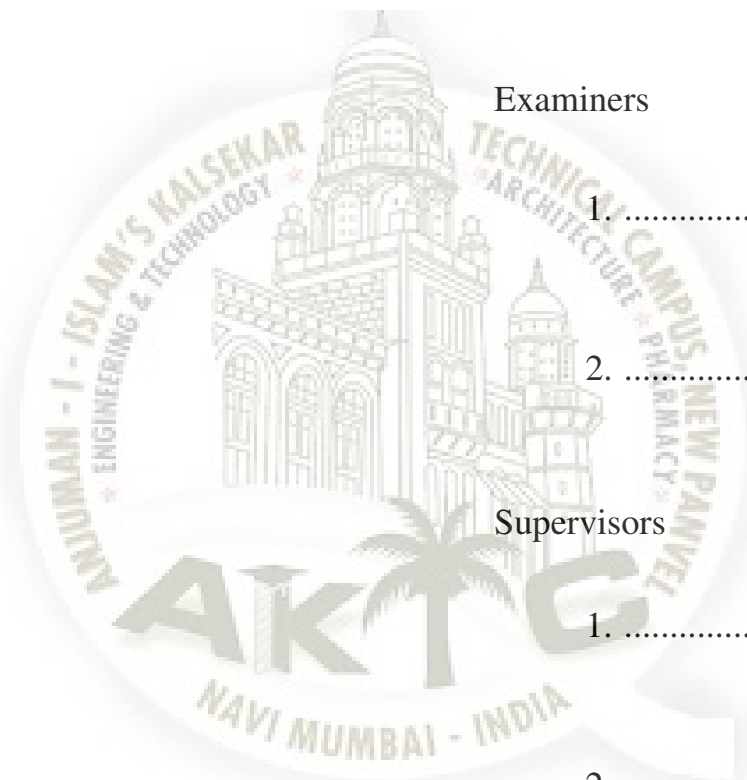
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Project I Approval for Bachelor of Engineering

This project entitled *Android application for Employing skilled and unskilled people* by *Siddique Faizan Ashraf Ali Munira (15CO39), Tamboli Bushra Abdul Rehman Shabira (16DCO81), Patil Priyanka Bhujangrao Rajni (16DCO67), Ruk-sar Bano Sageer Ahmad Sajida (16DCO68)* is approved for the degree of *Bachelor of Engineering in Department of Computer Engineering*.



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Declaration

I declare that this written submission represents my ideas in my own words and where others ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.



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ABSTRACT

Android application for employing skilled and unskilled people

We are Indians as we know poverty in India is much more than compared to other countries. We usually see poor fellows sitting on roads, railway stations and on many other places but we are helpless cause being an Indian and living in India is becoming difficult day by day because of lack of employment. Even if there are some employment sources then they demand for qualification. Hence, it becomes more strenuous for poor people to survive. So, we are here with an android application that will be providing an assistance to the poor people to get job. This application is not just a simple application that will give employment but there are many more modules in our project. First module is about employment to the poor/beggars, second module is placing homeless children into orphanages, third module is placing homeless aged people to old age homes, and fourth module is Donation to NGOs. In our application the functionalities will be different from other apps. We are making use of data scrapping to get jobs from other websites too. Our system is qualification independent that means it will provide employment according to the abilities of the person and what kind of skills he/she possess. If the person is disabled then he/she will get a job according to his/her ability. Notifications about government programs will also be given to the poor people if they don't have any skills and want to learn some.

Keywords: Data scrapping, Notification, Speech Recognition, OTP login.

Contents

Acknowledgement	iii
Project I Approval for Bachelor of Engineering	iv
Declaration	v
Abstract	vi
Table of Contents	x
1 Introduction	2
1.1 Purpose	2
1.2 Project Scope	2
1.3 Project Goals and Objectives	3
1.3.1 Goals	3
1.3.2 Objectives	3
1.4 Organization of Report	3
2 Literature Survey	5
2.1 Socio-Economic causes of begging	5
2.1.1 Advantages of Paper	5
2.1.2 Disadvantages of Paper	5
2.1.3 How to overcome the problems mentioned in Paper	6
2.2 Challenges in computerized job search for the developing world. . .	6
2.2.1 Advantages of Paper	6
2.2.2 Disadvantages of Paper	7
2.2.3 How to overcome the problems mentioned in Paper	7
2.3 Level of poverty and employment pattern in slums: A case of Gwalior in central India.	7
2.3.1 Advantages of Paper	8
2.3.2 Disadvantages of Paper	8
2.3.3 How to overcome the problems mentioned in Paper	8
2.4 A feasibility study for the development of an employment system for underserved communities	8

2.4.1	Advantages of Paper	9
2.4.2	Disadvantages of Paper	9
2.4.3	How to overcome the problems mentioned in Paper	9
2.5	Technical Review	10
2.5.1	Jsoup	10
2.5.2	Web Scraper	10
2.5.3	Firebase	11
2.5.4	Android Studio	11
2.5.5	Text To Speech API	11
2.5.6	Comparison of Existing system and Proposed system	12
3	Project Planning	13
3.1	Members and Capabilities	13
3.2	Roles and Responsibilities	13
3.3	Assumptions and Constraints	13
3.3.1	Assumption:	13
3.3.2	Constraint:	14
3.4	Project Management Approach	14
3.5	Ground Rules for the Project	14
3.6	Project Budget	15
3.7	Project Timeline	15
4	Software Requirements Specification	16
4.1	Overall Description	16
4.1.1	Product Perspective	16
4.1.2	Product Features	16
4.1.3	User Classes and Characteristics	16
4.1.4	Operating Environment	17
4.1.5	Design and Implementation Constraints	17
4.2	System Features	17
4.2.1	Keyword Matching Algorithm	17
4.2.2	Data Scrapping	18
4.2.3	Google API	18
4.3	External Interface Requirements	18
4.3.1	User Interfaces	18
4.3.2	Hardware Interfaces	18
4.3.3	Software Interfaces	19

4.3.4	Communications Interfaces	19
4.4	Nonfunctional Requirements	19
4.4.1	Performance Requirements	19
4.4.2	Safety Requirements	19
4.4.3	Security Requirements	20
5	System Design	21
5.1	System Requirements Definition	21
5.1.1	Functional requirements	21
5.1.2	System requirements (non-functional requirements)	25
5.1.3	Performance Requirements	25
5.1.4	Safety Requirements	25
5.1.5	Security Requirements	25
5.2	System Architecture Design	27
5.3	Sub-system Development	28
5.3.1	Employment	28
5.3.2	Scholarship	29
5.3.3	Donation	30
5.3.4	Uploader	31
5.3.5	Notification	32
5.4	Systems Integration	33
5.4.1	Class Diagram	34
5.4.2	Sequence Diagram	35
5.4.3	Component Diagram	39
5.4.4	Deployment Diagram	40
6	Implementation	41
6.1	Employment	41
6.2	Scholarship	44
6.3	Donation	46
6.4	Uploader	48
6.5	Notification	50
7	System Testing	52
7.1	Test Cases and Test Results	52
7.2	Login Page Test Case	52
7.2.1	Software Quality Attributes	53

8 Screenshots of Project	54
8.1 Employment module	54
8.2 Scholarship module	57
8.3 Upload module	59
8.4 Donor module	60
9 Conclusion and Future Scope	61
9.1 Conclusion	61
9.2 Future Enhancement	61
References	61
Achievements	62



List of Figures

3.1	Spiral Model	14
3.2	Project Timeline	15
5.1	Use Case of 'Android app for Employing Skilled and Unskilled People'.	22
5.2	DFD level 0	23
5.3	DFD level 1 for Needy	23
5.4	DFD level 1 for Employer	24
5.5	DFD level 1 for scholarship	24
5.6	DFD level 1 for Uploader	24
5.7	DFD level 1 for Donation	25
5.8	ER diagram of 'Android app for Employing Skilled and Unskilled People'.	26
5.9	System Architecture of 'Android app for Employing Skilled and Unskilled People'.	27
5.10	Flow chart for module Post Job.	28
5.11	Flow chart for module Get Job.	29
5.12	Flow chart for module Scholarship.	30
5.13	Flow chart for module Donation.	31
5.14	Flow chart for module Uploader.	32
5.15	Class diagram of 'Android app for Employing Skilled and Unskilled People'.	34
5.16	Sequence diagram for module Post Job.	35
5.17	Sequence diagram for module Get Job.	36
5.18	Sequence diagram for module Scholarship.	37
5.19	Sequence diagram for module Donation.	38
5.20	Sequence diagram for module Uploader.	38
5.21	Component diagram for 'Android app for Employing Skilled and Unskilled People'.	39

5.22	Deployment diagram for 'Android app for Employing Skilled and Unskilled People'	40
6.1	View Company Profile Page	44
6.2	Adding Job Post Page	44
6.3	Scholarship Options	45
6.4	Displaying NGOs list	46
6.5	Showing NGOs Details	46
6.6	Uploading Page	48
6.7	List of Government Schemes	50
8.1	Login Page	54
8.2	Menu Page	54
8.3	View Company Profile Page	55
8.4	Adding Job Post Page	55
8.5	Posted jobs Page	55
8.6	Applicants Page	55
8.7	Choosing Applicants Page	56
8.8	Registered Needy in database	56
8.9	View Company Profile Page	57
8.10	Adding Job Post Page	57
8.11	Posted jobs Page	58
8.12	Database	58
8.13	Uploader page	59
8.14	Location fetched and stored in databse	59
8.15	Donor Registration page	60
8.16	Location fetched and stored in database	60

List of Tables

2.1	Technical Review	12
3.1	Table of Capabilities	13
3.2	Table of Responsibilities	13



Chapter 1

Introduction

When we found out that Mumbai has a total population of 12.44 million — 42 percent of whom live in slums. We started thinking about their development, we went through many case studies about slums. We also looked for government programs happening for them. Before developing this project we met NGO known as Smiling Angels in Vashi to understand how they helped people in slums. As a result of all these efforts we understood the problem NGO volunteers and poor people are facing. Then we decided to come up with some solution that includes technologies and the solution which will help all people to develop together.

1.1 Purpose

Identify the product whose software requirements are specified in this document. Describe the scope of the product that is covered by this SRS, particularly if this SRS describes only part of the system or a single subsystem. Describe the different types of user that the document is intended for, such as developers, project managers, marketing staff, users, testers, and documentation writers. [1] Describe what the rest of this SRS contains and how it is organized. Suggest a sequence for reading the document, beginning with the overview sections and proceeding through the sections that are most pertinent to each reader type.

1.2 Project Scope

- To bring revolution by employing beggars too.
- To give identity to beggars.

1.3 Project Goals and Objectives

1.3.1 Goals

- To make India a poverty-free country.
- To improve rural peoples' livelihood in an equitable and sustainable manner.
- To maintain more income, more saving relationship.

1.3.2 Objectives

- To provide employment based on the abilities rather than qualification.
- To make poor people aware about the government training programs.
- To provide home to homeless children and aged peoples.
- To provide donations to different NGOs
- To provide scholarships to students.

1.4 Organization of Report

Chapter **Introduction** shows how this idea popped up and motivation we got to develop this project. We checked if there any system exist for this problem. We found paper based and computer based system. We studied their advantages, disadvantages and got to know how we can build solution to overcome those disadvantages.

Chapter **Literature Survey** includes summary, advantages, disadvantages and ways we can improve those disadvantages of reference paper we studied. Review of literature helps to understand need of project, how project can improve situations and it helps developers to understand what exactly need to develop. Literature review helps clients to know in what areas project can be used.

Project Planning and SRS chapter is given so that other developers or clients can know what technologies, tools, software and hardware is used. On what hardware or platform developed project can be deployed. The market potential of project, its estimated development cost, expected profit can be known from this chapter.

System design chapter is provided with six diagrams to understand modules, users and architecture of project. Use case diagram is given to understand functionality of a system with users and usecases. To visualize database ER diagram is shown. Class diagram is provided to understand structure of project and to understand how data is passing through modules Data Flow Diagram(DFD) is given. To show relation between different modules Component Diagram is shown.

Chapter **Implementation** describes each and every module of project in details. Also to understand interaction logic between object in system sequence diagram is shown. Activity diagram shows control flow from one activity to another. Flow chart for every module is given that shows overall structure of the process or system, traces the flow of information and work through it, and highlights key processing and decision points.

Chapter **System Testing and Screenshots of project** discusses Test cases used for testing the system, to check validation. The results occurred are given in this chapter. The analysis done after development is described here.

Last chapter **Conclusion and Future Scope** describes how we can make project scope more broad. What are the limitations of system and conclusion.



Chapter 2

Literature Survey

2.1 Socio-Economic causes of begging

The objective of this paper was to present a review of published research on what are actual causes of begging and why people choose begging over employment. The present research paper is an attempt to analyze the socio-economic causes of begging, various problems faced by beggars, governmental helps received by them and suggestions given themselves by the beggars as well as recommended by the authors for upliftment of the socio-economic standard of their life in Aligarh district of Uttar Pradesh.

The present study has been undertaken with the following specific objectives:

- To examine the socio-economic causes of begging.
- To find out suggestions as proposed by the beggars to give up this activity.
- To give remedial measures for improving their socio-economic condition.

2.1.1 Advantages of Paper

- a. This review has helped us to gain knowledge that what exactly beggars want.
- b. It also gave some solutions and some more methods that will eliminate the practice of begging.

2.1.2 Disadvantages of Paper

- a. This study may have missed relevant articles published after August, 2014.
- b. The review is limited to a particular district only.
- c. There are many expectations from government.

2.1.3 How to overcome the problems mentioned in Paper

- a. We will be referring data published after 2014 to 2017. Also we need to study data for Maharashtra state.

2.2 Challenges in computerized job search for the developing world.

This paper examines broad challenges that will occur while developing computer based system to help workers from slum in India. A significant challenge in system is the crucial role of human intermediaries is necessary in the final computer-based system. The paper describes the importance of building skills among the poor people, the need for strong value proposition for both employers and employees and the requirement for technological literacy. In cities everywhere, but particularly in developing countries, employment of poor is informal and outside the purview of government regulation. In Bangalore, for example, where there is an estimated market of 400,000 poor across the city, there is no certification for workers, no employment office, and certainly no minimum-wage law.

The major points of this study were :

- The poors find employment entirely through word of mouth, with almost no formal or organized means of identifying potential employers. Employers similarly have no access to a reliable source for employees.
- The paper-based pilot is a manual system of connecting employees and employers through a human intermediary. One member of the NGO, whom we will refer to as the coordinator, was responsible for operating the paper-based system.
- Computer based system where employers and employees are connected via computer network, possibly with some human help on the employee side.

2.2.1 Advantages of Paper

- a. We came to know how they collected data, how they communicate with companies and poor people.
- b. We understood what kind of problems they faced during whole process.

2.2.2 Disadvantages of Paper

- a. PCs are not available to poor people. Even if there are resources available they fail to access them.
- b. Need for efficient communication modes with employers and employees.

2.2.3 How to overcome the problems mentioned in Paper

- a. To make proper interface between employers and employees which should be user-friendly even for illiterate people.
- b. To remove this problem of placing PC kiosk in slum community, an android app should be introduced which can be accessed from anywhere.
- c. Required resources and proper assistance must be provided by that app.

2.3 Level of poverty and employment pattern in slums: A case of Gwalior in central India.

Increasing urbanization and an inexorable rate of growth of the urban population has resulted in a proliferation of both slums and the slum population in India in recent years. Urban slums in India are considered to be the locus of urban poverty and it is argued that both go hand in hand. Slums are the by-product of poverty and poverty, in turn, leads to the formation of slums.

The statistical data expresses that :

- Madhya Pradesh, 42 out of a total of 370 towns report the presence of slums. Thus, Gwalior is one of the cities in the country with a large number of slums. There are 60 wards in Gwalior, of which 43 report the existence of slums (Census of India, 2001).
- According to the Census estimates, the total population in Gwalior slums is 2,09,769, which accounts for 35,348 households. The total number of households in all the wards (slum plus non-slum) is 1, 44,728 while the total urban population for the same is 8, 27,026.
- Total of 44 slums out of the listed 229 slums were selected, which are spread in 60 wards or 21 zones of Gwalior and include 12 slums of the cantonment area. The multi-staged stratified random sampling techniques were used for selecting the consumption pattern of the slum people, distribution of households

by expenditure class and monthly income. Level of sampling was done on the basis of the size of the households in that particular slum.

2.3.1 Advantages of Paper

- a. Statistical data helped us to guess need of our system.
- b. By studying employment pattern of poor we understood what extra modules we should add in our system.

2.3.2 Disadvantages of Paper

- a. Some of the respondents may have either overstated their consumption or understated their income.
- b. The task of procuring consumption data on a uniform recall period of 30-days for all the food items from all the respondents poses a problem, whose solution might have helped in arriving at more accurate results.
- c. Measuring poverty on the basis of consumption levels alone, does not reflect the multi-dimensional nature of poverty.
- d. Other aspects such as lack of access to medical care and schooling, indebtedness, and insecurity have not been added to the measurement of poverty in this study.

2.3.3 How to overcome the problems mentioned in Paper

- a. We need to do survey of beggars.

2.4 A feasibility study for the development of an employment system for underserved communities

This reference paper deals with the employment process in slum communities. Due to lack of developed and organized job-markets, slum dwellers must also contend with high rates of unemployment. This leads to many taking up jobs in an informal economy where recruitment into professions such as housemaid, handloom craftsman, and construction workers is neither monitored nor controlled and depends largely on references within specific circle. e.g. friends family. In such situations information about opportunities becomes privilege to only few individuals.

Employers are wary about hiring individuals from such environment, hence information about opportunities is made privy to only trusted people. Having a member

of the family employed for considerable period of time is instrumental in getting families out of poverty.

A technology solution aimed at mitigating the effects of this employment problem would focus on making privileged information about employment opportunities widely available. Information about candidates – educational qualifications, identity credentials and skills related information – would need to be gathered using a method that is both quick and easy to understand for the candidates. The level of acceptance that such a technology would experience among the members of the community is related to the perception about its usefulness.

Objectives of this paper were :

- To understand the job-seeking process in underserved communities.
- To identify the variety of jobs- in terms, incomes, types of job and other factors.
- To identify important information that is necessary in the employment seeking process in this environment.
- To measure the degree of acceptance people from the community have with a preliminary version of the system.

2.4.1 Advantages of Paper

- a. We understood requirements of companies through their survey report.

2.4.2 Disadvantages of Paper

- a. Employers faced the problem of trust .
- b. Employers faced while recruiting from this environment was that of trust. The community was seen as rife with crime and employers were wary of trusting people. Hence all employers considered background verification of candidates very important.

2.4.3 How to overcome the problems mentioned in Paper

- a. Our system will remove this disadvantage by verifying employees background using Aadhar card. While registration of employee Aadhar details will be taken to provide information of employee.

2.5 Technical Review

Our application is fabricated with following technologies: Jsoup, WebScrapper, Firebase, Android Studio, Google API. All the listed technologies are described further.

2.5.1 Jsoup

To parse HTML documents java have provided library called Jsoup. Jsoup provides api to extract and manipulate data from URL or HTML file. It uses DOM, CSS and JQuery-like methods for extracting and manipulating file.

Reasons to use Jsoup:

- Scrape and parse HTML from a URL, file, or string
- Find and extract data, using DOM traversal or CSS selectors
- Manipulate the HTML elements, attributes, and text
- Clean user-submitted content against a safe white-list, to prevent XSS attacks
- Output tidy HTML

2.5.2 Web Scraper

Web scraper chrome extension is one of the most powerful tools for extracting web data. Using the extension, you can devise a plan or sitemap regarding how a particular web site of your choice should be navigated. Web scraper chrome extension will, then, follow the navigation design accordingly and scrape the data.

Reasons to use Web Scraper:

- Scrape multiple pages
- Sitemaps and scraped data are stored in browser's local storage or in CouchDB
- Multiple data selection types
- Extract data from dynamic pages (JavaScript+AJAX)
- Browse scraped data
- Export scraped data as CSV

2.5.3 Firebase

Firestore is a mobile and web app development platform that provides developers with services to help them develop high-quality apps, grow their user base. Firestore acquired by Google in 2014. Firestore provides a realtime database and backend as a service.

Reasons to use Firestore:

- Firestore sends you new data as soon as it's updated.
- When your client saves a change to the data, all connected clients receive the updated data almost instantly.
- Firestore Storage has it's own system of security rules.

2.5.4 Android Studio

Android Studio is the official integrated development environment (IDE) for Android application development. 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.

Reasons to use Android Studio:

- Android Studio uses highly integrated Gradle build system. It's a great tool that offers dependency management.
- Availability of Drag-and-Drop
- Java Code Auto Completion
- It offers more stable performance than Eclipse. The system requirement of Android Studio is lower.

2.5.5 Text To Speech API

Google Text-to-Speech is a screen reader application developed by Google for its Android operating system. It powers applications to read aloud (speak) the text on the screen which support many languages.

Reasons to use Text To Speech API:

- All voices for a language are now downloaded together.
- Saving storage space on a device provided.
- Easy to implement.

2.5.6 Comparison of Existing system and Proposed system

Parameter	Existing System	Proposed System
Portable	NO	YES
Usability	NO	YES
Verification	NO	YES
Efficient Communication	NO	YES
No.of people involved	LESS	MORE

Table 2.1: Technical Review



Chapter 3

Project Planning

3.1 Members and Capabilities

Table 3.1: Table of Capabilities

SR. No	Name of Member	Capabilities
1	Faizan Siddique	Java, NoSQL
2	Bushra Tamboli	Java, UI Design
3	Priyanka Patil	Java, Data Scrapping
4	Ruksar Bano	Java, Testing

3.2 Roles and Responsibilities

Table 3.2: Table of Responsibilities

SR. No	Name of Member	Role	Responsibilities
1	Faizan Siddique	Team Leader	Database Development
2	Bushra Tamboli	Team Member	UI Design
3	Priyanka Patil	Team Member	Data Scrapping
4	Ruksar Bano	Team Member	Testing

3.3 Assumptions and Constraints

3.3.1 Assumption:

Donation module is introduced by assuming people will donate material and money through our application while helping poors. Application also provides information about NGOs and we are assuming there cooperation in placing children and old age people to respective orphanage and old age homes. Also they will help to get material from donors. In module notification we are assuming data we are scrapping is genuine.

3.3.2 Constraint:

To get data scraped in real time in notification, donation module and to upload pictures, to fetch location internet connection is required. Our application is dependent on internet.

3.4 Project Management Approach

Project will follow Spiral model for development. Spiral model is used where requirements are not frozen. For developing this application we slowly slowly got clear idea about requirements hence this is best suitable model for our application development. Also we developed modules one by one and tested them as soon as they developed.

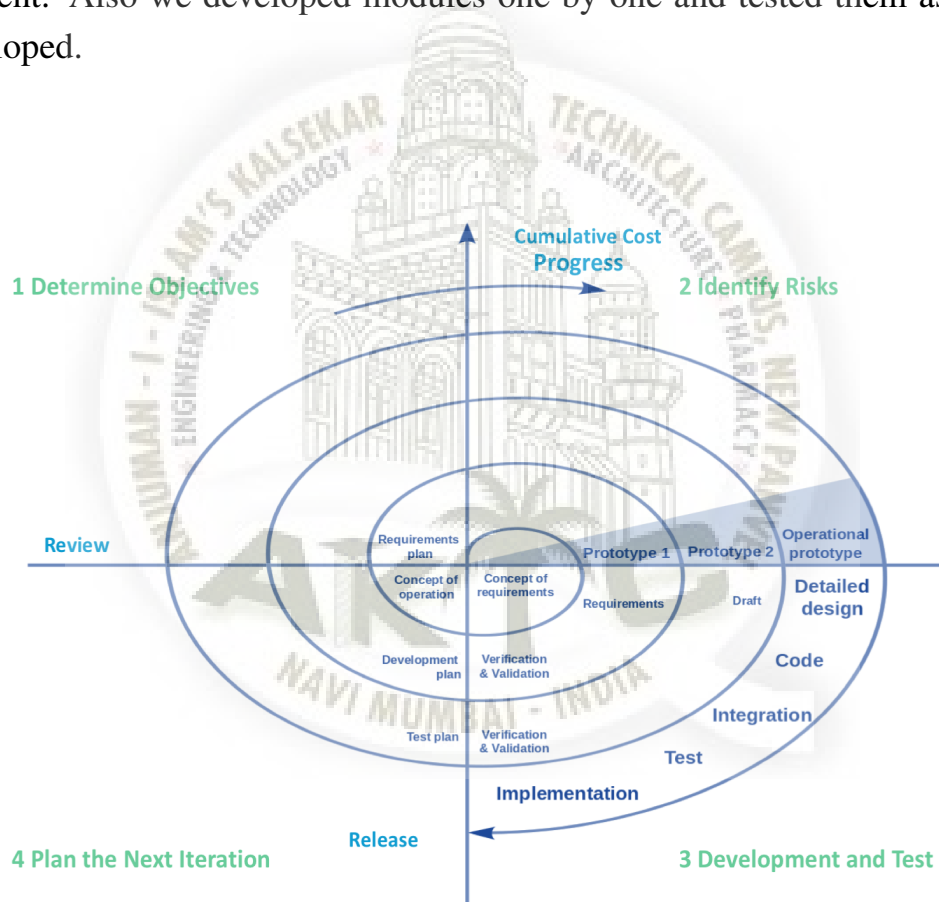


Figure 3.1: Spiral Model

3.5 Ground Rules for the Project

- Project should also be build from users prospective.
- We will keep positive attitude towards Project and team members and everyone will respect each other.

- Everyone will take initiative by sharing ideas, telling improvements in each other work.
- We will be honest and take our responsibilities. We will try our best to complete our project before deadline.
- If any member got stuck at something he/she should ask for help to one another.

3.6 Project Budget

The tools we used like Firebase for Database is Google's free mobile platform given for development. For Text to Speech and vice versa we have used Google API which is free.

3.7 Project Timeline

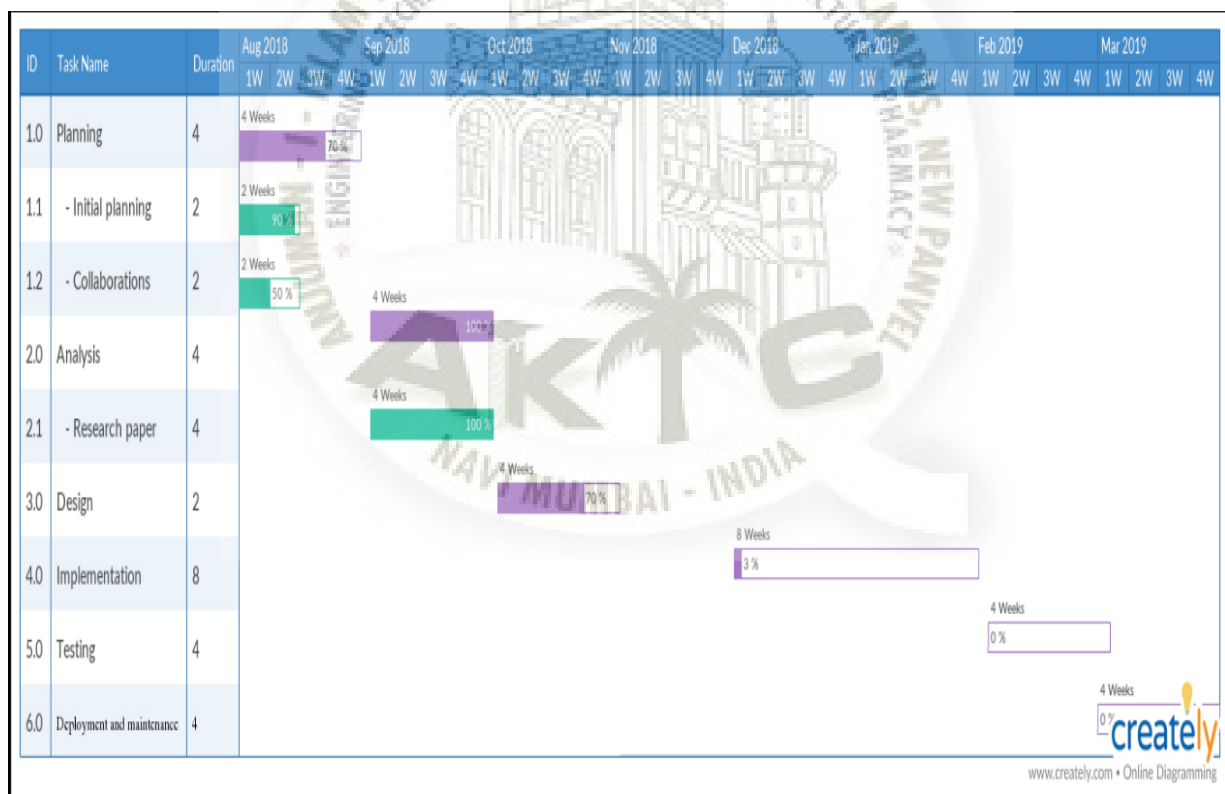


Figure 3.2: Project Timeline

Chapter 4

Software Requirements Specification

4.1 Overall Description

4.1.1 Product Perspective

When we found out that Mumbai has a total population of 12.44 million — 42 percent of whom live in slums. We started thinking about their development, we went through many case studies about slums. We also looked for government programs happening for them. Before developing this project we met NGO knows as Smiling angles in vashi to understand how they helped people in slums. As a result of all this efforts we understood the problem NGO volunteers and poor people are facing. Then we decided to come up with some solution that includes technologies and the solution which will help all people to develop together.

4.1.2 Product Features

System brings various services on single platform. Providing job opportunities to slum people is main purpose while system also provides scholarships to students, placing homeless children into orphanage also placing old age people into old age home is another feature of system. With this system shows notifications about different Government programs provided for slum people and donations are accepted.

4.1.3 User Classes and Characteristics

Different users will use the product differently depending on their needs hence user class will change according to the need of the user. But the basic characteristics of the classes will remain the same where the user will primary interact with main class of system that is authentication. The rest of classes are dependent on what type of user is accessing system.

4.1.4 Operating Environment

Our system is platform independent. That is it will run in any Mobile handset with Android OS. The only important thing is mobile phone should have internet connection. Operating environment also consist of firebase database. Firebase instance is implemented.

4.1.5 Design and Implementation Constraints

In donation module developers want to include Google Maps to provide donor information about NGO's near his/her location. But this thing is not implemented because of paid APIs. Also scrapping data using Python programming language is very easy but developers used Jsoup and java language. To improve scrapping developers need to learn Python.

4.2 System Features

1. Keyword matching algorithm
2. Data scrapping
3. Google API

4.2.1 Keyword Matching Algorithm

Description and Priority

When needy logged in system he/she will all job posts added by different companies. This will be confusing and time consuming for needy. So to show the only job posts which are related to needy's skill set we used keyword matching algorithm. As providing job opportunities is main goal of system this feature holds highest priority among all other.

Stimulus/Response Sequences

- Stimulus: Needy do registration and view job posts
Response: Application shows all job posts
- Stimulus: Needy need to add skills he/she posses and click on Matching jobs.
Response: Application shows job posts related to provided skill set.

4.2.2 Data Scrapping

Description and Priority

Module Scholarship, Donation and Notification uses data scrapping but this are secondary goals of system hence this feature holds medium priority. For scrapping information of NGOs and government programs we use Open source java library Jsoup.

Functional Requirements

- The website we are scrapping should not chnage content.

4.2.3 Google API

Description and Priority

Module Text to speech and vice versa uses Google API. As application will be use by illiterate people this feature holds importance. This feature will be helping slum people to interact with application. So this feature have high priority.

Functional Requirements

- Google API should not ask for subscription and payment.

4.3 External Interface Requirements

4.3.1 User Interfaces

- All users should register first to get all services.
- All the data asked in forms should be accurate to get best results.
- To fill form properly hints and tooltips are added to every input field.

4.3.2 Hardware Interfaces

- PC with 4 GB RAM
- 2 GB of available disk space
- 1280 x 800 minimum screen resolution.
- 2.3 GHz Fast processor.

- Mobile handset with Android OS.
- 2GB RAM

4.3.3 Software Interfaces

- Android studio : version 3.2.3
- Internet Connection.
- Java Jsoup library
- Firebase account

4.3.4 Communications Interfaces

- Communication between needy and company HR is done through our application only by sending notifications to both.
- Also in case if needy is getting difficulties he/she can take help of NGO volunteer to communicate.
- Application and Database communication is done by Firebase instance.

4.4 Nonfunctional Requirements

4.4.1 Performance Requirements

The performance of our application is based on how accurate data is provided by users. In case of data scraping the performance can be decided by content of website. Performance of Donor and Uploader module is based on number of people involved.

4.4.2 Safety Requirements

OTP verification is provided while registering on application. The phone number entered can be helpful in verifying identity of user. Hence only genuine people can get access to application. The data is stored online in firebase database which is very secure because these data is access by only authorized user by providing username and password.

4.4.3 Security Requirements

Fake users cannot use our application because before entering into application need to enter phone number which reveals all users identity also our applications runs only when internet connection is provided. Using internet we can check for Ip addresses, users location,etc.



Chapter 5

System Design

5.1 System Requirements Definition

To collect information about slum people we went through many case studies about slums. We also looked for government programs happening for them. Before developing this project we met NGO known as Smiling angles in vashi to understand how they helped people in slums.

5.1.1 Functional requirements

1. Algorithm: To show job posts according to needy's skillset we have used keyword matching algorithm.
2. Data Scraping: It plays a significant role in our project. We have used Jsoup which is open source java library which scraps the data in the system.
3. Data Storing: We are using firebase instance to store the data.

Use-case Diagram

Use case diagram is given to understand functionality of a system with users and usecases. In this actor are NGO Volunteer, Needy, User and Employer. They are collaborating with one and more external users of the system. In this all actor have to do registration after successfully logged in their role is decided in system. Employer and NGO Volunteer can post job and send notification to needy. User have two role they upload photo if any one found outside the road then they click photo and add some description and location are fetch with the help of Google API after that assign NGO to that people if that people is old aged then they placed them in old age room. User can Donate money and material like clothes, toys, books, etc then they can donate and that donated things are given to needy people through help of NGO.

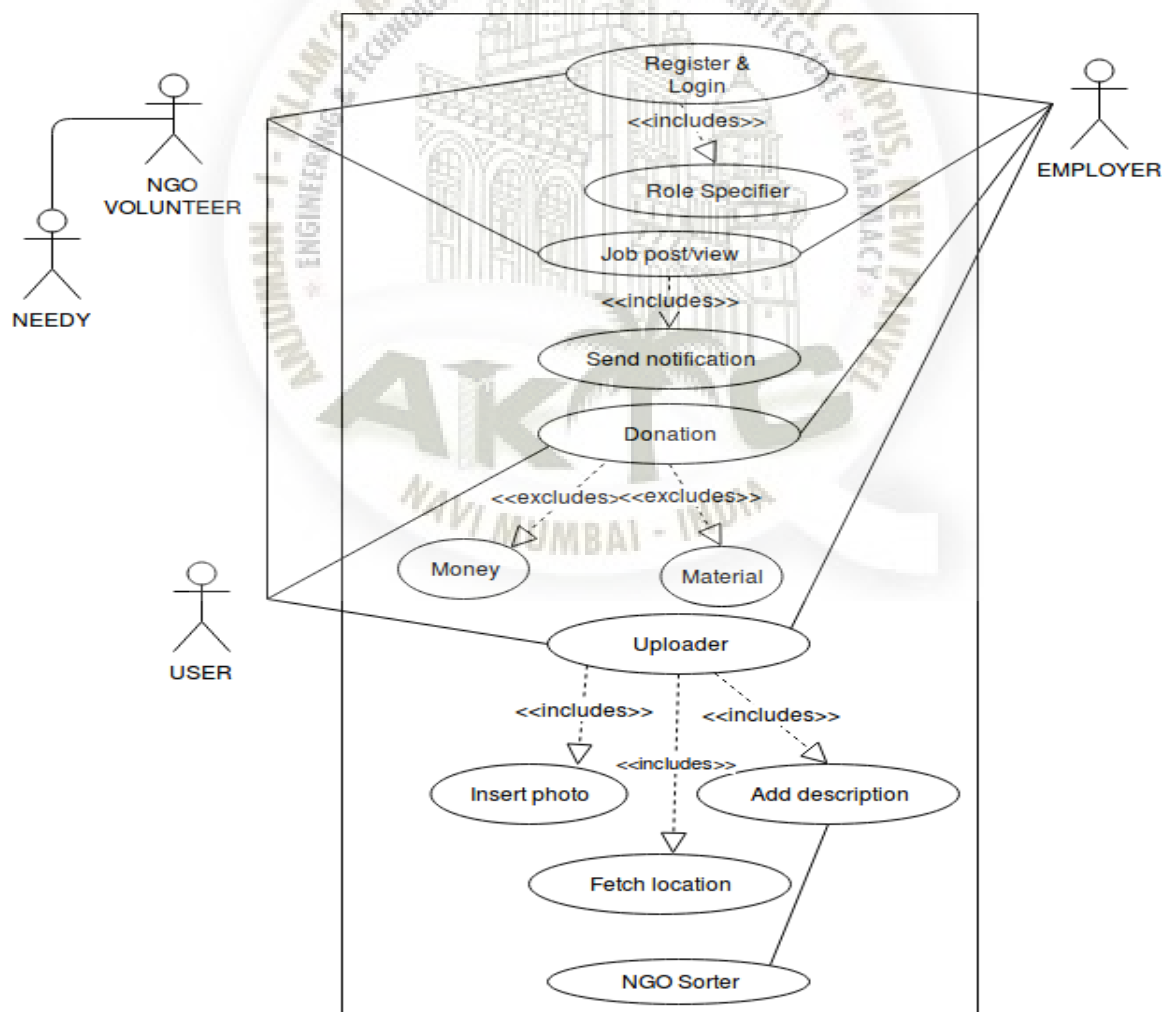


Figure 5.1: Use Case of 'Android app for Employing Skilled and Unskilled People'.

Data-flow Diagram

Data flow diagram explains how data is transferred through system. In our system Needy get job by registering them self after successfully registration they can view all jobs and that jobs are assigned by employer after that they can apply job and that job are according to there ability neither for qualification. After get job the user get notification. Employer can post job and also check how many user are apply for job they also select or reject the candidate. student can search different scholarships and that are scrapped for different websites. DFD level 1 shows detailed flow of data for each module.

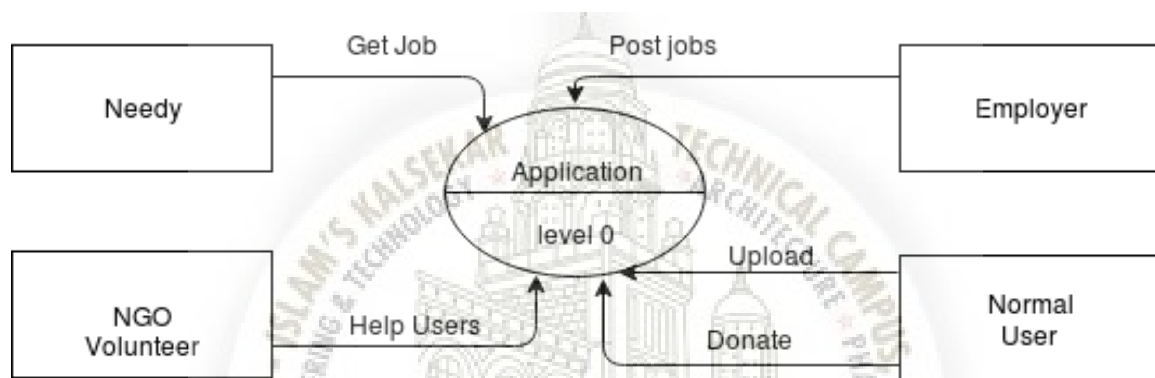


Figure 5.2: DFD level 0

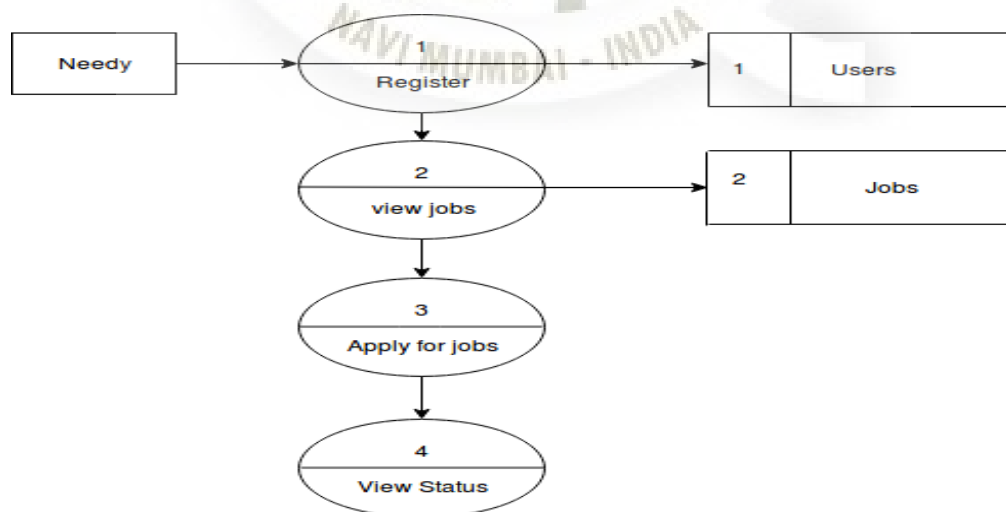


Figure 5.3: DFD level 1 for Needy

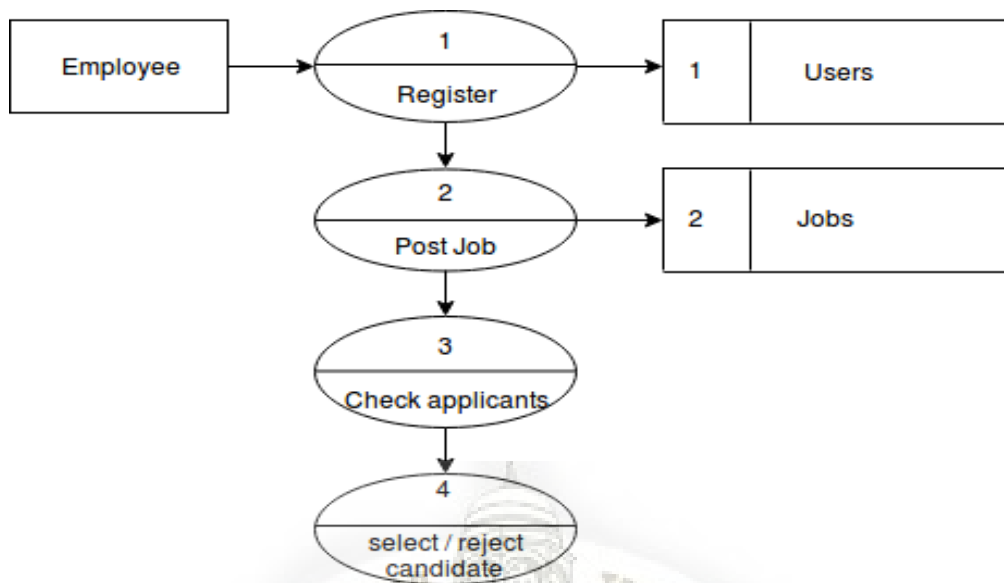


Figure 5.4: DFD level 1 for Employer

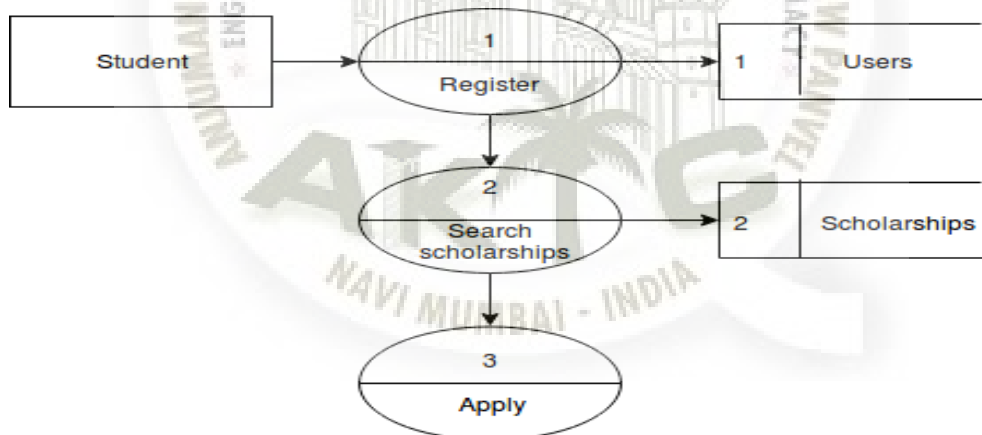


Figure 5.5: DFD level 1 for scholarship

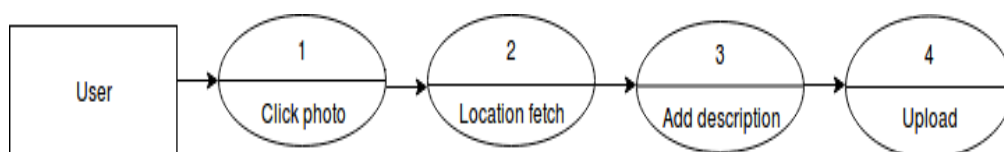


Figure 5.6: DFD level 1 for Uploader

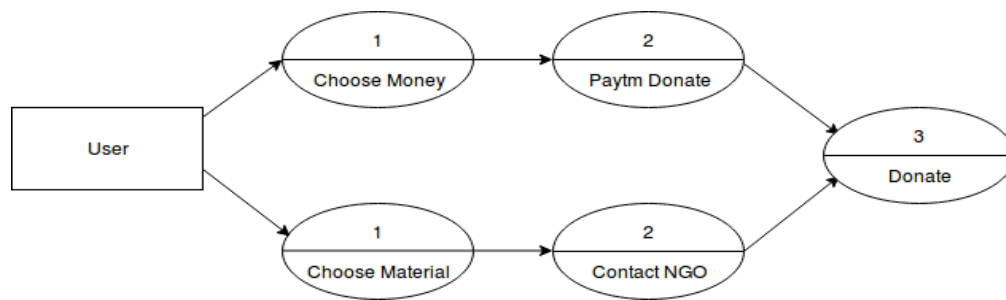


Figure 5.7: DFD level 1 for Donation

5.1.2 System requirements (non-functional requirements)

5.1.3 Performance Requirements

The performance of our application is based on how accurate data is provided by users. In case of data scraping the performance can be decided by content of website. Performance of Donor and Uploader module is based on number of people involved.

5.1.4 Safety Requirements

OTP verification is provided while registering on application. The phone number entered can be helpful in verifying identity of user. Hence only genuine people can get access to application. The data is stored online in firebase database which is very secure because these data is access by only authorized user by providing username and password.

5.1.5 Security Requirements

Fake users cannot use our application because before entering into application need to enter phone number which reveals all users identity also our applications runs only when internet connection is provided. Using internet we can check for Ip addresses, users location, etc.

Database Schema/ E-R Diagram

ER Diagram describes the attributes of classes User, Scholarship, Company, Donor and NGO. From diagram given below we can understand how classes are related in database. Association between classes is shown. This diagram help in building database. Primary keys are denoted by giving underline to attribute and derived attribute is denoted with dotted ellipse.

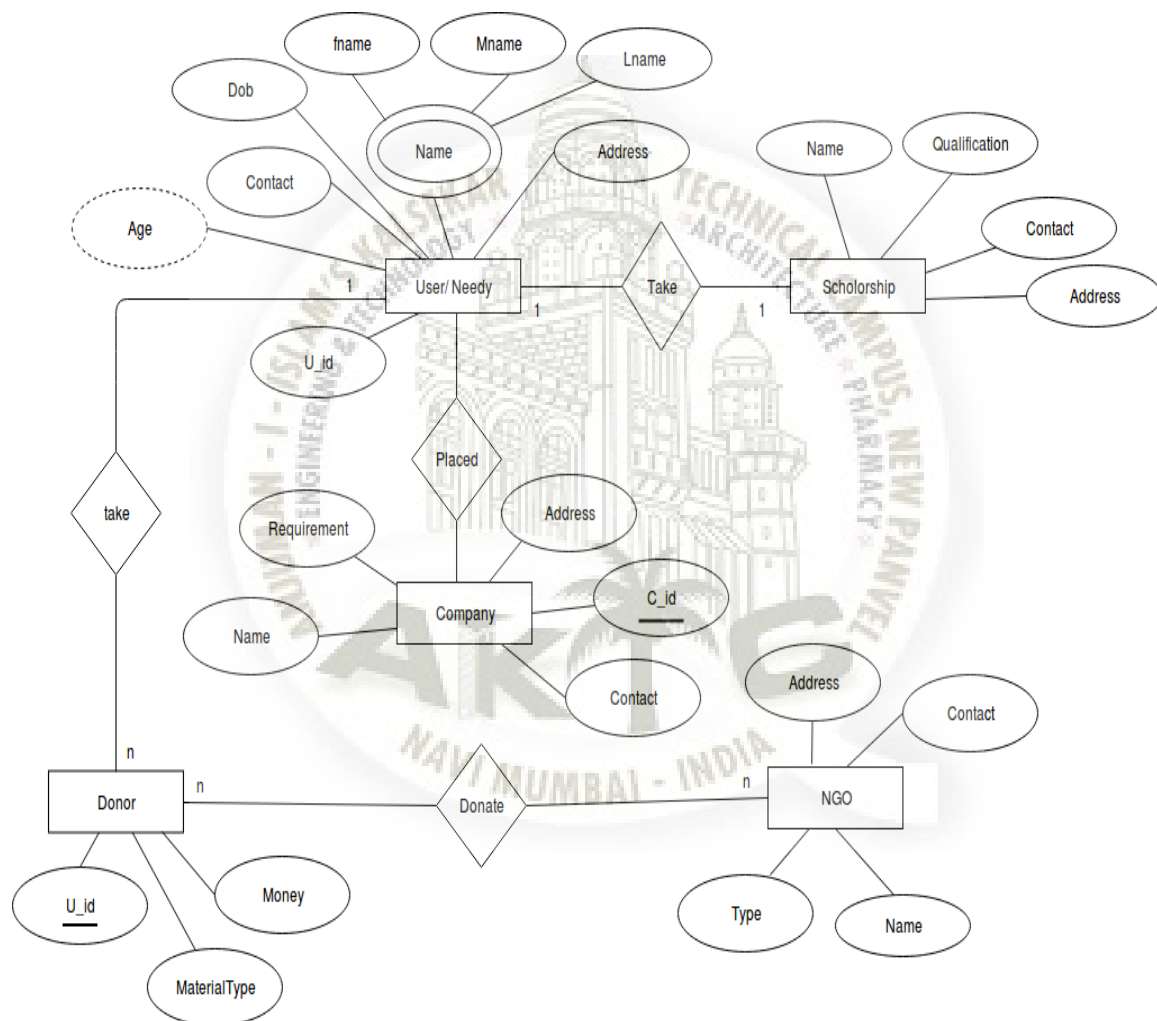


Figure 5.8: ER diagram of 'Android app for Employing Skilled and Unskilled People'.

5.2 System Architecture Design

System architecture represents system by showing modules included and connections between them, users, databases. In our system architecture there are modules shown Registration, Uploader, Data converter, Scholarship, Donation, NGO sorter, Notification. NGO Volunteer, Needy, Employee and normal user are the users of system. Uploader and donation, NGO sorter modules are connected to normal user, while Data converter is connected to needy. Registration is necessary for every user in system.

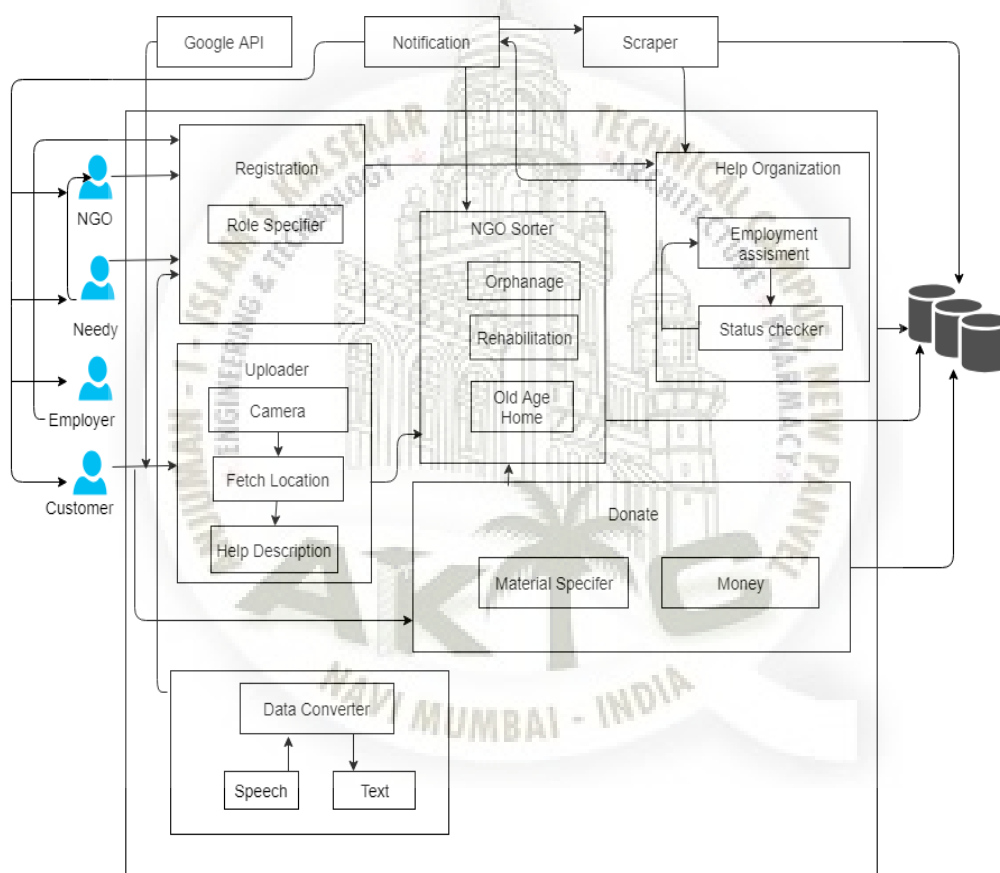


Figure 5.9: System Architecture of 'Android app for Employing Skilled and Unskilled People'.

5.3 Sub-system Development

There are total five main modules in system architecture namely Employment, Scholarship, Donation, Uploader, Notification. All the modules will be briefly described further:

5.3.1 Employment

Employment module is divided into two sub modules: Post Job and Get Job. Post Job module is for Employer. First of all employer will register his/her company. Employer can post job details like location, salary, description of work, skills required, vacancies. After posting employer can view and edit post. Employer can see details of applicants and select or reject them.

Post Job Module Flow Diagram

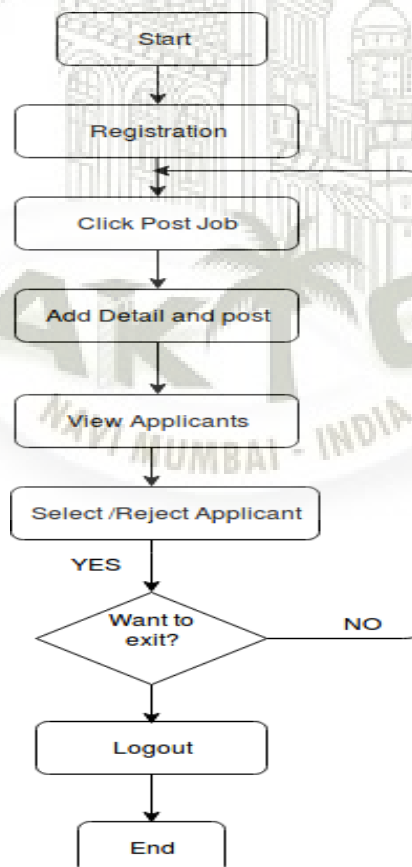


Figure 5.10: Flow chart for module Post Job.

Get Job module is developed for needy. Needy will register themselves and can view job posts. Initially needy can see all job posts but using keyword matching method needy can only view job posts related to his/her skills. Then needy can apply to those jobs and get notified if got selected by employer.

Get Job Module Flow Diagram

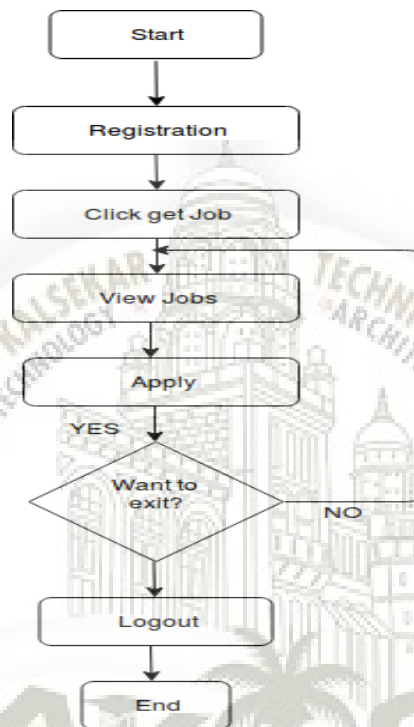
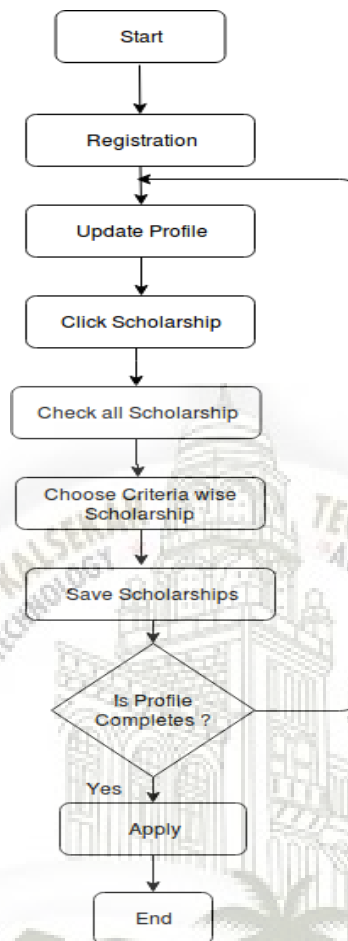


Figure 5.11: Flow chart for module Get Job.

5.3.2 Scholarship

For students searching scholarships is somewhat difficult job. Our scholarship module provides lot of scholarship at time. Using data scrapping we are fetching scholarships from web. Classifying them basis on qualification. Students can register themselves and search for scholarships. Also after completing students profile students need not to search for scholarships because based on students profile our application will display suitable scholarships for students.

Scholarship Module Flow Diagram**Figure 5.12:** Flow chart for module Scholarship.**5.3.3 Donation**

The user who want to donate any material which can be helpful to others like clothes, toys, books, etc or if user want to donate money they can use this module. In donation user gets two options for donation: Material or Money. For donating material we have provided list of all NGOs in mumbai with its address. To extract data from HTML we used jsoup open source Java library. We used data scrapping to scrap list of NGOs. To find tags that are needed for scrapping data we used Data Scraper (Chrome plugin). This data scraper extension allows us to select data to be scraped and in output it shows tags containing that data. We store scrapped data into array then split it using special symbol. To display this scrapped data in GUI we used cardview in android.

Donation Module Flow Diagram

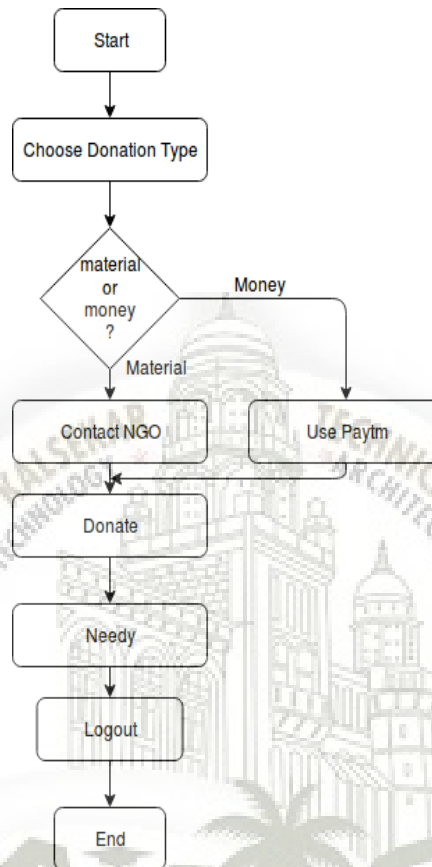


Figure 5.13: Flow chart for module Donation.

5.3.4 Uploader

If normal user sees old age people or child at any place. If user want to place them in old age home or orphanage this module will be helpful for this purpose. In uploader module user need to click photograph of old age people or child he/she sees. Add small description about situation. After this our application will fetch location of user. Send that photograph, description and location to NGOs nearby. So that NGO volunteers can find them and take care further.

Uploader Module Flow Diagram

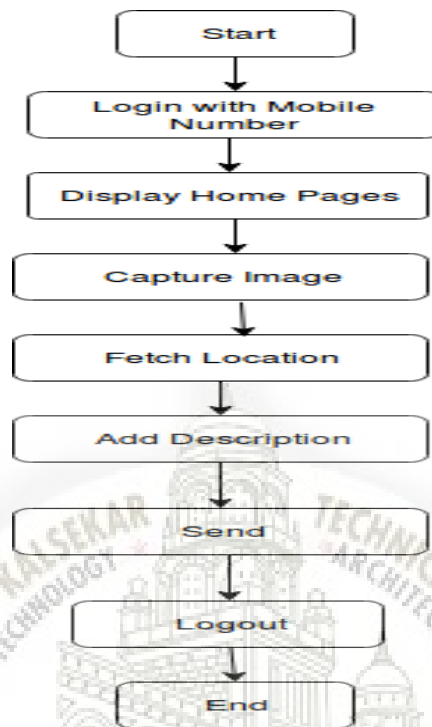


Figure 5.14: Flow chart for module Uploader.

5.3.5 Notification

Notifications module is developed to make slum people aware of Government programs available for them. Data scrapping is done to fetch government programs from different websites. To find tags that are needed for scrapping data we used Data Scraper (Chrome plugin). This data scraper extension allows us to select data to be scraped and in output it shows tags containing that data. To extract data from HTML we used jsoup open source Java library. We store scrapped data into array then split it using words(Trust, Organization, etc). To display this scrapped data in GUI we used cardview in android.

5.4 Systems Integration

In order to achieve goal of system the developed modules need to be get integrated with one another. Get Job and Post job module need to work together. Donation and NGO sorter module should work together. Registration module should be always perform first before any other module. Google API should get integrated with data converter module. Notification module can stand alone but it will be used by needy so it should be integrated with get job module.



5.4.1 Class Diagram

Class diagram gives attributes, operations of module. This class diagram is an illustration of the relationships and source code dependencies among classes in our system. In our system there are this classes: Needy, Company, NGO, Student and Donor. The functions of each class is given. Needy can get jobs ,upload profile and they view all job that he/she applied.Company can update job,insert job and get job lists list are notify to the NGO.Student can apply for scholarship and donor donate money and upload profile.

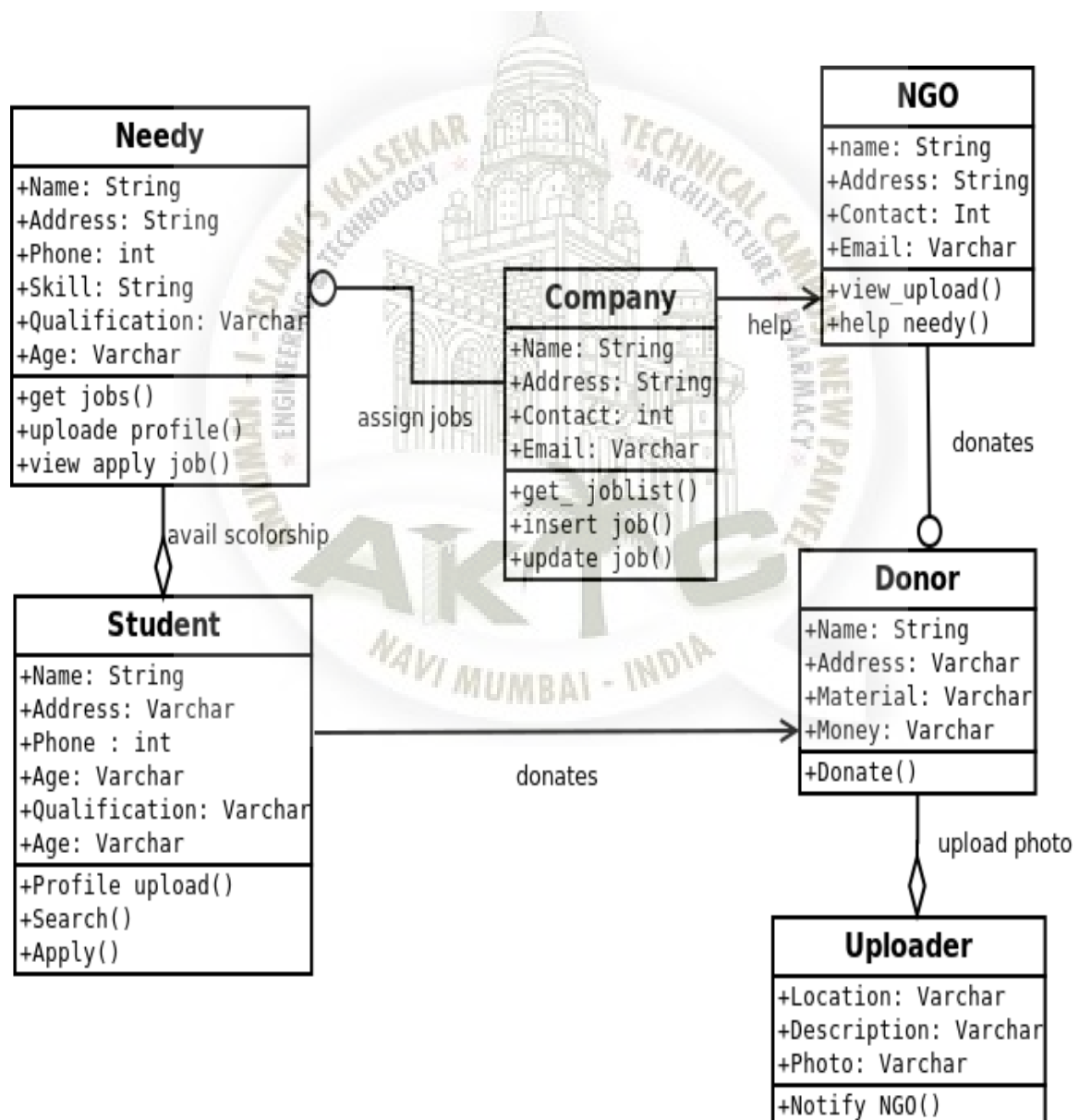


Figure 5.15: Class diagram of 'Android app for Employing Skilled and Unskilled People'.

5.4.2 Sequence Diagram

Sequence diagrams are a kind of interaction diagram, because they describe how and in what order a group of objects works together. The employer first login with mobile number then display menu appear after that they can post job by filling post job form. All the details are fetched after that they select or reject applicants.

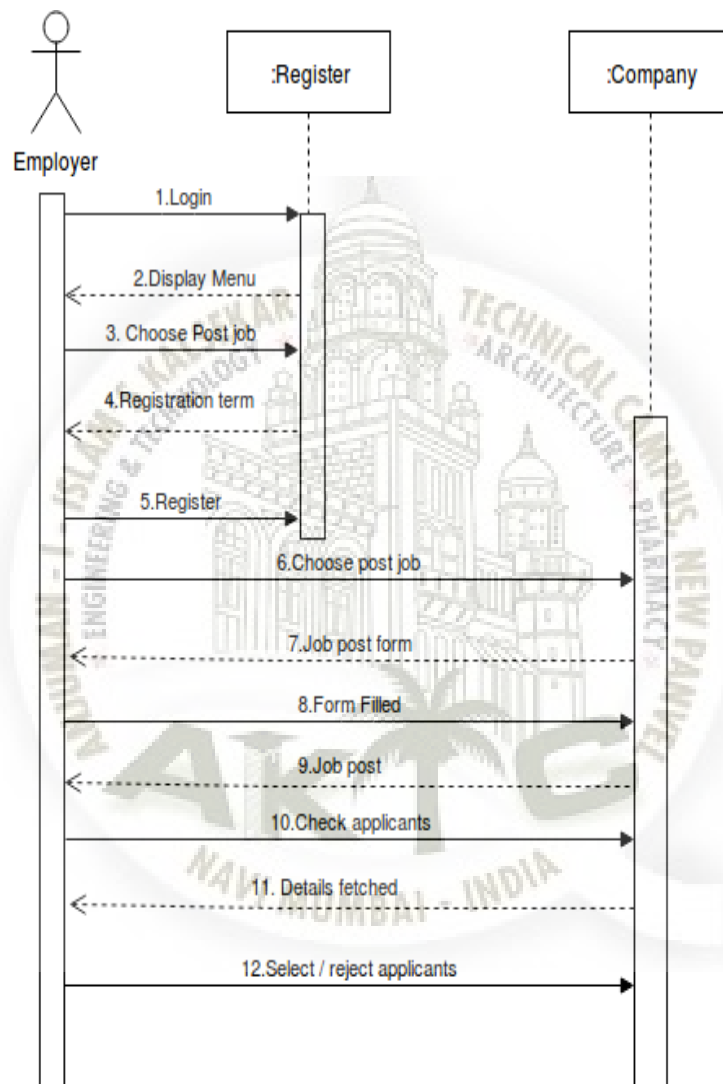


Figure 5.16: Sequence diagram for module Post Job.

In this Module Needy first log in with mobile number then display menu appear after that they can get job by filling get job form if they got job they get notification. Job are provide according to the ability not according qualification. If needy applies for any job. Employer can view details of needy and then can select/reject candidate.

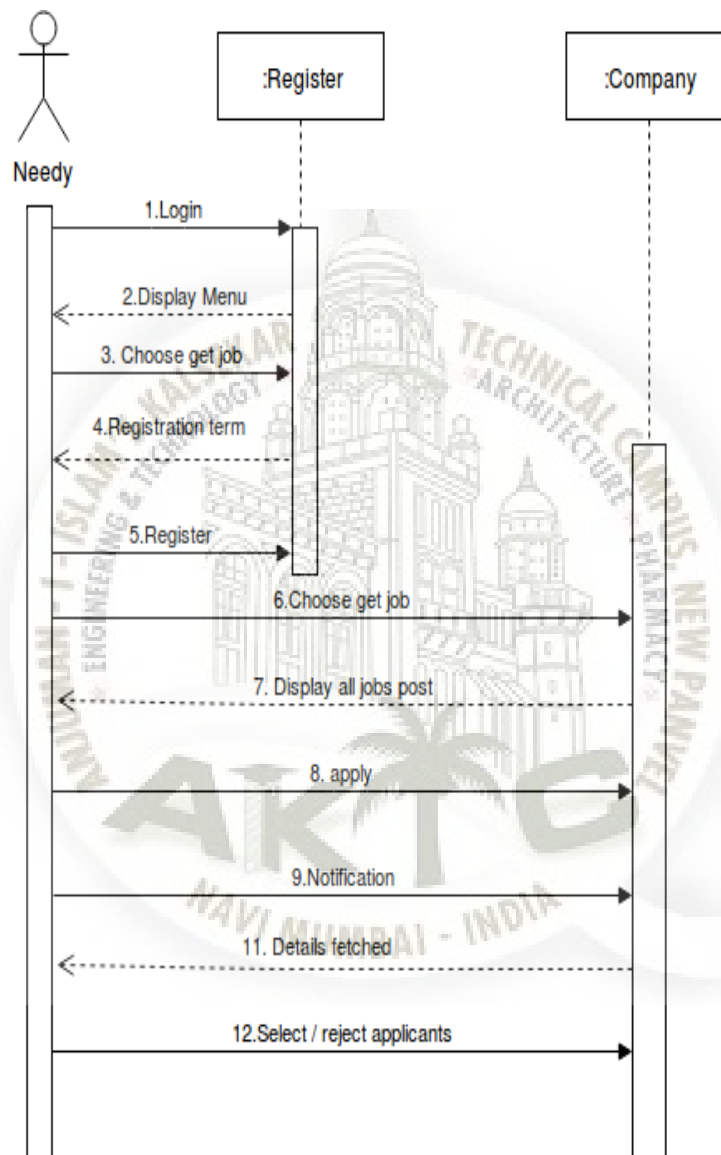


Figure 5.17: Sequence diagram for module Get Job.

In this Module Student can log in and then they get display menu. After that they can apply for Scholarship by filling scholarships form. Scholarships are scrapped from different web sites. Scholarships then shown to student according to criteria. Student will be then redirected to site of particular website and student can apply for it.

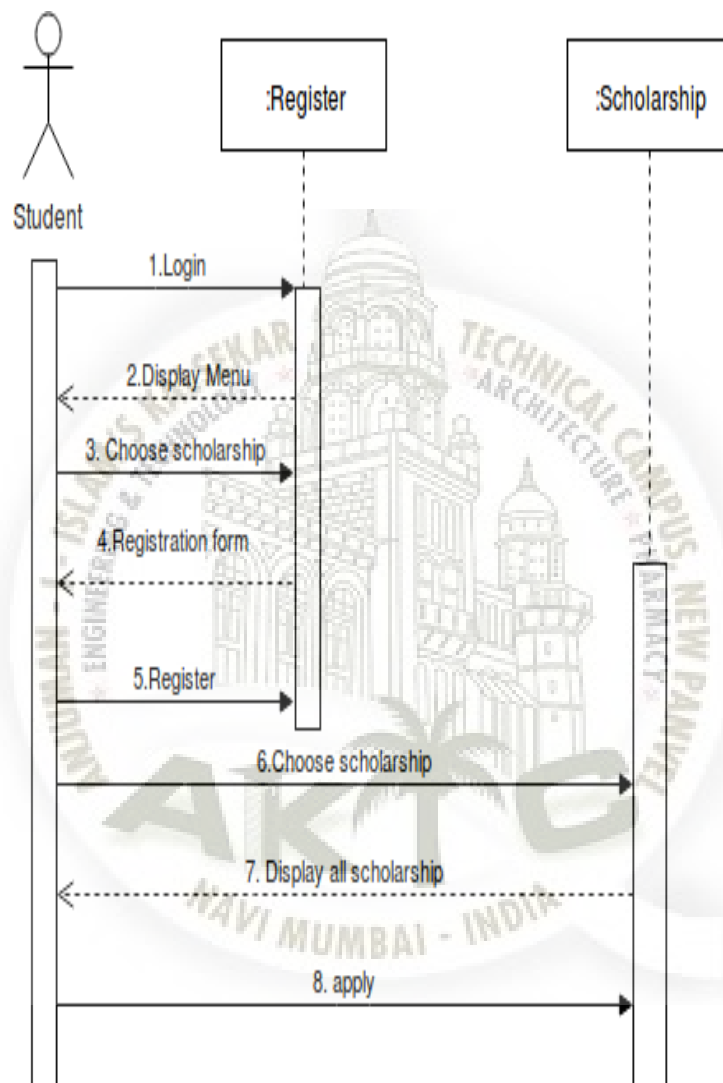


Figure 5.18: Sequence diagram for module Scholarship.

In this module donor first login after that they get display menu then they choose Donation type that they want to donate like money, cloths, toys etc. Donated things are given to NGO after that NGO give to needy people. User have one more role they can upload photos if he/she saw any old age people sitting on road side they first click a photo and add some description and location are fetch by google API.

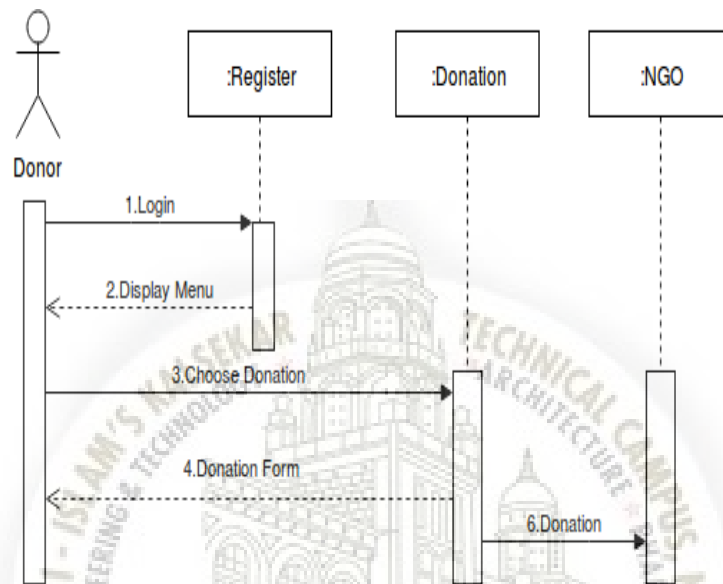


Figure 5.19: Sequence diagram for module Donation.

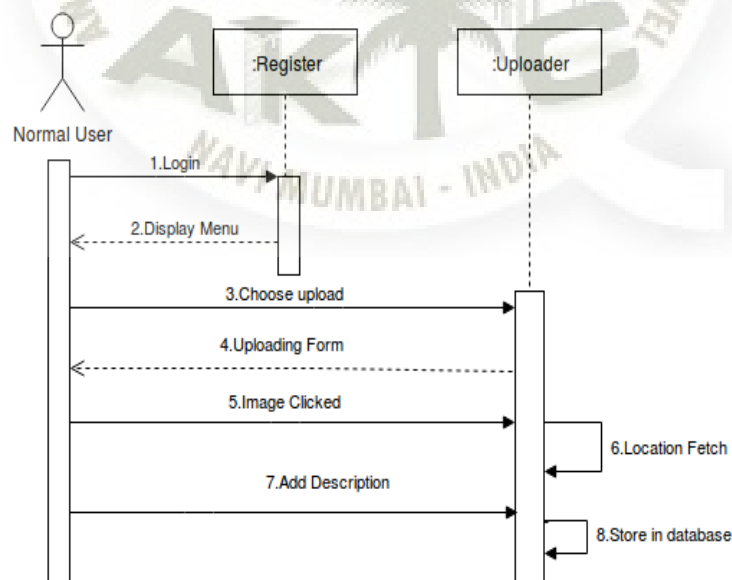


Figure 5.20: Sequence diagram for module Uploader.

5.4.3 Component Diagram

Component diagram shows how all component of system is connected. Component is nothing but subsystem. In our system registration component is necessary for all user. All the details of users are stored in database. Data uploaded in Upload module is stored in Uploads database.

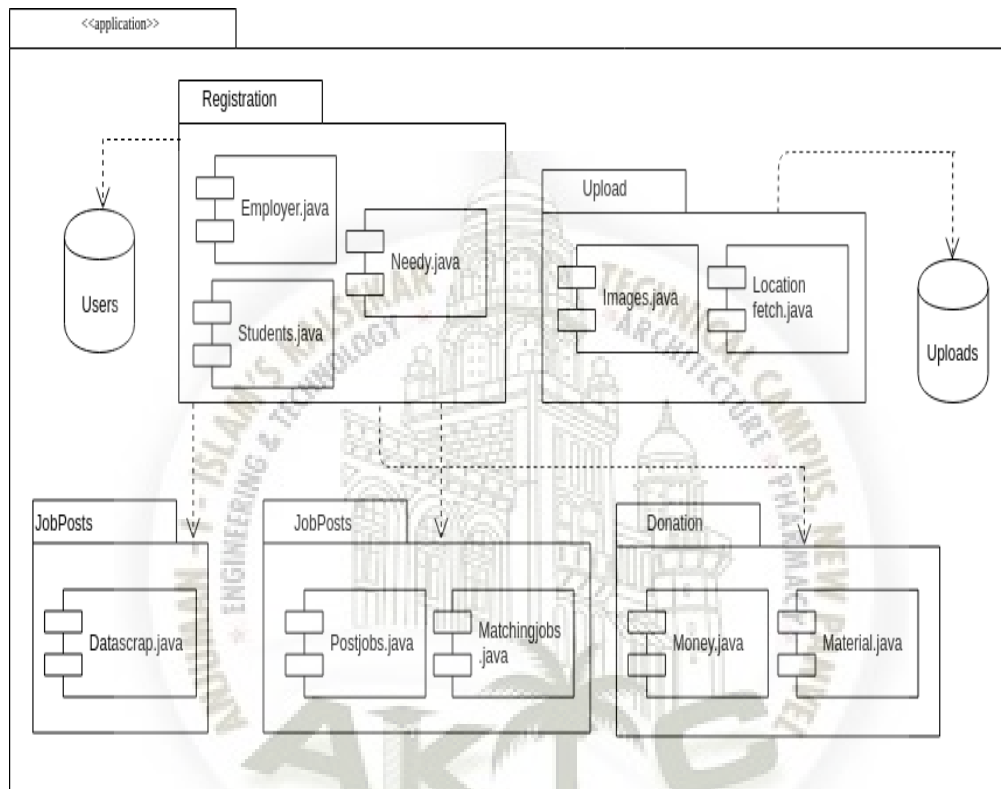


Figure 5.21: Component diagram for 'Android app for Employing Skilled and Unskilled People'.

5.4.4 Deployment Diagram

Using deployment diagram you can understand how the system will be physically deployed on the hardware. A deployment diagram is a diagram that shows the configuration of run time process. We use android mobile for deployment of system. Android application consist of java files, manifest files, XML files and all resource files. Database used is Firebase. Execution environment is Android phone only.

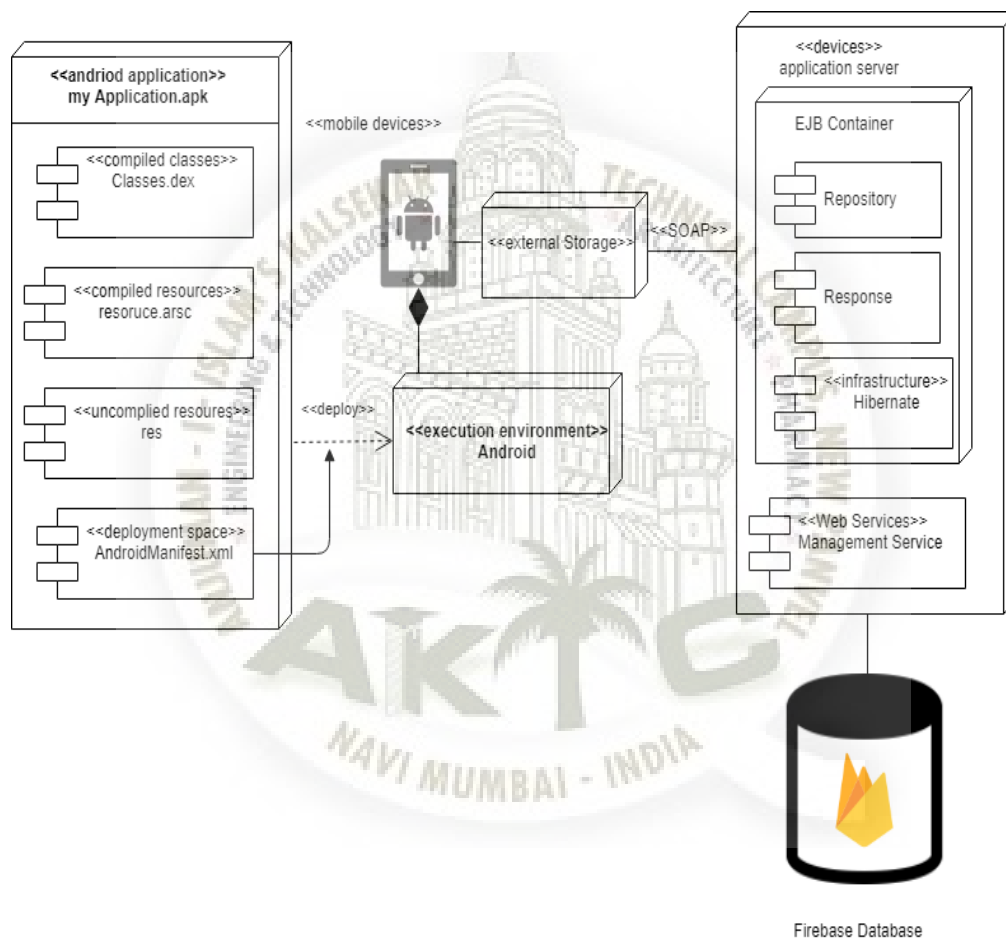


Figure 5.22: Deployment diagram for 'Android app for Employing Skilled and Unskilled People'.

Chapter 6

Implementation

6.1 Employment

Post Job module is for Employer. First of all employer will register his/her company. Employer can post job details like location, salary, description of work, skills required, vacancies. After posting employer can view and edit post. Employer can see details of applicants and select or reject them.

Get Job module is developed for needy. Needy will register themselves and can view job posts. Initially needy can see all job posts but using keyword matching method needy can only view job posts related to his/her skills. Then needy can apply to those jobs and get notified if got selected by employer.

```
1 recyclerView = findViewById(R.id.joblist);
2     LinearLayoutManager llm = new LinearLayoutManager(Jobs.this);
3
4     recyclerView.setLayoutManager(llm);
5     recyclerView.setHasFixedSize(true);
6
7     // Getting current user's skills – begin code
8     databaseReference = FirebaseDatabase.getInstance().getReference("users /
9     poors/"+userId+"/skills");
10
11     databaseReference.addListenerForSingleValueEvent(new ValueEventListener
12     () {
13         @Override
14         public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
15             //
16             userskills =dataSnapshot.getValue(String.class);
17             Log.d("skills is ",userskills);
18
19             // Working code dont delete
20             if (userskills.contains(","))
21                 skillmatch = userskills.split(",");
22         }
23     }
```

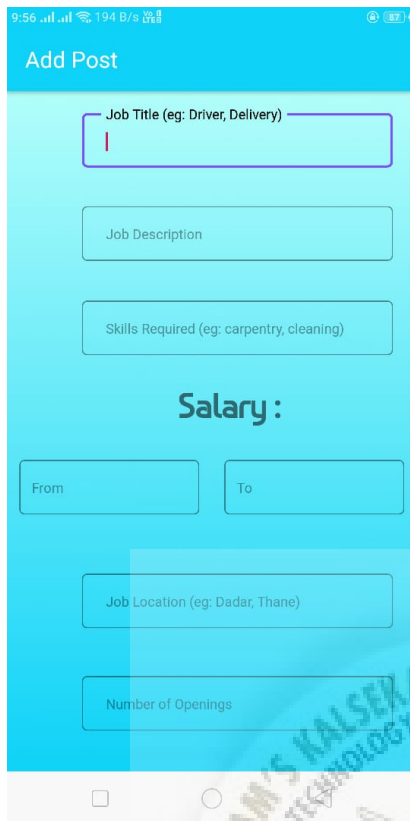
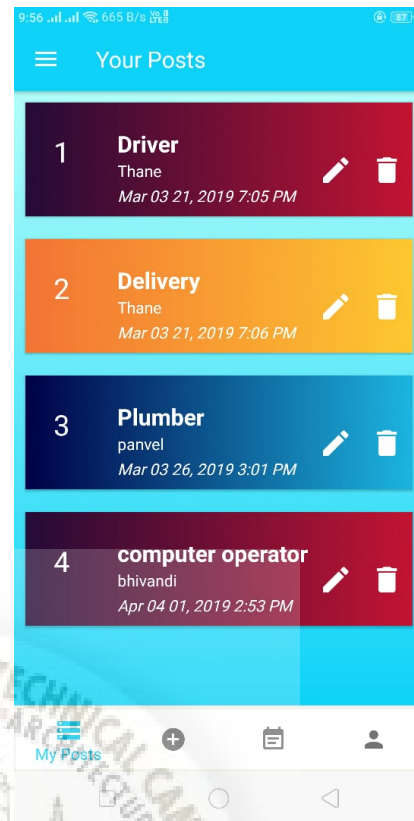


```

23     @Override
24     public void onCancelled(@NonNull DatabaseError databaseError) {
25         Log.d("FEka re Feka ",String.valueOf(databaseError));
26     }
27 });
28
29     listData = new ArrayList<>();
30     final ArrayList<ListData> list = new ArrayList<ListData>();
31     final DatabaseReference databaseReference1 = FirebaseDatabase.getInstance()
32     .getReference("companyPost");
33     databaseReference1.addListenerForSingleValueEvent(new ValueEventListener()
34     {
35         @Override
36         public void onDataChange(@NonNull DataSnapshot dataSnapshot) {
37             Iterable<DataSnapshot> d = dataSnapshot.getChildren();
38             int count=0;
39             for (DataSnapshot v : d) {
40                 String keyname = v.getKey();
41                 DatabaseReference gettingname = FirebaseDatabase.getInstance()
42                 .getReference("users/company/" + keyname + "/name");
43                 gettingname.addListenerForSingleValueEvent(new
44                 ValueEventListener() {
45                     @Override
46                     public void onDataChange(@NonNull DataSnapshot
47                     dataSnapshot) {
48                         companyName = dataSnapshot.getValue(String.class);
49                     }
50                 }
51             });
52
53             //code dekh upar ka aur kar complete..
54             count++;
55             DatabaseReference d2 = databaseReference1.child(String.valueOf
56             (v.getKey()));
57             Log.d("key is on " + count, String.valueOf(v.getKey()));
58
59             //         for (int i = 0; i < skillmatch.length; i++) {
60
61             Query q = d2.orderByChild("skills");
62             //         .startAt(skillmatch[i]).endAt(skillmatch[i]+" \uf8ff
63             ");
64             q.addListenerForSingleValueEvent(new ValueEventListener() {
65                 @Override
66                 public void onDataChange(@NonNull DataSnapshot
67                 dataSnapshot) {
68
69                     for (DataSnapshot d : dataSnapshot.getChildren()) {
70                         Log.d("values are : ", String.valueOf(d.getValue()
71                         ));
72                         ListData ld = d.getValue(ListData.class);
73                         ld.setTitle(ld.getTitle());
74                         ld.setLocation(ld.getLocation());
75                         ld.setDatetime(ld.getDatetime());
76                         //         ld.setSkills(ld.getSkills());

```

```
74         ld.setSalaryfrom(ld.getSalaryfrom());
75         ld.setSalaryto(ld.getSalaryto());
76         ld.setOpenings(ld.getOpenings());
77         // ld.setParentid((ld.getParentid()));
78         listData.add(ld);
79
80     }
81
82     adapter = new SkillsMatchingJobs(Jobs.this, (ArrayList
83     <ListData>) listData);
84     recyclerView.setAdapter(adapter);
85
86 }
87
88 @Override
89 public void onCancelled(@NonNull DatabaseError
90 databaseError) {
91     Toast.makeText(Jobs.this, (CharSequence) databaseError
92     , Toast.LENGTH_LONG).show();
93     Log.d("error is ", String.valueOf(databaseError));
94 }
95
96 });
97
98 @Override
99 public void onCancelled(@NonNull DatabaseError databaseError) {
100 }
101
102 });
103
104 }
```

**Figure 6.1:** View Company Profile Page**Figure 6.2:** Adding Job Post Page

6.2 Scholarship

Using data scrapping we are fetching scholarships from web. Classifying them basis on qualification. Students can register themselves and search for scholarships. Also after completing students profile students need not to search for scholarships because based on students profile our application will display suitable scholarships for students.

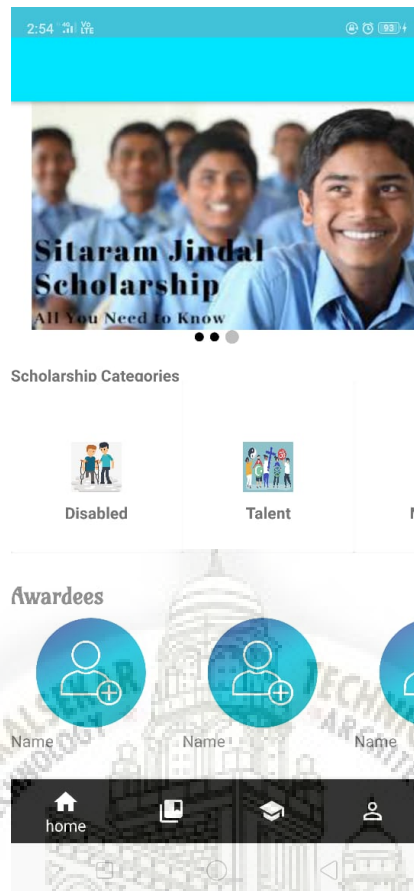


Figure 6.3: Scholarship Options

```

1  InputStream is = getResources().openRawResource(R.raw.data);
2      BufferedReader reader = new BufferedReader(new InputStreamReader(is,
3          Charset.forName("UTF-8")));
4      String line;
5      ListView listView = findViewById(R.id.list);
6      ArrayList<String> arrayList = new ArrayList<>();
7      String tokens[] = new String[0];
8      ArrayAdapter<String> arrayAdapter;
9
10     try {
11         reader.readLine();
12         while ((line = reader.readLine()) != null) {
13             tokens = line.split(",");
14             arrayList.add(Arrays.toString(tokens));
15             arrayAdapter = new ArrayAdapter<String>(this, android.R.layout.
16                 simple_list_item_1, arrayList);
17             listView.setAdapter(arrayAdapter);
18             Log.d("answer is", Arrays.toString(tokens));
19         }
20     }
21     catch (Exception e){}
22 }

```

6.3 Donation

In donation module we have given two options to donor to donate material or money. Material can be clothes, books, toys, etc. So if donor select material option we have scraped information about all NGOs in Mumbai. We have displayed in card view. By clicking on name of NGO, Its name, address and contact number gets displayed.

If donor selects to donate money paytm donation page gets open. In that page we have different options to donate. Donation will be done directly from paytm.



Figure 6.4: Displaying NGOs list

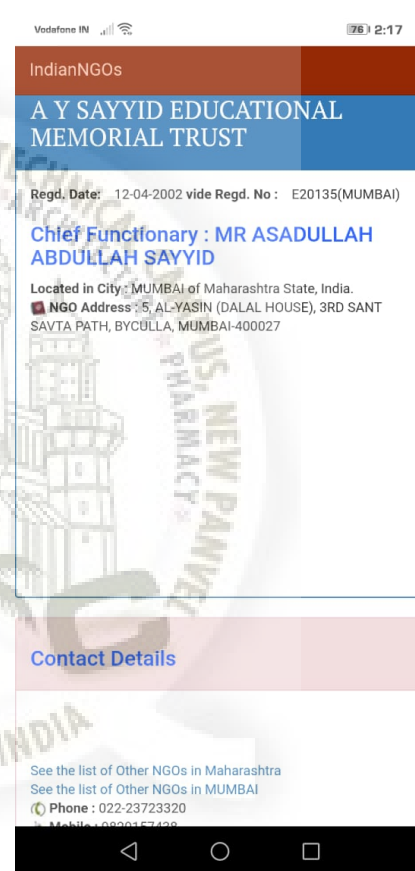


Figure 6.5: Showing NGOs Details

```

1  ArrayList<String> arrayList = new ArrayList<>();
2  private ProgressDialog mProgressDialog;
3  private String url = "http://www.indianngos.org/sitemap\_City.aspx?city=
4  MUMBAI";
5  private ArrayList<String> mBlogTitleList = new ArrayList<>();
6
7  try {
8      Document mBlogDocument = Jsoup.connect(url).get();
9      Elements mElementBlogTitle = mBlogDocument.select("div[class=panel-body]
10     ").select("a");
11     String mBlogTitle = mElementBlogTitle.text();

```

```
11 String [] cleanData = mBlogTitle.split("TRUST | FOUNDATION| MANDAL|
12 PRATISTHAN| SANGH | ASSOCIATION | SANSTHA");
13 Elements mElementBlogDesc = mBlogDocument.select("div [ class=panel-body]"
14 ).select("a");
15 int j =0;
16 String mblogDesc [] = new String [mElementBlogDesc.size ()];
17 for (Element a : mElementBlogDesc){
18     mblogDesc[j] = a.attr("href");
19     arrayList.add("http://www.indianngos.org/"+mblogDesc[j]);
20     j++;
21 }
22
23 To donate using paytm
24
25 public void paytmopen (View view){
26     Intent browserIntent = new Intent(Intent.ACTION_VIEW, Uri.parse("https://
27     paytm.com/helpinghand"));
28     startActivity (browserIntent);
```



6.4 Uploader

In uploader module people can click picture of homeless children and old age people they saw in surroundings. Users location will be fetched automatically using google API. The picture clicked by user will be store in database and user can add discription about situation.

Stored pictures and discriptions are sent to NGOs registered with us with fetched location. So that NGO volunteer can reach to the people.

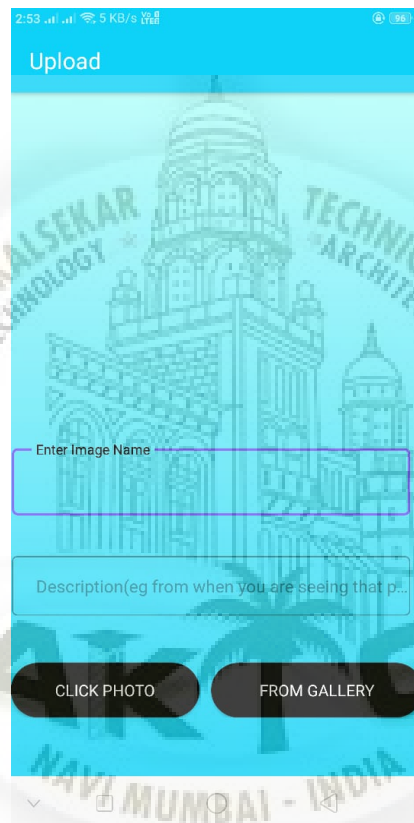


Figure 6.6: Uploading Page

```

1 To fetch location of user:
2 public Location(double latitude ,double longitude){
3     this.latitude=latitude;
4     this.longitude=longitude;
5 }
6
7 To upload image in database:
8 Bitmap mphoto = (Bitmap) data.getExtras().get("data");
9     imageView.setImageBitmap(mphoto);
10    imageView.setDrawingCacheEnabled(true);
11    imageView.buildDrawingCache();
12    Bitmap bitmap = ((BitmapDrawable) imageView.getDrawable()).
13        getBitmap();
14    ByteArrayOutputStream baos = new ByteArrayOutputStream();
15    bitmap.compress(Bitmap.CompressFormat.JPEG, 100, baos);

```



```
15 byte [] data1 = baos.toByteArray ();  
16 UploadTask uploadTask=mStorageRef.child(fname).putBytes(data1);  
17 uploadTask.addOnSuccessListener(new OnSuccessListener<UploadTask  
    .TaskSnapshot >())
```



6.5 Notification

Notification modules notifies about government policies, schemes that are provided for slum people. We did web scraping here to get this data. Data fetched is shown in application using cardview of android.

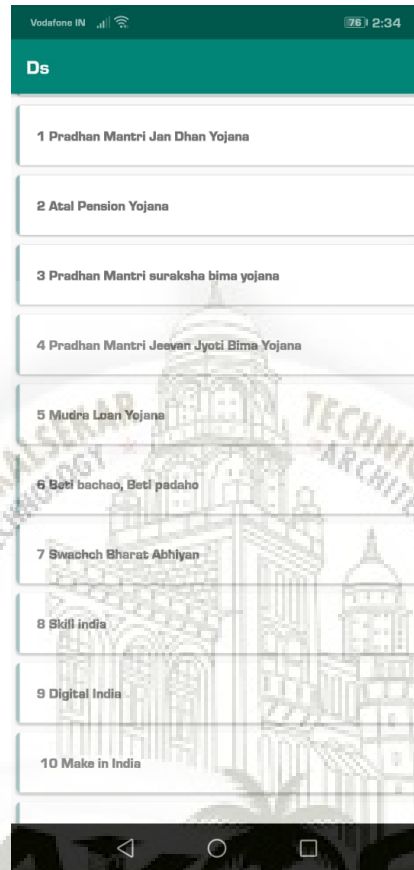


Figure 6.7: List of Government Schemes

```

1 For fetching government programs from website following code is implemented:
2
3 ArrayList<String> arrayList = new ArrayList<>();
4     private ProgressDialog mProgressDialog;
5     private String url = "https://indiagen.in/indian-government-schemes/";
6     private ArrayList<String> mBlogTitleList = new ArrayList<>();
7
8     try {
9         {
10            Document mBlogDocument = Jsoup.connect(url).get();
11
12            Elements mElementBlogTitle = mBlogDocument.select("div[class=
13                entry-content]").select("h2");
14            String mBlogTitle = mElementBlogTitle.text();
15            String [] cleanData = mBlogTitle.split("#");
16
17            for(int i=0; i<cleanData.length; i++) {
18
19                mBlogTitleList.add(cleanData[i]);
20

```

```
21     }
22     }
23     }
24
25 To check internet connectivity :
26
27 <uses-permission android:name="android.permission.ACCESS_NETWORK_STATE" />
28
29 private boolean haveNetwork ()
30 {
31     boolean have_WIFI=false ;
32     boolean have_MobileData=false ;
33     ConnectivityManager connectivityManager=(ConnectivityManager)
34         getSystemService (CONNECTIVITY_SERVICE) ;
35     NetworkInfo [] networkInfos=connectivityManager . getAllNetworkInfo () ;
36     for (NetworkInfo info : networkInfos )
37     {
38         if (info . getTypeName () . equalsIgnoreCase ("WIFI"))
39             if (info . isConnected ())
40                 have_WIFI=true ;
41         if (info . getTypeName () . equalsIgnoreCase ("MOBILE"))
42             if (info . isConnected ())
43                 have_MobileData=true ;
44     }
45     return have_WIFI || have_MobileData ;
46 }
```



Chapter 7

System Testing

Everything which is developed should get tested. Because if developed software has some errors that may cost users business. System testing is the testing in which fully integrated software are tested. Basically system testing is process of checking if developed software is working as per users requirements it fully observed by computer based system. Testing is important because in Software Development Life Cycle the system is perform as the first level of testing where system is tested as a whole .During testing validation and verification both are required.

7.1 Test Cases and Test Results

Sr.No	Test Condition	Step	Input Data	Expected Result	Actual output	Pass
1	Check Phone No.	Enter Phone No.; 10 digits	12345	Incorrect Phone No.	Incorrect Phone No.	Pass
2	Check OTP	Enter wrong OTP	0000	Incorrect OTP	Incorrect OTP	Pass

7.2 Login Page Test Case

Title: Login Page – Authenticate Successfully on our application

Description: A registered user should be able to successfully login at application and home page should display. *Precondition:* the user must already be registered with an phone number.

Assumption: a supported browser is being used.

Test Steps:

1. Navigate to login page
2. In the 'Phone number' field, enter the phone number of the registered user. In the 'OTP' field, enter the OTP received on same phone number.
3. Click the 'Next' button.

Expected Result: Home page should displayed.

Actual Result:

Write here description
upload the image of result

7.2.1 Software Quality Attributes

1. **Availability:** The system will be available 24/7 as application is totally based on internet ,whenever the user use the system the specific data should be available to the user.
2. **Correctness:** As per user search correct data should be fetched from database and shown to user.
3. **Reliability:** The system should be reliable for producing correct output so that user can reliable on system.
4. **Extensibility:** The system is capable to be modified by changing some modules or by adding some features to the existing system.

Chapter 8

Screenshots of Project

8.1 Employment module

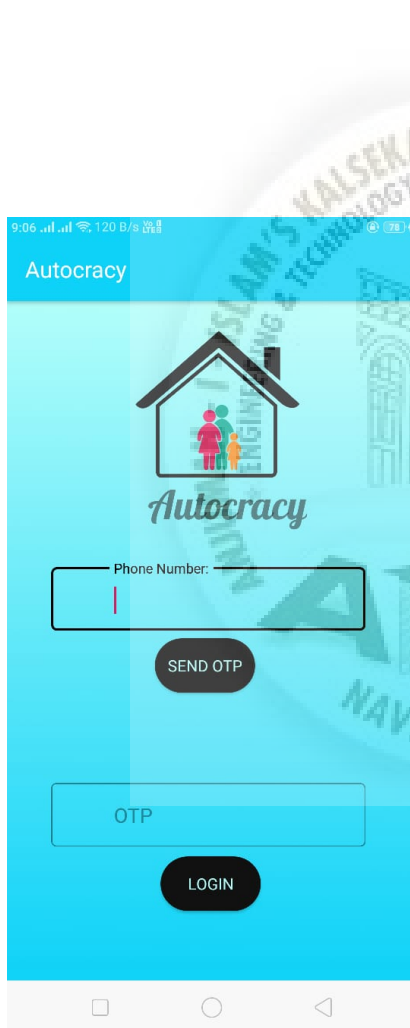


Figure 8.1: Login Page

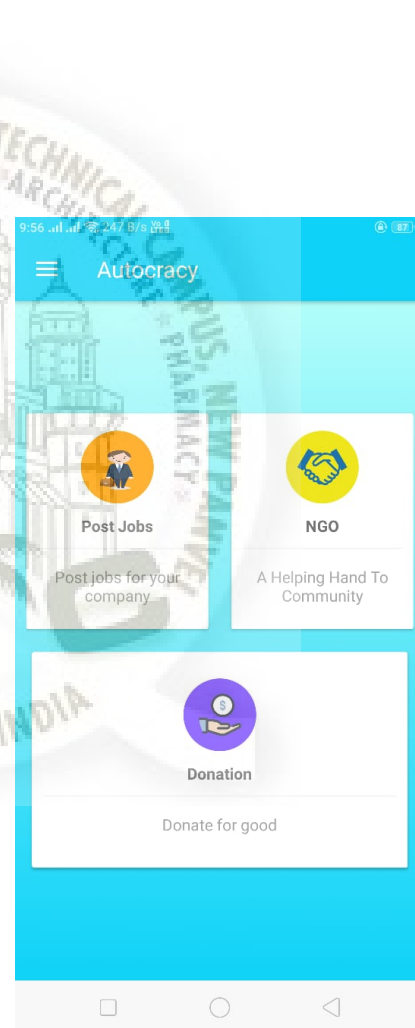


Figure 8.2: Menu Page

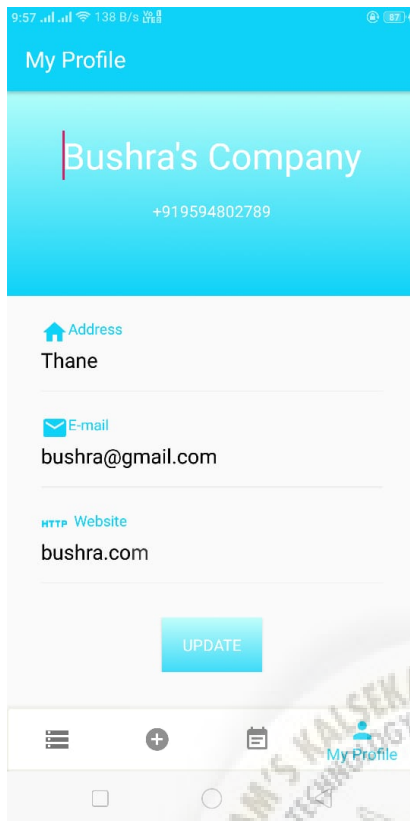


Figure 8.3: View Company Profile Page

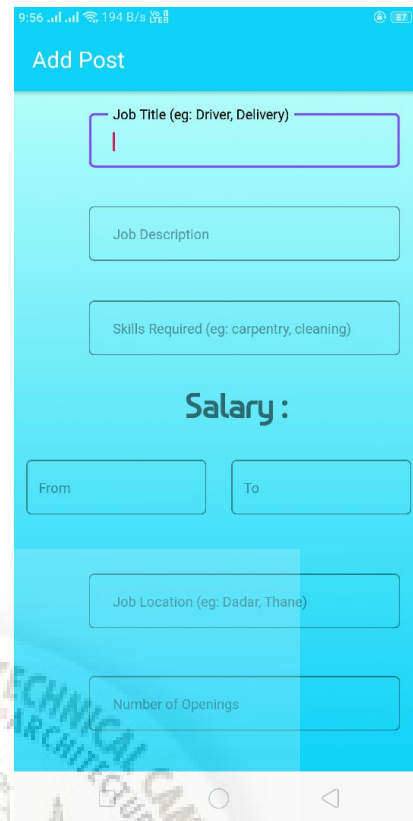


Figure 8.4: Adding Job Post Page

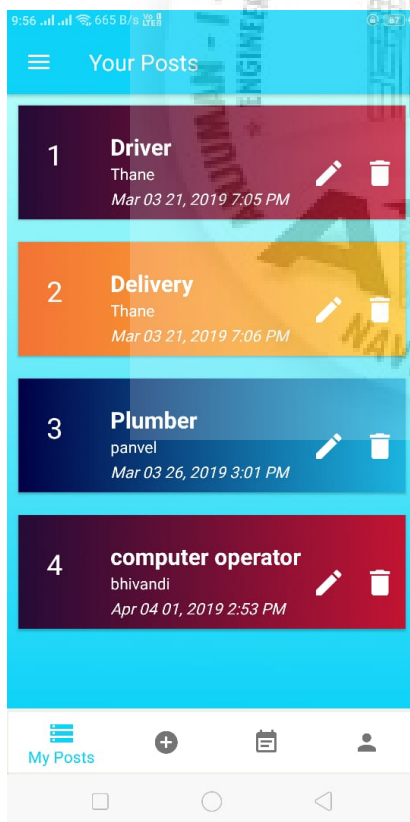


Figure 8.5: Posted jobs Page

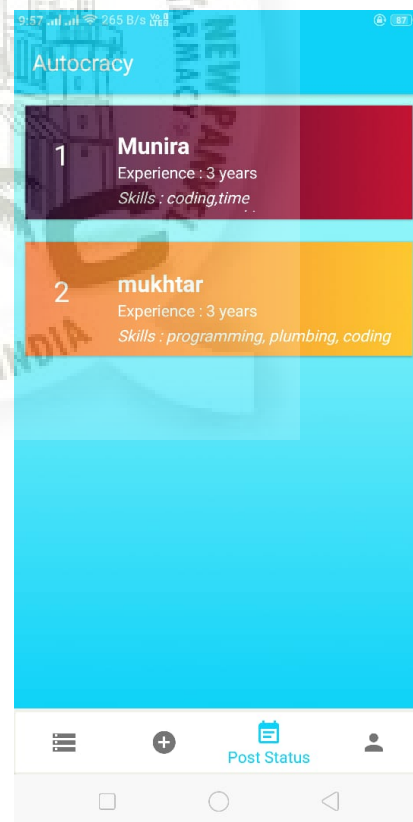


Figure 8.6: Applicants Page

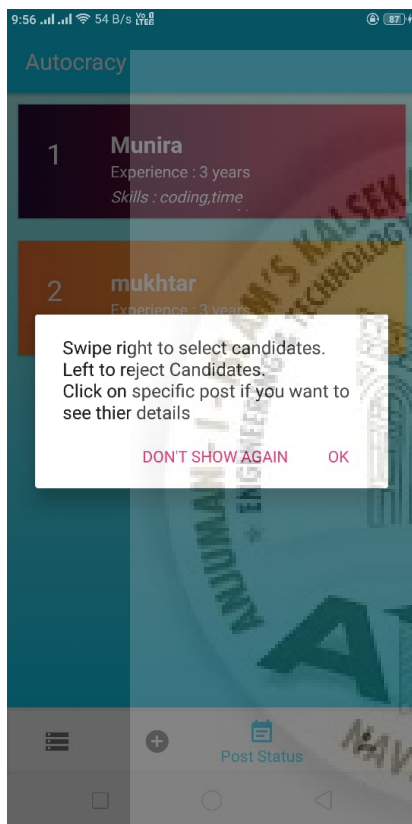


Figure 8.7: Choosing Applicants Page

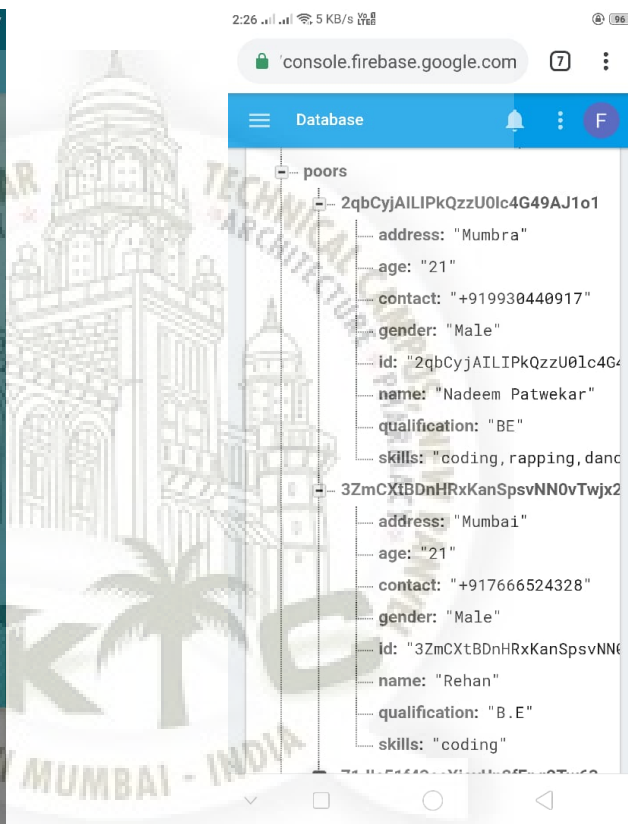


Figure 8.8: Registered Needy in database

8.2 Scholarship module

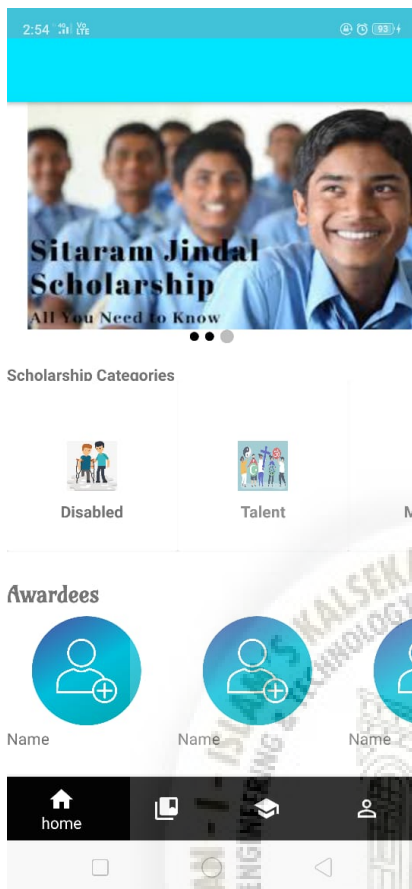


Figure 8.9: View Company Profile Page

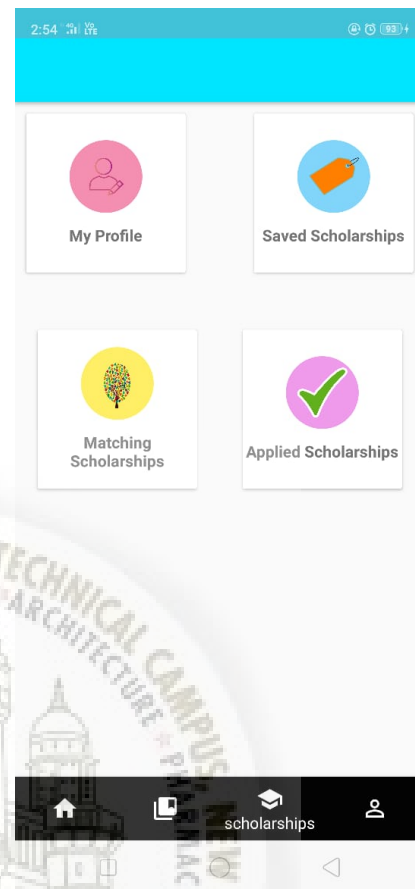


Figure 8.10: Adding Job Post Page

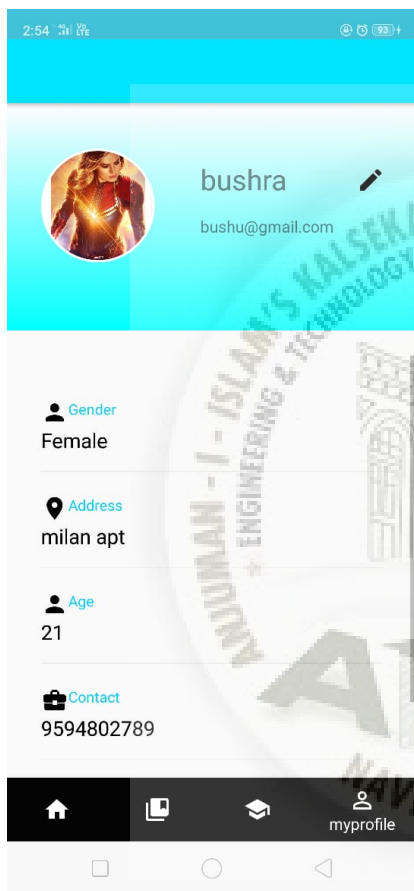


Figure 8.11: Posted jobs Page

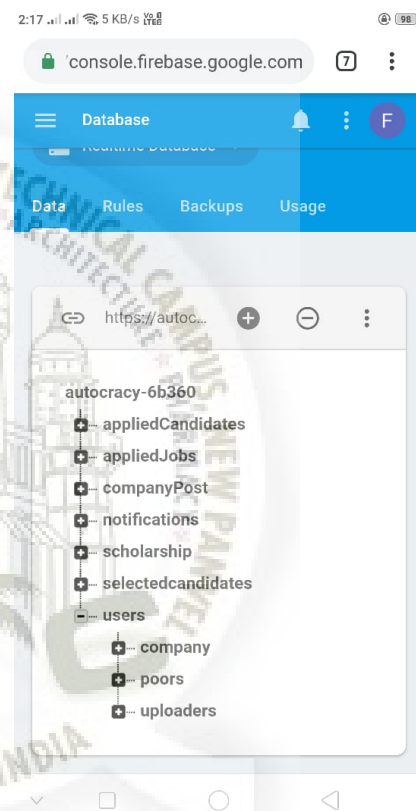


Figure 8.12: Database

8.3 Upload module

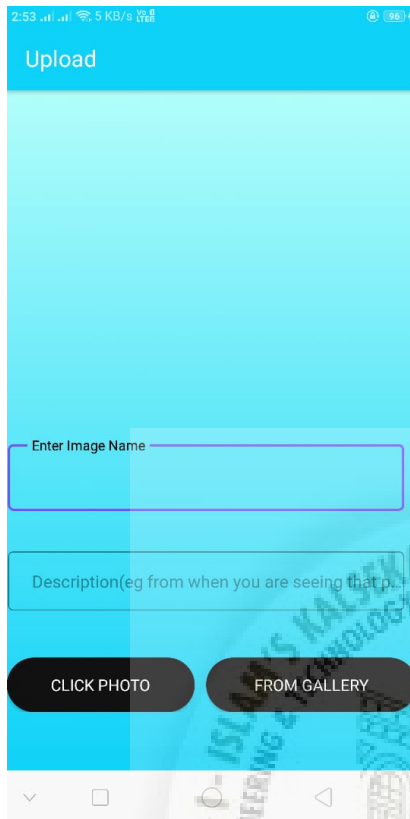
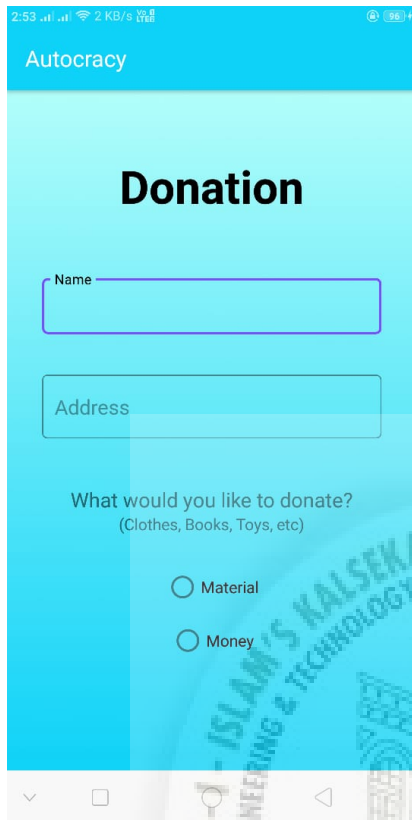


Figure 8.13: Uploader page



Figure 8.14: Location fetched and stored in database

8.4 Donor module



Autocracy

Donation

Name

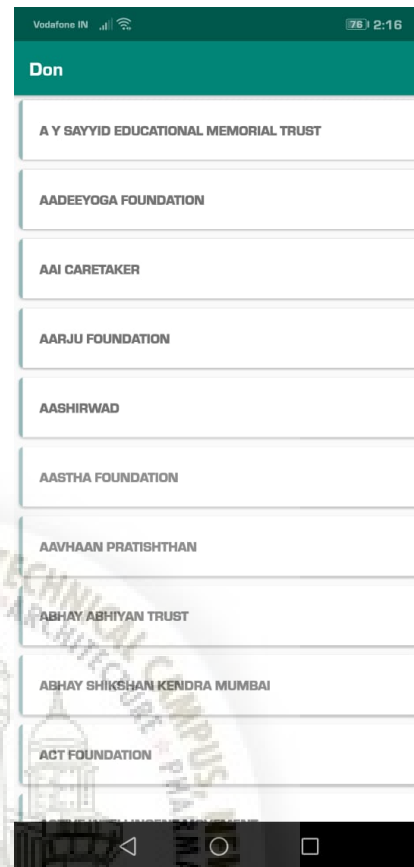
Address

What would you like to donate?
(Clothes, Books, Toys, etc)

Material

Money

Figure 8.15: Donor Registration page



Vodafone IN 76 2:16

Don

A Y SAYYID EDUCATIONAL MEMORIAL TRUST

AADEEYOGA FOUNDATION

AAI CARETAKER

AARJU FOUNDATION

AASHIRWAD

AASTHA FOUNDATION

AAVHAAN PRATISHTHAN

ABHAY ABHIYAN TRUST

ABHAY SHIKSHAN KENDRA MUMBAI

ACT FOUNDATION

Figure 8.16: Location fetched and stored in database

Chapter 9

Conclusion and Future Scope

9.1 Conclusion

We successfully gathered the required information and data for developing our android application. Analysis of slum population, their consumption pattern and work flow of job portals was studied. Previously available softwares focuses on only providing jobs to qualified fellows. We are developing an android application that focuses on employing the slum peoples based on their abilities and also providing other services of placing homeless old age people to old-age homes, orphans to orphanage, donation to NGOs, scholarships for students and awaring about government training programs. System consists of few limitations like for success of this application more involvement of people is needed. We are providing information about Government programs and NGOs but users need to reach them by themselves. Slum people may need help in initial stages to understand working of application.

9.2 Future Enhancement

- Not only slums but we will try to employ beggers too.
- We will try to give them identity so that they can be trusted by employer and can be hire to work.
- We can use web scrapping to fetch more work opportunities for our users.

References

- [1] *Socio- Economic Causes of Begging*; Prof. Jabir Hasan Khan,Dr. Menka,Shamshad,International Research Journal of Human Resources and Social Sciences, 2014.
- [2] *Challenges in Computerized Job Search for the Developing World*; Indrani Medhi,Geeta Menon, Kentaro Toyama, CHI 2008 proceedings, 2008.
- [3] *Level Of Poverty And Employment Pattern In Slums: A Case Of Gwalior In Central India*; Naveen Kumar, Suresh Chand Aggarwal, The Indian Journal of Labour Economics, 2008.
- [4] *A feasibility study for the development of an employment system for underserved communities*; Abhimanyu Roy, Vishal Shah,Ali M S Zalzal, International Humanitarian Technology Conference (IHTC), 2015.

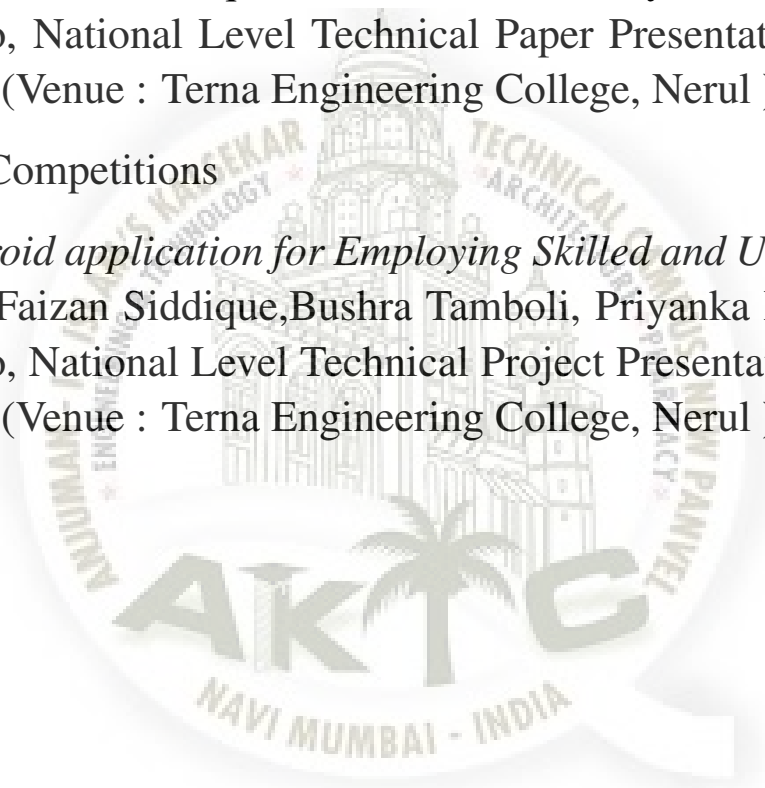
Achievements

1. Conferences

- (a) *Android application for Employing Skilled and Unskilled People*; Faizan Siddique, Bushra Tamboli, Priyanka Patil, Ruksar Bano, National Level Technical Paper Presentation , March, 2019(Venue : Terna Engineering College, Nerul)

2. Project Competitions

- (a) *Android application for Employing Skilled and Unskilled People*; Faizan Siddique, Bushra Tamboli, Priyanka Patil, Ruksar Bano, National Level Technical Project Presentation , March, 2019(Venue : Terna Engineering College, Nerul)



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