Better life

A Project Report Submitted by

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in partial fulfilment for the award of the degree of

Bachelor of Technology

in

Information Technology

Faculty of Technology

Marwadi University, Rajkot

2022-23

Faculty of Technology

Marwadi University

Department of Information Technology

2022-23

CERTIFICATE

This is to certify that the project entitled **Better life** has been carried out by **Ahmad Mhala – 91900104054** under my guidance in partial fulfilment of the degree of Bachelor of Technology in Information Technology of Marwadi University, Rajkot during the academic year 2022-23.

Date: _____

Internal Guide

Prof. Yatri Davda
Assistant Professor

Head of the Department

Dr . Damodharan Palaniappan

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ahmad Mhala** of **Faculty of Technology, Marwadi University** has worked on an Industry Defined Project of Marwadi university.The work embodied in this project entitled, “Better Life” has been carried out in fulfilment for the degree of Bachelor of Technology. He has undergone the project for the required period.

During this period we found him/her sincere, honest and diligent. We wish all success in his/her future endeavours.

For Marwadi university

Acknowledgments

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them.

I am highly indebted to **Prof. Yatri Davda** for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support in completing the project.

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Institute's Vision and Mission

Institute's Vision

Our vision is to address challenges facing our society and planet through sterile education that builds capacity of our students and empower them through their innovative thinking practice and character building that will ultimately manifest to boost creativity and responsibility utilizing the limited natural resources to meet the challenges of the 21st century.

Institute's Mission

- To Produce creative, responsible and informed professionals
- To produce individuals who are digital-age literates, inventive thinkers, effective communicators and highly productive.
- To deliver cost-effective quality education
- To offer world-class, cross-disciplinary education in strategic sectors of economy though well devised and synchronized delivery structure and system, designed to tackle the creative intelligence and enhance the productivity of individuals.
- To provide a conducive environment that enables and promotes individuals to creatively interact, coordinate, disseminate and examine change, opinion as well as concept that will enable students to experience higher level of learning acquired through ceaseless effort that lead to the development of character, confidence, values and technical skills.

Department's Vision and Mission

Department's Vision

To impart quality technical education through research, innovation and teamwork for creating professionally superior and ethically strong manpower that meet the global challenges of engineering industries and research organization in the area of Information Technology.

Department's Mission

- Maintain a vital, state-of-the art ICT enabled teaching and learning methodologies, which provides its students and faculty with opportunities to create, interpret, apply and disseminate knowledge.
- Enable graduates in becoming digital age literates, innovators, efficient communicators and result oriented professionals.
- Dedicate itself to providing its students with the skills, knowledge and attitudes that will allow its graduates to succeed as engineers, leaders, professionals and entrepreneurs.
- Prepare its graduates for life-long learning to meet intellectual, ethical and career challenges.
- Inspire graduates for competitive exam higher education as well as research and development.

PEO, PO and PSO

Program Educational Objectives (PEO):

Our graduated students are expected to fulfill the following Program Educational Objectives (PEOs):

1. **Core Competency**: Successfully apply fundamental mathematical, scientific, and engineering principles in formulating and solving engineering and real life problems for betterment of society.

2. **Breadth**: Will apply current industry accepted practices, new and emerging technologies to analyse, design, implement and maintain state of art solutions.

3. **Professionalism**: Work effectively and ethically in ever changing global professional environment and multi-disciplinary environment.

4. **Learning Environment**: Demonstrate excellent communication and soft skills to fulfil their commitment towards social responsibilities and foster life-long learning.

5. **Preparation**: Promote research and patenting to enhance technical and entrepreneurship skills within them.

- Function and communicate effectively to solve technical problems.
- Advance professionally to roles of greater IT and IT enabled services, and/or by transitioning into leadership position in various industries such as business, government, and/or education.
- Prepare for entrepreneurship skills by demonstrating commitment to community by applying technical skills and knowledge to support various service activities.
- Place themselves in positions of leadership and responsibility within an organization and progress through advanced degree or certificate programs in engineering, business, and other professionally related fields.

- Participate in higher study by the process of life-long learning through the successful completion of advanced degrees, continuing education, and/or engineering certification(s)/licensure or other professional development.

Program Outcomes (POs)

Engineering Graduates will be able to:

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

Program Specific Outcomes (PSOs)

PSO1. Students shall demonstrate skills, the knowledge and competence in the analysis, design and development of IT based systems addressing industrial and social issues.

PSO2. Students shall have competence to take challenges associated with future technological issues associated with security, wearable devices, augmented reality, Internet of Anything etc.

Abstract

A program in the context of performance aspect exhibits a crucial part, as it minimizes the time and space complexity. If the space complexity in a program is minimized, the application runs on minimum memory. Many JAVA developers write JAVA programs without consideration towards optimized execution. Developers of application should tune the application(s) earlier to use in production. Application code tuning often engenders massive performance enhancement. The proposed model is envisioned to aid the JAVA programmers to tune and enhance the JAVA based application(s). This paper elucidates miscellaneous techniques to escalate JAVA application program performance and can serve as an optimization tool for the JAVA application programmers. Our experimental denouements designate that performance i.e. Time and Space complexities are enhanced. survive with just a phone, without needing cash or credit card in your wallet! Smartphones have truly gone from luxury items to daily necessities in the span of about 10 years' time. There are generally two main types of smartphones on the market, Google's Android phones and Apple's iPhones. There are an estimated five billion mobile users in the world. The largest market share is held by phones using Google's Android operating system, which occupies more than 80 percent of the market. The top Android phone makers are Samsung, Huawei, Google, HTC, LG, ZTE, Xiaomi, Oppo, Vivo, and so on. However, the largest single phone company is still Apple, with about 15 percent market share. The traditional mobile phone companies such as Nokia, Ericsson, Motorola, and the once-most-popular with-business-customers BlackBerry, have all fallen out of favor and become nonexistent. This chapter first introduces how to use Android Studio to develop mobile phone applications—apps—for Android phones and then introduces MIT App Inventor, another popular way of developing Java Android application. MIT App Inventor is a web-based, visual programming tool, which allows users to build Java Android applications using visual objects. MIT App Inventor is particularly popular among beginners. Finally, this chapter introduces 5G, the most talked about and most researched next-generation mobile technology. 5G is going to significantly change the way we communicate, and therefore it is beneficial to understand what 5G is and how it works.

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1 Introduction

1.1 Problem Summary:

We can use the strength of internet technology and its extensive network, by which individuals can assist one other with only a click from their phone, to satisfy the growing need for advances in donation facilities and services. The suggested system for stuff donation aims to give needy people an online platform for giving cloths, books or any unneeded things. Users can sign up for this system by providing the required information. Once registered, users can add a post either for giving donation or for request a donation.

1.2 Definition

Better life is an Android application which allows people to donate and receive donations around the world, in our application the user can ask for a donation and he can donate also in the same time, the user will give his name, description of the item and phone number this way is valid for either donation or request. After that the application will take user location and mark in his location which includes the name, type (donor, receiver), phone number and description.

-For donor will be shown as a green mark

-For receiver will be shown as a blue mark

So other users are able to see the donations and donation requests in the map. So, users can contact with each other by provided phone number.

Figure.1 Donation request

.

1.3 Used technology

1.3.1 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.[10] It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development.

1.3.2 .Java programing language

Android is an open source software platform and Linux-based operating system for mobile devices. The Android platform allows developers to write managed code using Java to manage and control the Android device. Android applications can be developed by using the Java programming language and the Android SDK.

1.3.3 XML

XML stands for eXtensible Markup Language, which is a way of describing data using a text-based document. Because XML is extensible and very flexible, it's used for many different things, including defining the UI layout of Android apps.

1.3.4 Firebase

Firebase is a mobile platform that helps you quickly develop high-quality apps, grow your user base, and earn more money. Firebase is made up of complementary features that you can mix-and-match to fit your needs, with Google Analytics for Firebase at the core

1.3.4.1 Authentication (sign in method)

Firebase Authentication provides backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to your app. It supports authentication using passwords, phone numbers, popular federated identity providers like Google, Facebook and Twitter, and more.

1.3.4.2 Firestore database

Firebase Firestore is a cloud NoSQL database that is used to **add, retrieve, and update** data inside your application. Basically, it is a database that is used to store data inside your **Firebase console**. The data in the Firestore is stored in the form of documents, so it becomes easy to manage this data inside Firebase.

2 Database design, Design Methodology and Implementation Strategy

2.1 Design methodology

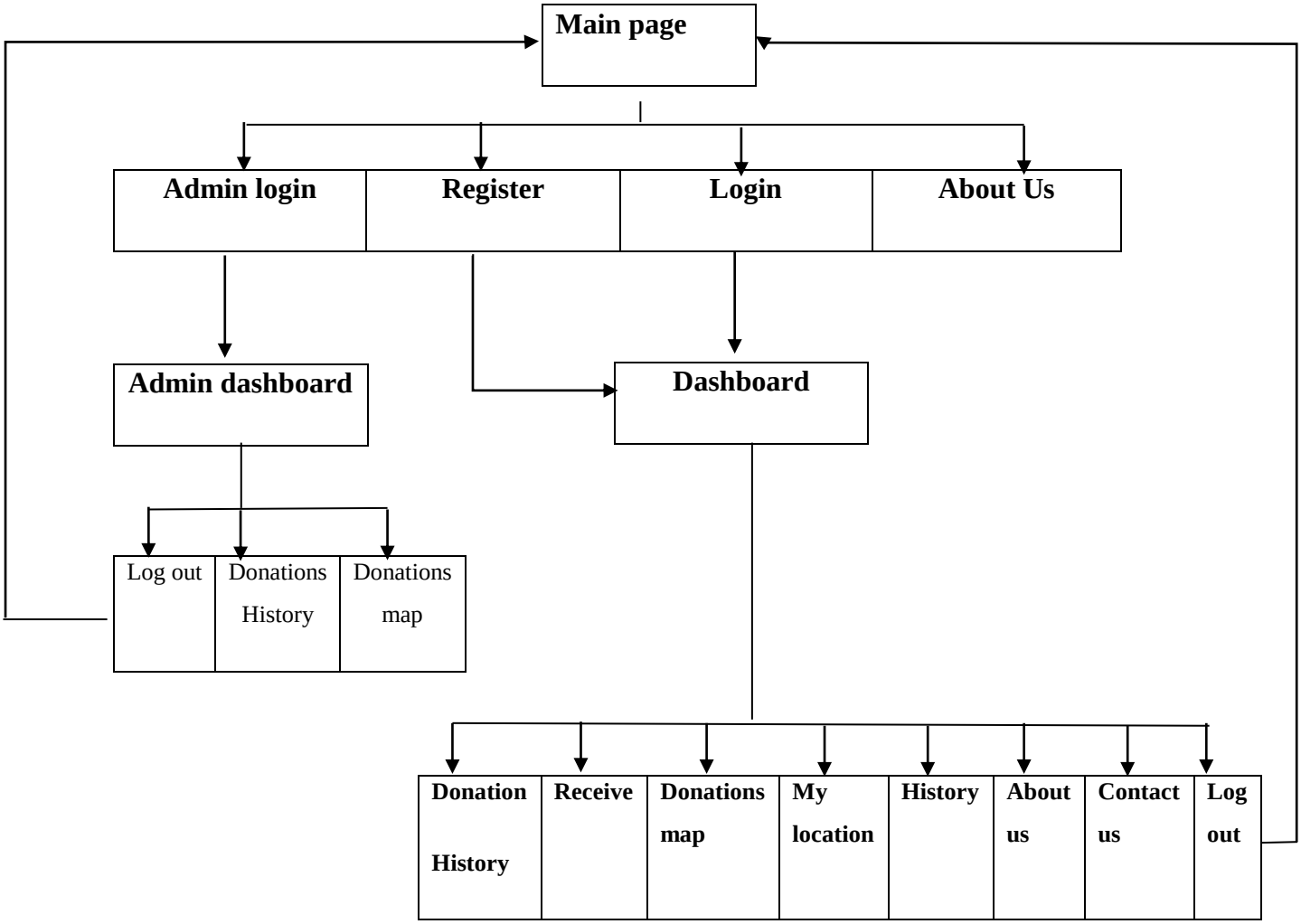


Figure.2 Dataflow

2.2 Database

2.2.1 Database design

- We have four collections, each collection has documents, each document has fields.

1. Contact data: this collection has data which entered from user when he askes to contact with us, it has email, message, name, time and userid.

2. Donation details: it has data of any post from user either donation or asking for donation, it contains description, Donation Item, Location, name, phone number, time, type, userid

3. Users: it contains user registrations details email , name ,password and phone number

4. Admin: it has data of admin, DOB, Email, phone number, name, password.

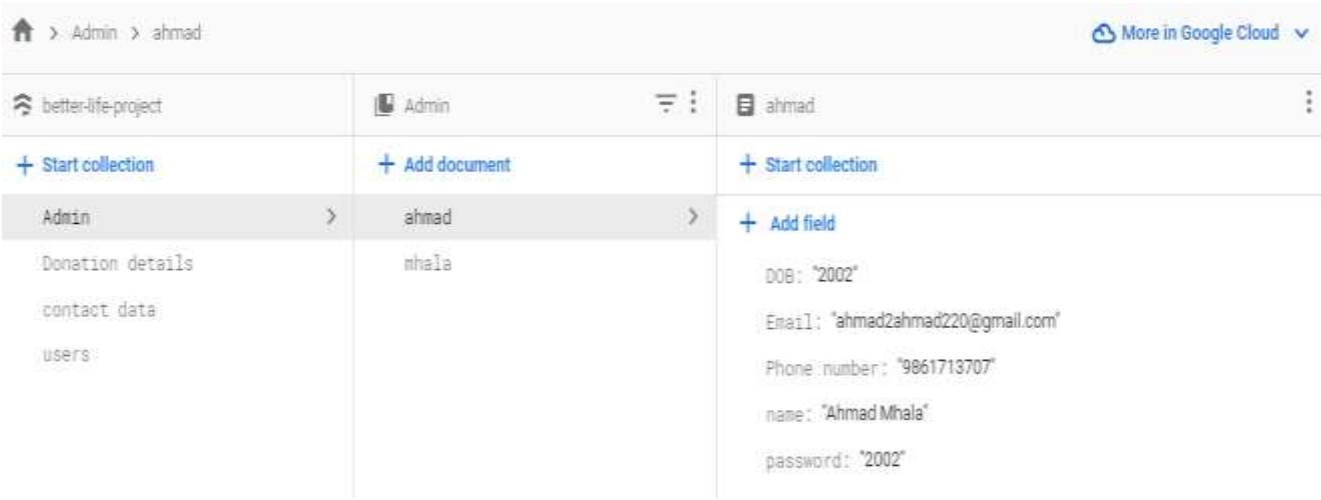


Table.1 Admin collection

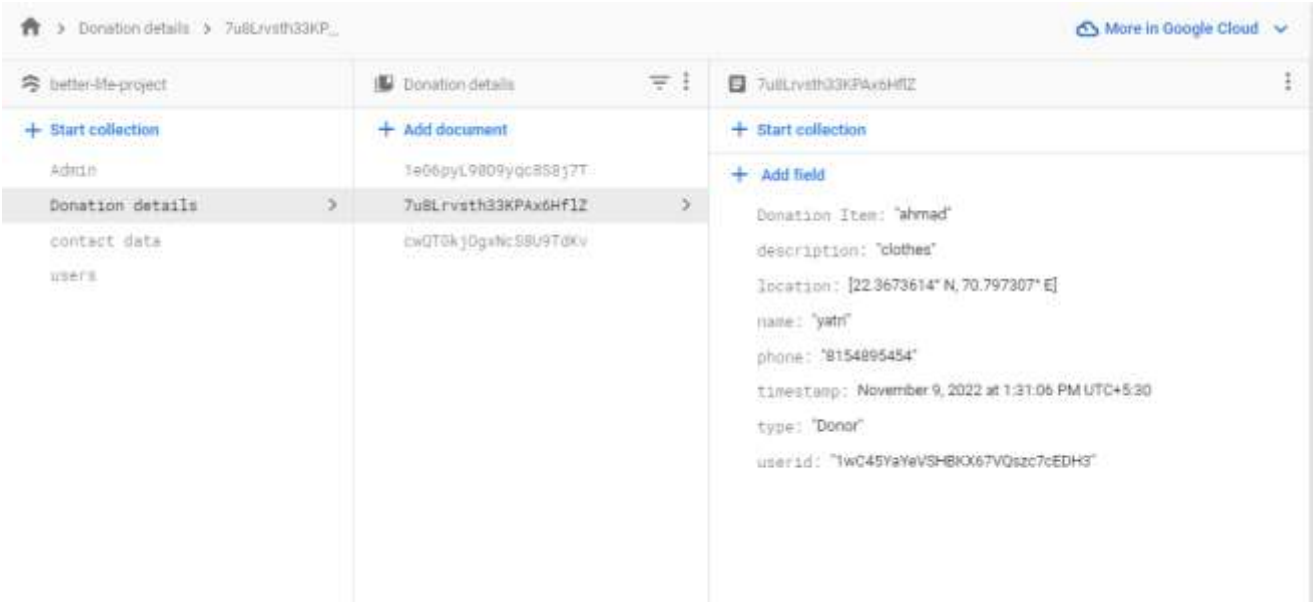


Table.2 Donation details collection

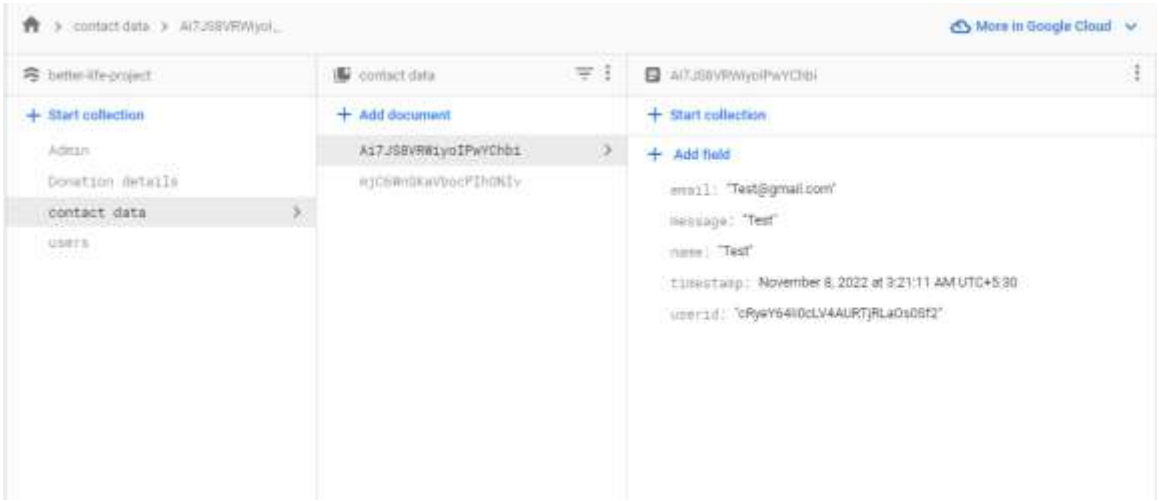


Table.3 Contact data collection

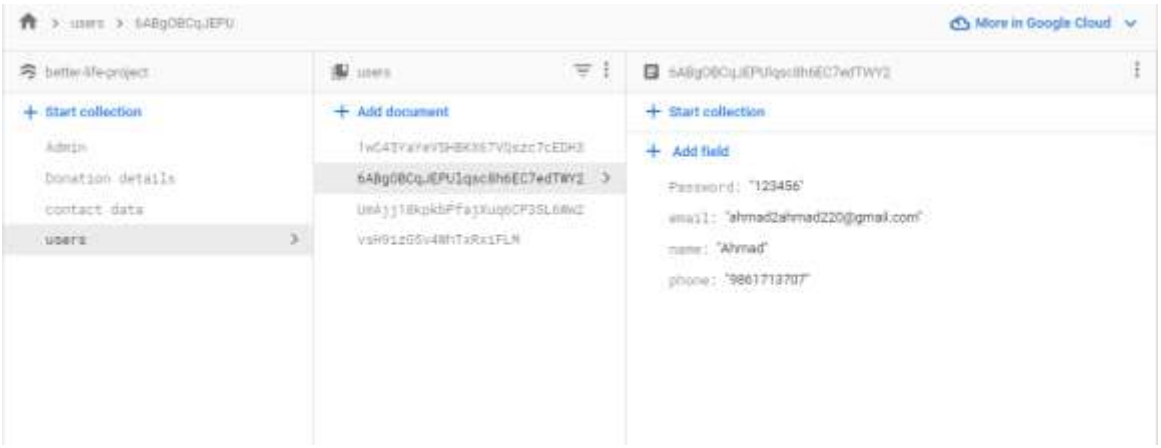
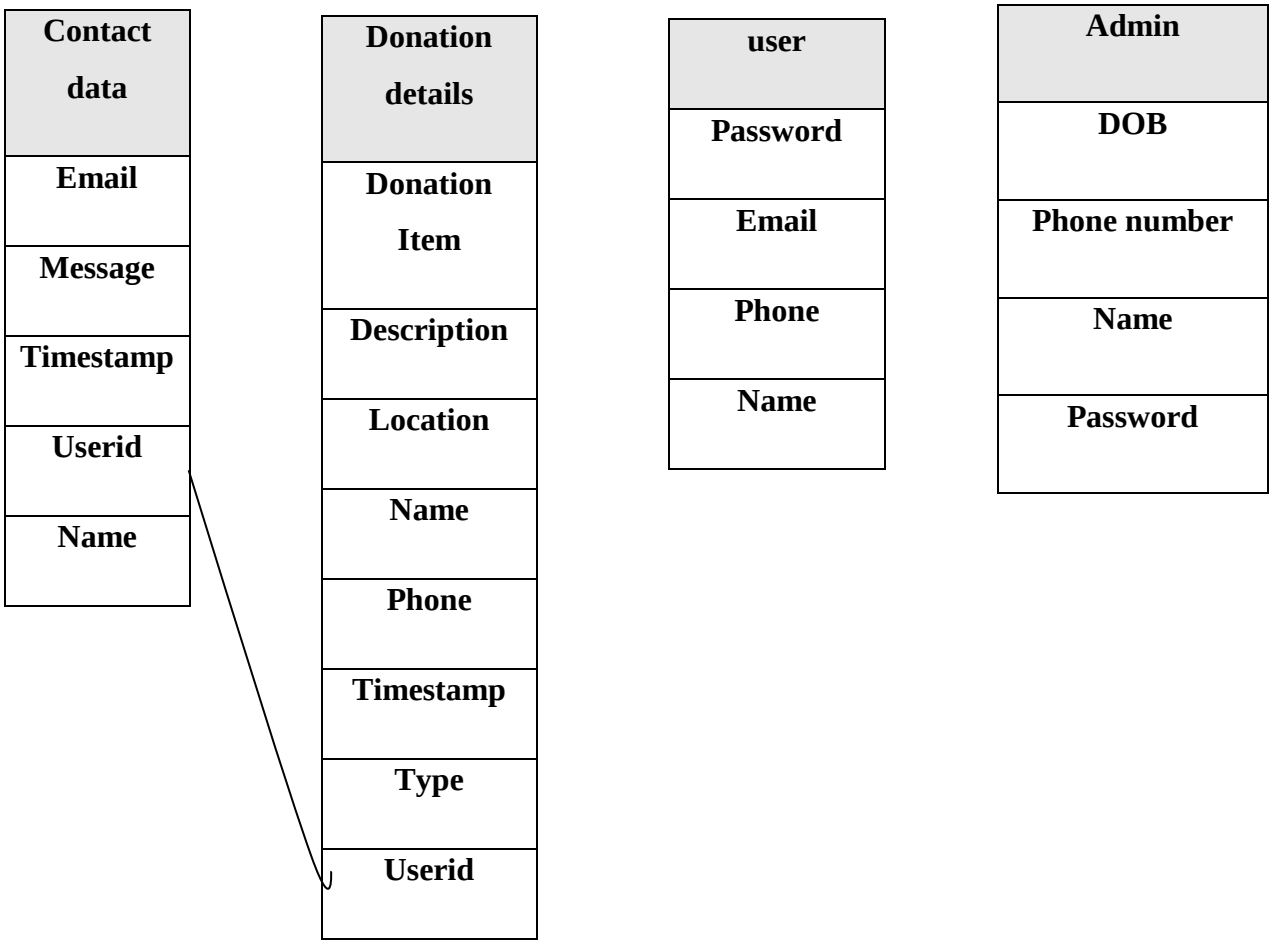


Table.4 Donation details collection

2.2.2 Database Diagram



3 Implementation

3.1 Implemented Functionality

In first page will be a main page which includes four pages, login, registration, login as admin and contact us page by swiping right and left

3.1.1 -Main and log in page

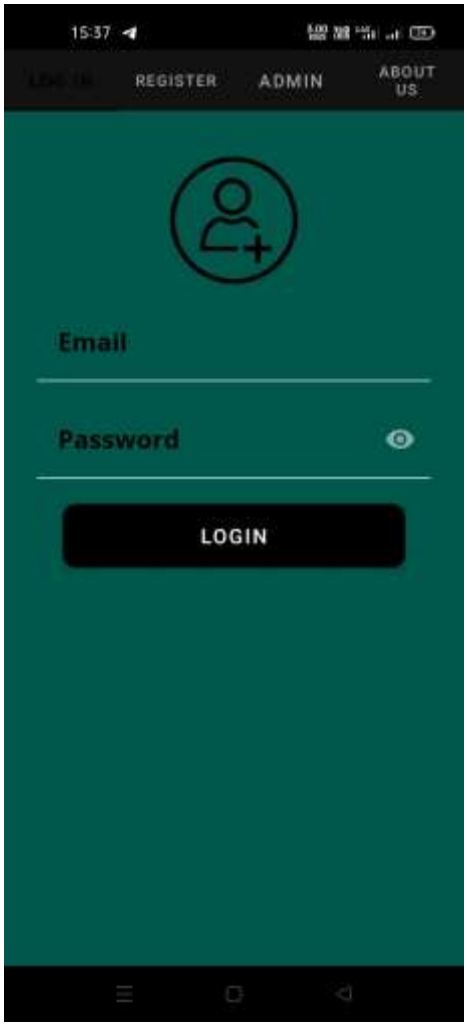


Figure.3 Main and log in page

after entering vaild user name and password, the application checks if the entered email and password are valid and password length more than 6 characters, then will compare them with data in database to check if the user valid or not.

-if yes, user will be moved to user dashboard page.

- if not correct, application will show a notification (user name or password invalid).

3.1.2 Register page:

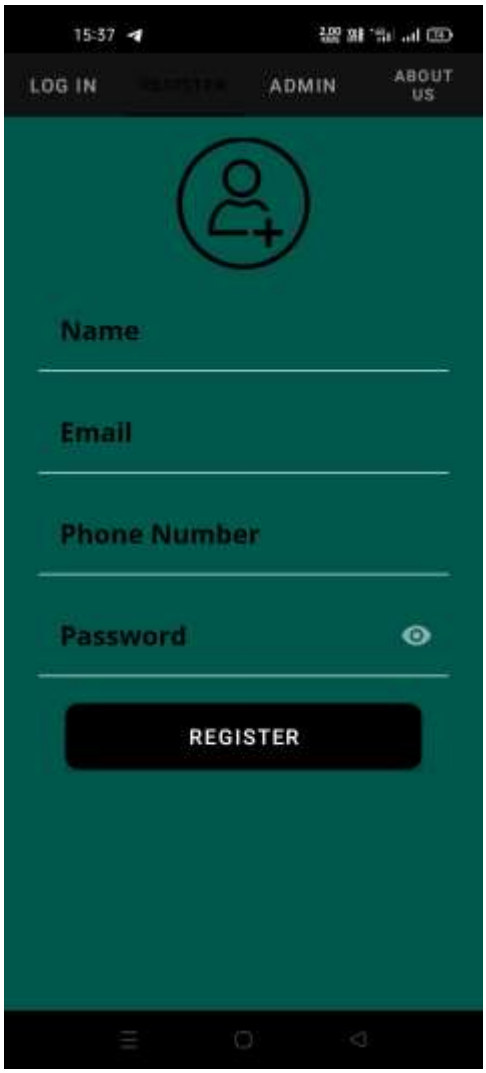


Figure.4 Register page

In this page the user registers himself, after entering valid data, it will be saved in database and then the user will be redirected to dashboard page.

3.1.3 Admin login page:

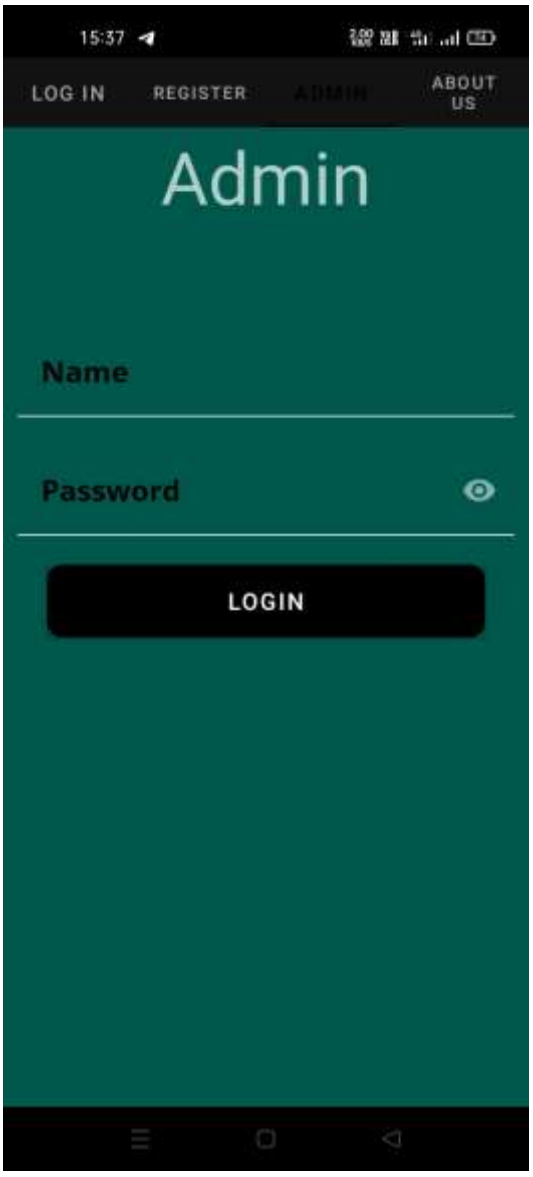


Figure.5 Admin login page

In this page the admin login as an admin, after entering the data, application checks if it is valid in database. If yes, the admin will be redirected to admin dashboard.

3.1.4 Contact us page:

Figure.6 About us page

After user login or registers, he/she will be redirected to dashboard page, and here user has 8 buttons

3.1.5 User dashboard:

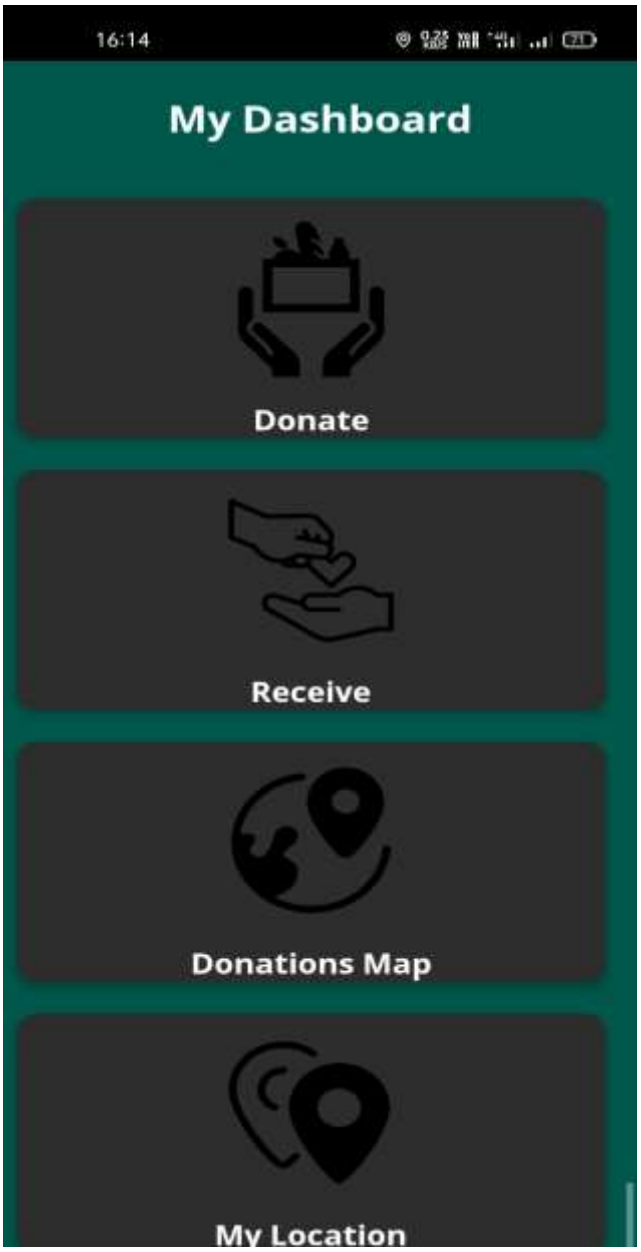


Figure.3.1 User dashboard

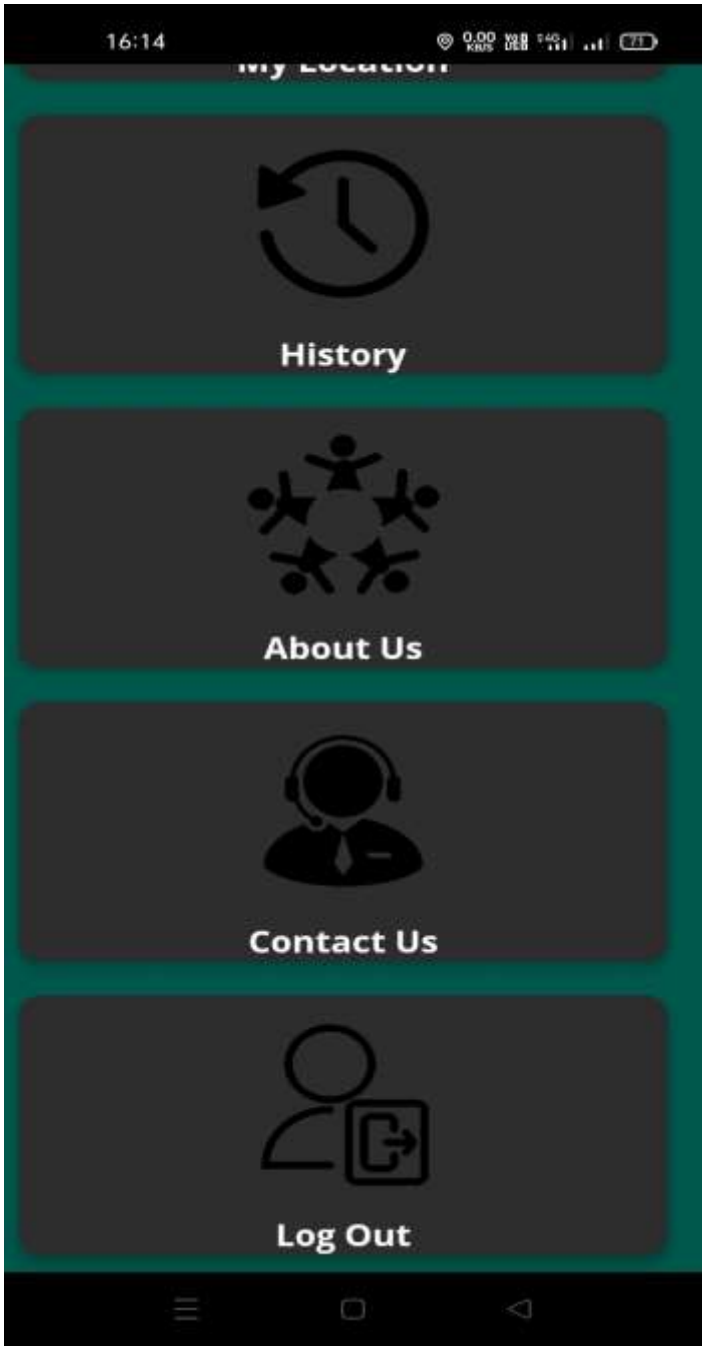


Fig3.2 User dashboard

3.1.5.1 Donate*:*

it is a page which allows user to add donation, user will enter important data and application takes his permission for location, after that all the data which is entered by user and his location will be sent and saved in database.

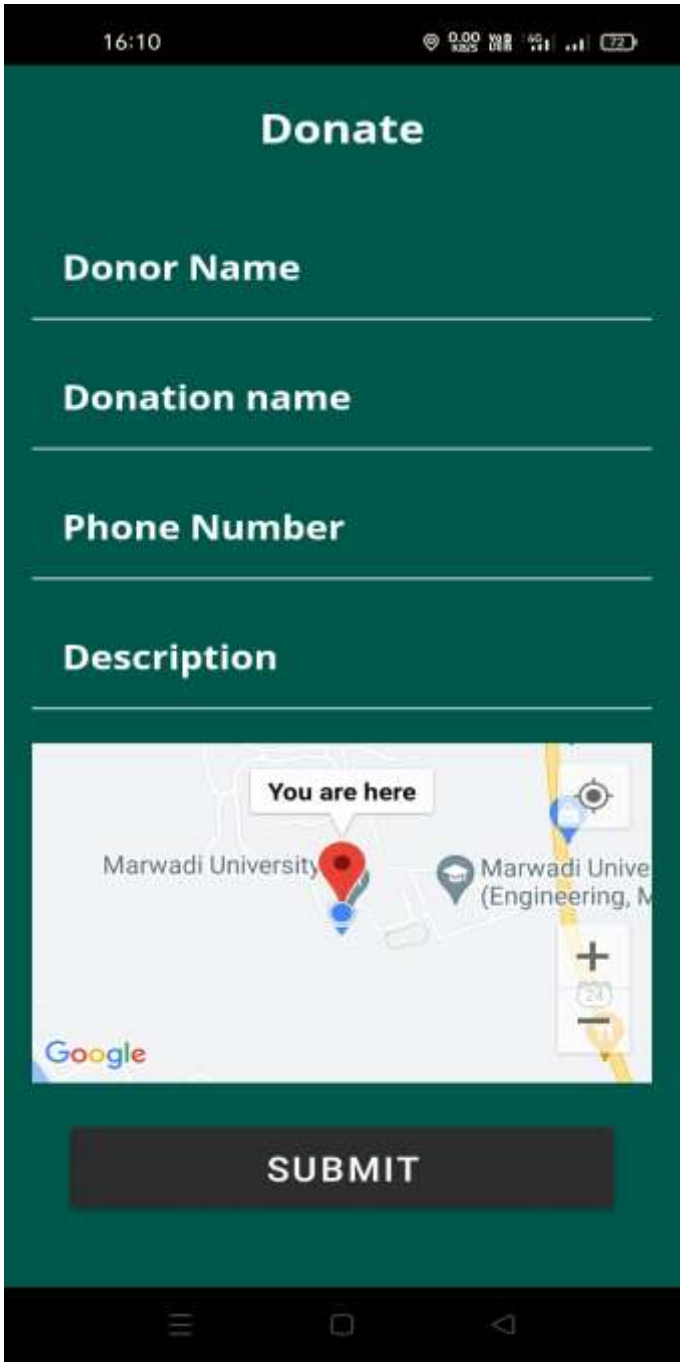


Figure.3.1.1 Add donation page

3.1.5.2 Receive*:*

in this page user are able to add request for receiving a donation, user enters important data and application takes his permission for location, after that all the data which is entered by user and his location will be sent and saved in database.

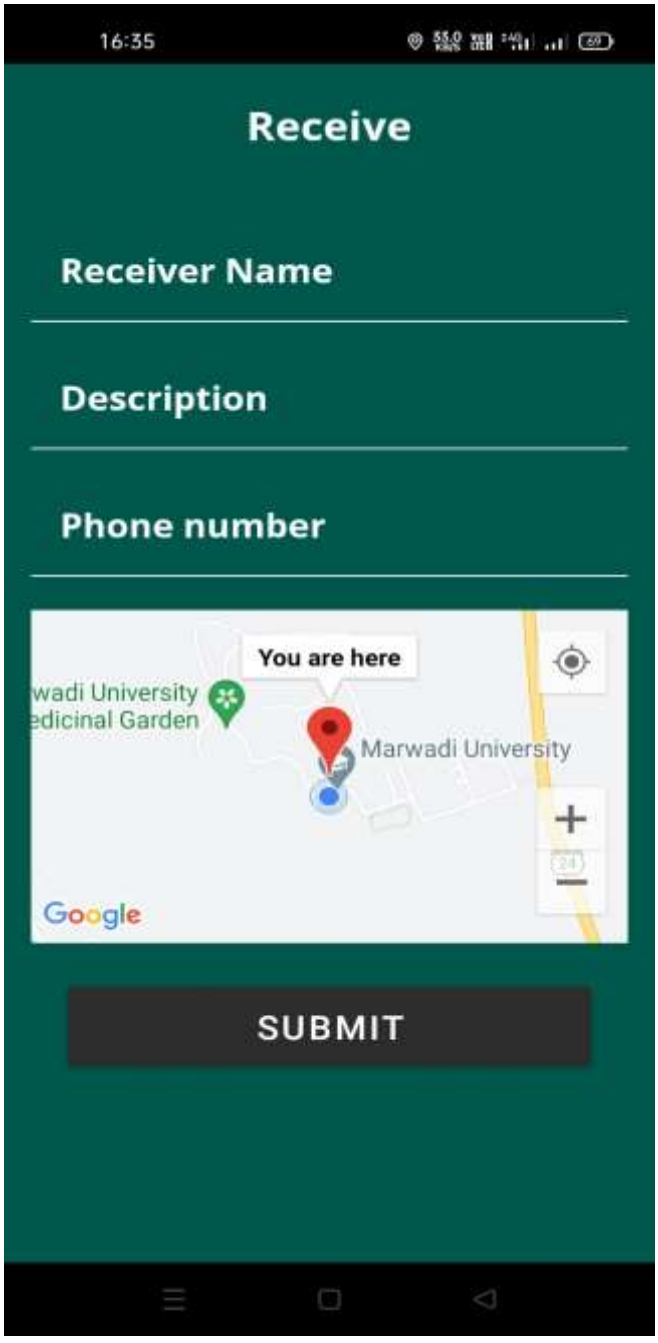


Figure.3.1.2 Receive page

3.1.5.3 **Donation Map** this page shows map which includes receive and give donations requests.

receive donation is marked by blue mark, give donation is marked by green mark

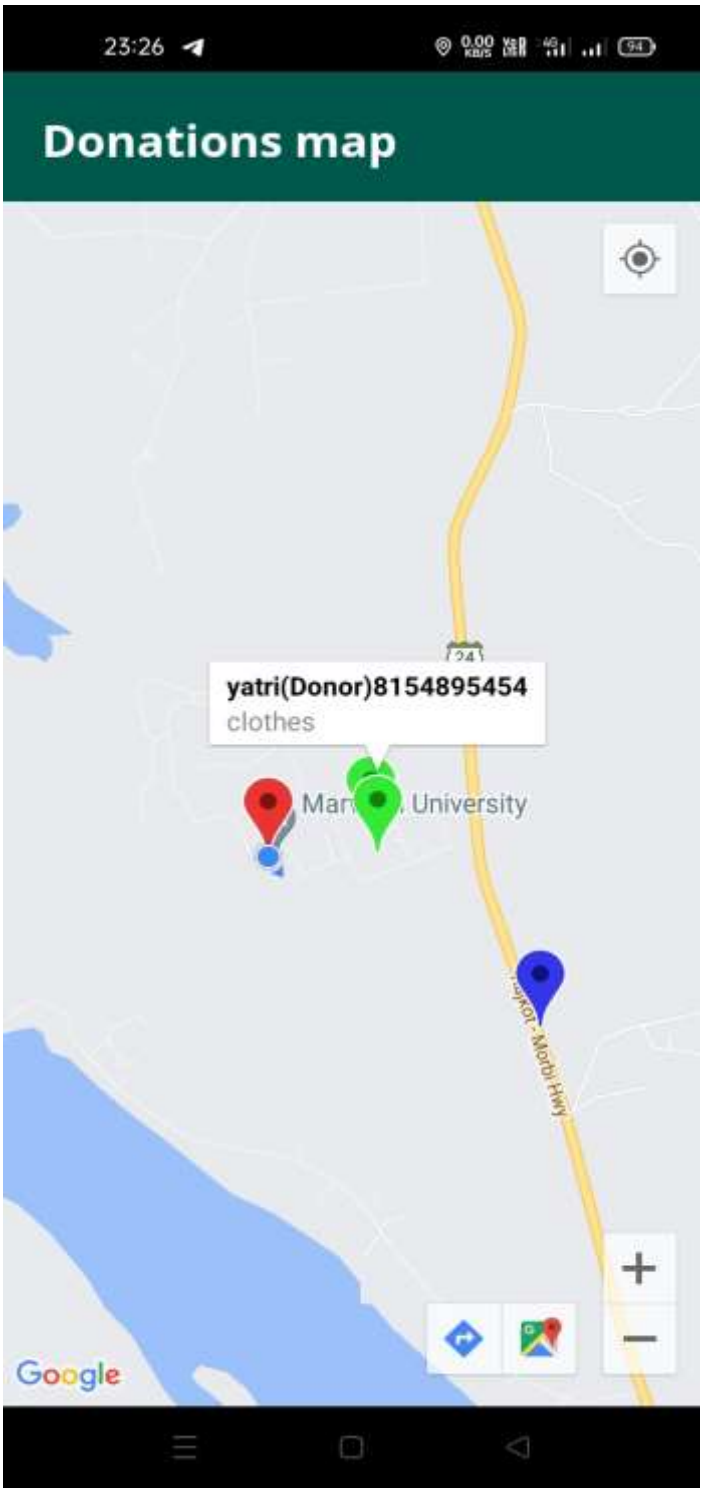


Figure.3.1.3 Donations map

3.1.5.4 My location

this page shows the user locations in map.

3.1.5.5 History:

shows history requests of user, and user can delete his request from here.

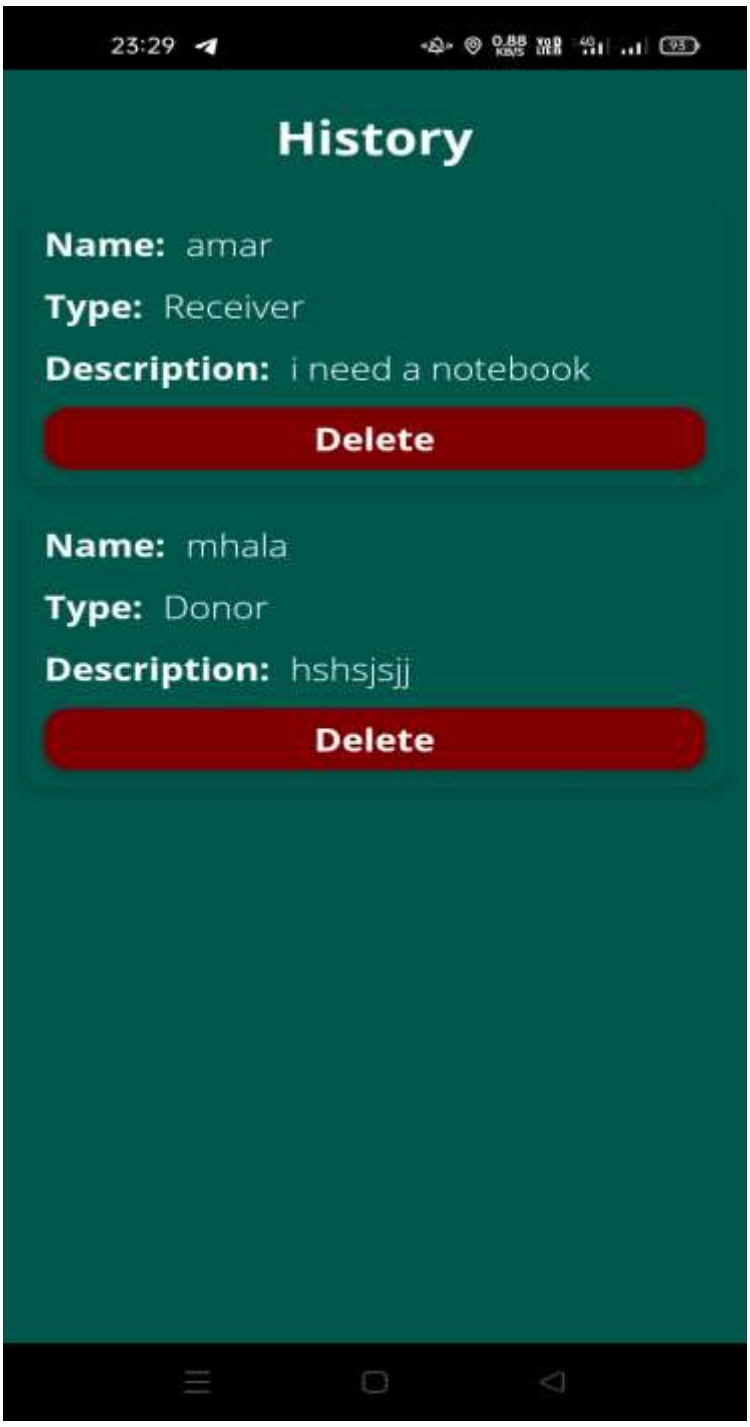


Figure.3.2.1 User history

3.1.5.6 ***About us:*** Figure.5

3.1.5.7 ***Contact us***: is a page where user can add any query, and then the data will be sent and saved in database.

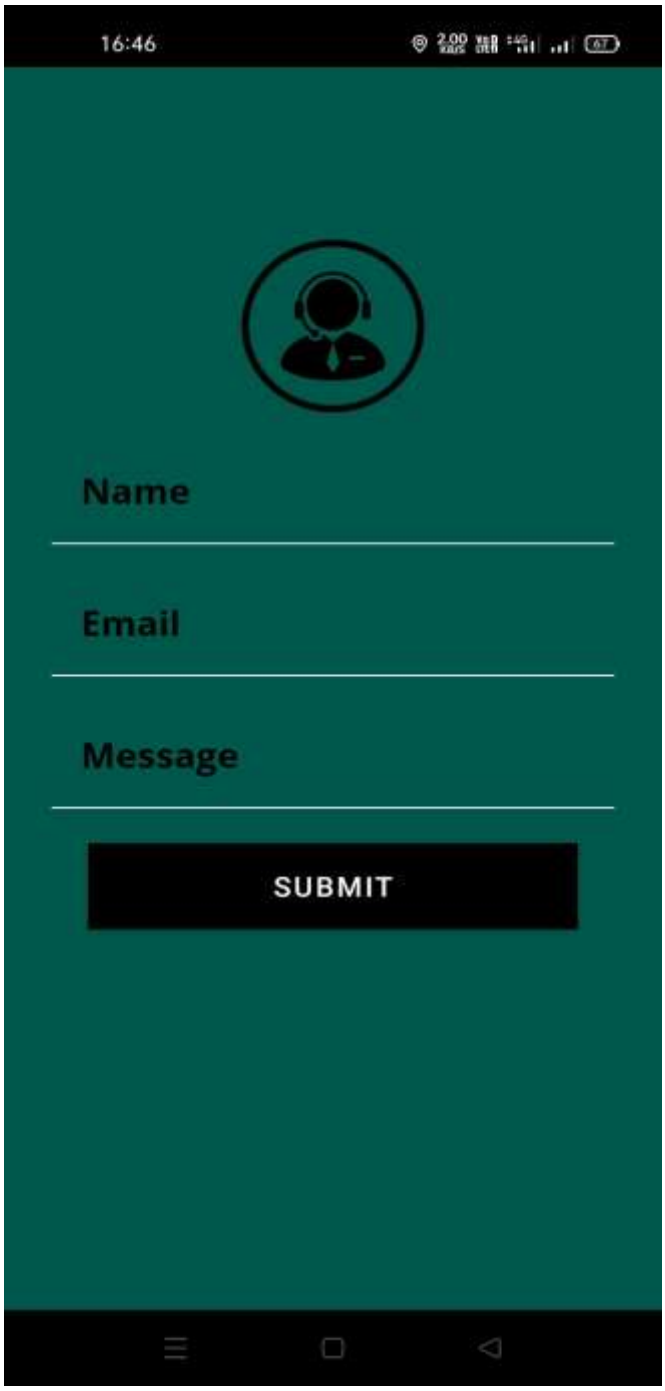


Figure.3.2.2 Contact us

3.1.5.8 logout: after user clicks on this button, he will be logged out and redirected to main page

3.1.6 Admin login. Figure.5

After admin login, the admin will be redirected to Admin dashboard page, where he will be able to go into two pages and he has logout button also in this page.

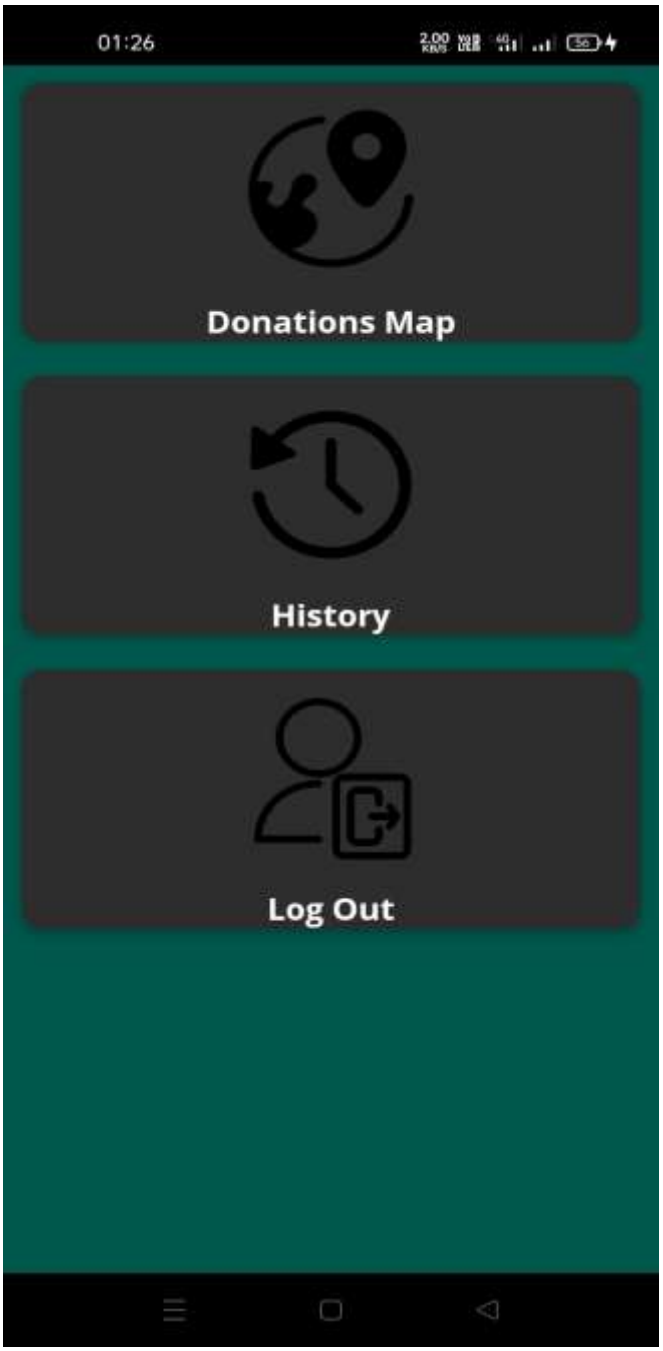


Figure.5.1 Admin dashboard

3.1.7 Donation map for admin: (same as figure3.3.1): here the admin is able to see all the donations on google map.

-History page for admin: the admin will be able to manage the history of all users.

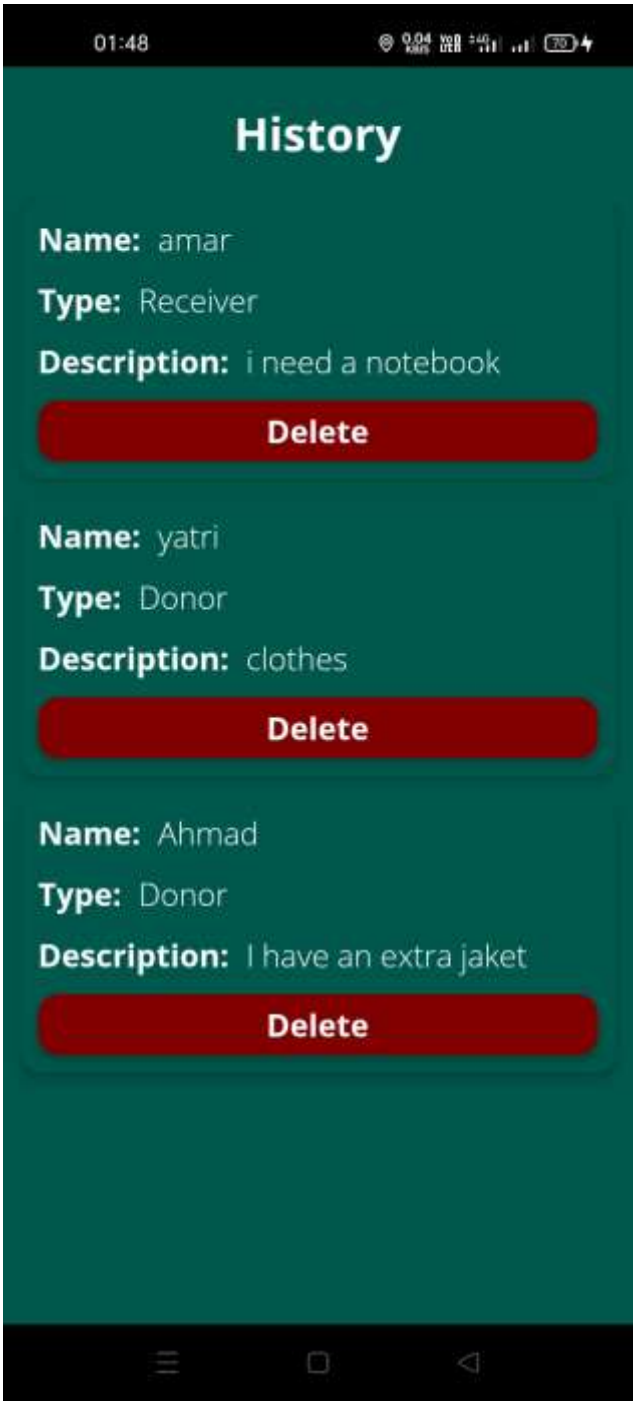


Figure.5.2 Admin history page

-Logout: admin will be redirected to main page Figure.3.

3.2 Test and verification

3.2.1 Testing plan:

The present tense is now active. Right or wrong, educated or uninformed, everyone now has access to information about their health. The fact that low-income individuals and families cannot afford to care for their due to their limited access to health care systems. By giving the underprivileged access to free medical care, the government is doing a lot of good. However, they are typically receiving treatment rather than pricey medication. So, to them, the big step means nothing. This paper provides an overview of the design and development of a application system that will function best and make a substantial impact to how easily these low-income or disadvantaged people can obtain healthcare services.

3.2.2 Testing Strategy:

- Unit testing -:

  Definition -: Test individual unit of Medifall

  Tested by -: Developer

  Methodology -: Test individual unit of Medifall

- Integration and System Testing -:

  Definition -: Integration testing test two or more than two integrated models

  System testing test functional and non-functional user requirement.

  Tester by -: Tester

  Methodology -: It is used for integrated model, functional and non-functional user requirement.

- System Testing -:

  Definition -: It measure performance / response under critical, load and stress condition

  Tested by -: Tester

  Methodology -: Measure performance under critical, stress and load system

- Acceptance testing or validation testing:

  Definition -: Used to uncover new errors in existing functionality after changes have been made.

Tested by -: Tester

Methodology -: Test system response after functional enhancements in existing system

3.2.3 Testing methods

White box testing:

White Box Testing is software testing technique in which internal structure, design and coding of software are tested to verify flow of input-output and to improve design, usability and security. In white box testing, code is visible to testers so it is also called Clear box testing, Open box testing, Transparent box testing, Code-based testing and Glass box testing. [14]

Following are important White Box Testing Techniques:

- Statement Coverage
- Decision Coverage
- Branch Coverage
- Condition Coverage
- Multiple Condition Coverage
- Finite State Machine Coverage
- Path Coverage
- Control flow testing
- Data flow testing

Reasons for white box testing:

- It identifies internal security holes.
- To check the way of input inside the code.
- Check the functionality of conditional loops.
- To test function, object, and statement at an individual level.

Name of test	User Registration
Item/Feature being tested	Whether system is able to create the user Account
Sample input	Allow user to register on providing specified Information.
Expected output	User account should be created.
Actual output	User account created successfully or Error Box if user is not providing correct info.
Remarks	Module is working properly.
Pass/Fail?	Pass/Fail

Table.5 Test cases

4 Conclusion

In conclusion, the project had developed an Android mobile app to help people donate items in easy way. The project used the Java programming language to code the system features and used SQL language to manage the system database. The process of the mobile apps is demonstrated through logical design that includes use case diagram, class diagram, activity diagram and sequence diagram from the synthesis section. The system prototype had successfully achieved all project objectives and expected results. However, the prototype exist a lot of limitation and required better enhancement in the future.

4.1 Attainment of POs and PSOs

PO / PSO	Attainment Level	Justification
PO1	2	The concept and programming language we studied in previous semesters are applied in this project
PO2	3	We have analyzed many existing projects and based on that we got this idea to build this website
PO3	3	The design was also our main concern that we have gone through.
PO4	2	The main idea was to provide assistance to the users so they can invest well
PO5	2	We have worked and used the latest resources according to our needs.
PO6	2	All the user information and application are safe to use.
PO7	2	It is a user-friendly application and with amazing UI.
PO8	1	All the norms and ethics of engineering practices are been taken care and no harm to society.
PO9	3	We have divided the work so that the efficiency increases and working capability will also visible.
PO10	1	Communication is very smooth in this product.

PO11	2	It is built by keeping in mind about finance.
PO12	3	It is very straight forward application and is open to future enhancements in technology.
PSO1		The project is very simple application which can be explained in very effective manner.
PSO2	2	We are ready to learn new things and implement in our project which will make the project more effective.

Table.6 Attainment of POs and PSOs

4.2 System requirement

- The device with using Android API 21 (Lollipop) or higher
- Internet connection
- Location permission
- The device screen size is approximately 1080 x 1920.
- The device memory has at least 2Gb RAM

Appendix A – Review Card I and II