A PROJECT REPORT ON
BLOOD BANK APPLICATION

SUBMITTED TO VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY, PUNE IN THE PARTIAL FULFUILLMENT OF FOR THE AWARD OF THE DEGREE

Submitted By:

Name	GR No.	Roll No.
Anirudha Kulkarni	21810568	331028
Shubham Shinde	21810526	331052
Yash Mathapati	21810545	331030
Stuti Wali	21810511	331063
Saurabh Shedbhale	21810727	331049

UNDER THE GUIDANCE OF:

Sudarshana Abbad Ma’am

DEPARTMENT OF INFORMATION TECHNOLOGY VISHWAKARMA INSTITUTE OF INFORMATION TECHNOLOGY, Pune - 411048

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Abstract

“Blood” one of the most important necessities of our life. The number of blood donors is very less when compared with other countries. In our project, we propose a new and efficient way to overcome such an outline. Such as just touch the button donor will be asked to enter an individual's details like name, phone number, age, weight, date of birth, blood group, address, etc. At the emergency time of blood needed we can check for blood donors nearby by using GPS. Once the app user enters the blood group which he/she needed it will automatically show the donor nearby and send an alert message to the donor. In case if the first donor is not available it will automatically search for the next donor present in the queue. The blood donation app provides a list of donors in your city/area. Once the donor donates the blood it will automatically remove the donor detail for the next three months

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Synopsis

1.1 Project Title

Blood Bank Application.

1.2 Problem Statement

Scarcity of rare **blood** group. Unavailability of **blood** during an emergency. Less awareness among people about **blood donation** and **blood** transfusion. The **Blood Bank Management System** project aims to make all the procedures automated and therefore with a computer system it can be more fast and accurate.

1.3 Abstract

"Blood" one of the most important necessities of our life. The number of blood donors is very less when compared with other countries. In our project, we propose a new and efficient way to overcome such an outline. Such as just touch the button donor will be asked to enter an individual's details like name, phone number, age, weight, date of birth,
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check for blood donors nearby by using GPS. Once the app user enters the blood group which he/she needed it will automatically show the donor nearby and send an alert message to the donor. In case if the first donor is not available it will automatically search for the next donor present in the queue. The blood donation app provides a list of donors in your city/area. Once the donor donates the blood it will automatically remove the donor detail for the next three months.

1.4 Goals and Objectives

1. To provide a means for the blood bank to publicize and advertise blood donation programs.

2. To allow the probable recipients to make a search and match the volunteer donors, and make a request for the blood.

3. To provide efficient donor and bloodstock management functions to the blood bank by recording the donor and blood details.

Chapter 2

Introduction

Conventionally, when a patient needs blood, he/she has to contact a blood bank or a compatible blood group of a donor in their circle, family, and friends. However, it is difficult to find a suitable donor within a limited group of people in a given time. Also, there is no guarantee that blood banks will have a compatible blood group in stock. There is also a steady increase in blood donation request posts on social networking sites (like Facebook, Twitter, Instagram, etc.) requesting a donation.

3.1 Project Idea

Ease of access, requirements of blood, and the blood donation statistics (1,2) are taken into consideration while researching the topic. There is a steady need for blood and blood components (red blood cells, blood plasma, platelets). Every minute of every day someone needs blood, however as e.g., in Canada (3), only 1 in 60 Canadians gave blood last year when almost 1 of every 2 Canadians is eligible to donate. 52% of Canadians say they or a family member have needed blood or blood products. The blood donation rate in high-income countries is 33.1 donations per 1,000 people; 11.7 donations in middle-income countries and
4.6 donations in low-income countries (1). As a result, finding a blood donor is becoming very difficult in almost every country.

3.2 Motivation of the Project

Smart blood bank application is online based project. Today you can easily connect with anything through internet services. So online platform is the choice for our project. Smart blood bank application is aims serving for human welfare. We have all the information you will ever need. Many people are here for you, to help you, willing to donate blood for you anytime. We have done all the job, rest is yours, search blood group you need. You can help us by registering on blood bank application if you are willing to donate. As a proud member of blood bank app and a responsible human being, you can help someone in need. So donate blood online. Person who need to donate blood may register on our application with the help of username and password or by gmail.

The person who need blood donor, they can search and find blood donor by using our application. After searching a list of donors will be display and user can get brief details about their contact details, email including their location. So they can communicate.

Chapter 3

Problem Definition and scope

4.1 Problem Statement:

Scarcity of rare **blood** group. Unavailability of **blood** during an emergency. Less awareness among people about **blood donation** and **blood** transfusion. The **Blood Bank Management System** project aims to make all the procedures automated and therefore with a computer system it can be more fast and accurate.

4.1.1 Goals and objectives:

1. To provide a means for the blood bank to publicize and advertise blood donation programs.
2. To allow the probable recipients to make a search and match the volunteer donors, and make a request for the blood.
3. To provide efficient donor and bloodstock management functions to the blood bank by recording the donor and blood details.

4.1.2 Statement of scope

This research study covers the two basic operations of blood bank app, namely: Donor and Receiver registration, monitoring of Donors, and Receiver.

4.2 Applications:

1) Easy to use and does not require any admin to handle it.
2) To provide a means for the blood bank to publicize and advertise blood donation programs.
3) To allow the probable recipients to make a search and match the volunteer donors, and make a request for the blood.
4) To provide efficient donor and bloodstock management functions to the blood bank by recording the donor and blood details

4.3 Hardware Resources Required

Sr. No	Parameter	Minimum Requirement
1	Computer/laptop	RAM, ROM, OS
2	Android phone	RAM, ROM, OS

Table4.1: Hardware Requirements

4.4 Software Resources Required

Tool: Android studio Operating System:

Programming Language: XML, JAVA

Chapter 4

Software requirement specification

Tool: Android studio

Operating System: WINDOWS, MAC OSX, LINUX

Programming Language: XML, JAVA.

Database: Firebase Cloud Firestore

5.1 Data Model and Description

5.1.1 Data Description

Cloud Firestore:

Cloud Firestore is a NoSQL, document-oriented database. Unlike a SQL database, there are no tables or rows. Instead, you store data in *documents*, which are organized into *collections*.

Each *document* contains a set of key-value pairs. Cloud Firestore is optimized for storing large collections of small documents.

All documents must be stored in collections. Documents can contain *subcollections* and nested objects, both of which can include primitive fields like strings or complex objects like lists.

Collections and documents are created implicitly in Cloud Firestore. Simply assign data to a document within a collection. If either the collection or document does not exist, Cloud Firestore creates it.

5.2 Functional Model and Description

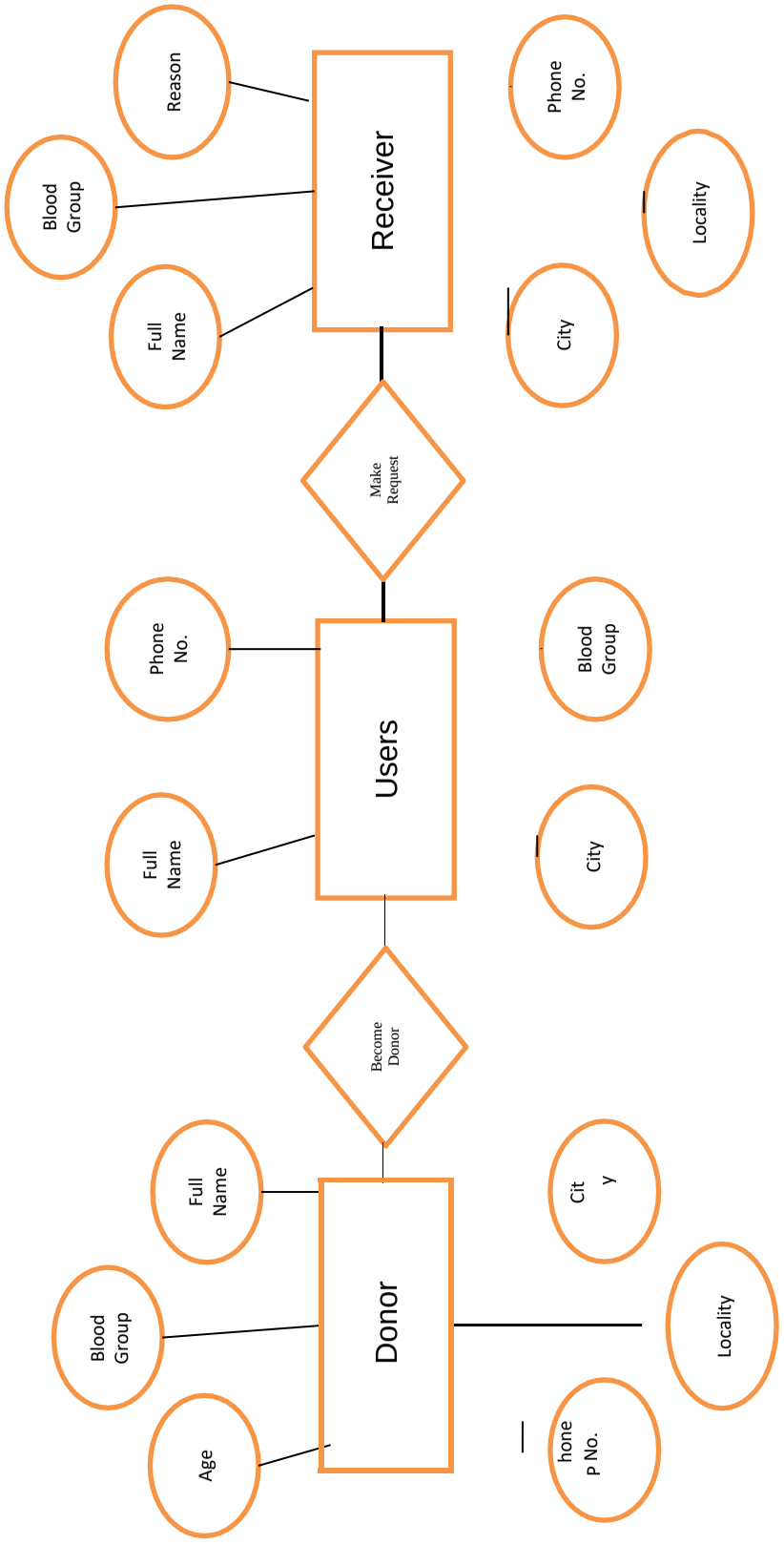
Donor:

A donor can voluntarily enroll in the blood donation campaign. Whenever a request is made, it is made public and is visible to all the nearby potential donors.

Receiver:

People can request blood within the app and also add a reason for the same so that the potential donors would be influenced, inspired to donate blood. To do so, all they have to do is click on the make request button and fill in all the fields and they are done. It is then made public.

5.2.1 ER Diagram:



Chapter 5

Project Implementation

6.1 Introduction

Conventionally, when a patient needs blood, he/she has to contact a blood bank or a compatible blood group of a donor in their circle, family, and friends. However, it is difficult to find a suitable donor within a limited group of people in a given time. Also, there is no guarantee that blood banks will have a compatible blood group in stock. There is also a steady increase in blood donation request posts on social networking sites (like Facebook, Twitter, Instagram, etc.) requesting a donation.

6.2 Tools and Technologies Used

6.2.1 Tool:

Tool: Android studio

Operating System: WINDOWS, MAC OS, LINUX

Programming Language: XML, JAVA.

6.2.2 Technology:

Android Studio:-

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems or as a subscription-based service in 2020. It is a replacement for the Eclipse Android Development Tools (E-ADT) as the primary IDE for native Android application development.

Android Studio was announced on May 16, 2013, at the Google I/O conference. It was in the early access preview stage starting from version 0.1 in May 2013, then entered the beta stage starting from version 0.8 which was released in June 2014. The first stable build was released in December 2014, starting from version 1.0.

On May 7, 2019, Kotlin replaced Java as Google's preferred language for Android app development. Java is still supported, as is C++.

Chapter 7

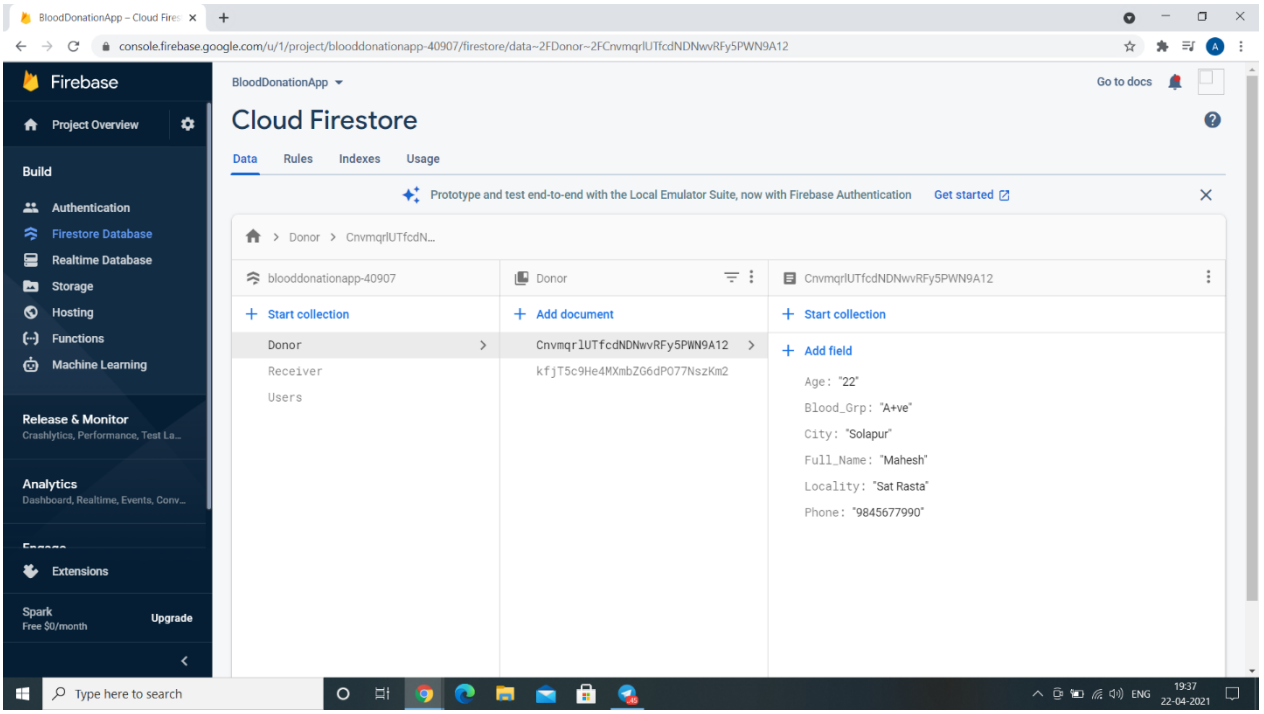
Software Testing

7.1 Type of Testing Used

7.1.1 Unit testing:

It is a software testing method by which individual units of source code, are tested to determine whether they are fit for use. It provides a sort of living documentation of the system. It is performed by using the White Box testing method. It is performed by a software developer. It increases the confidence of changing or maintaining code.
It ensures that all statements in the unit have been executed at least once. It tests data structures (like stacks, queues)that represent relationships among individual data elements.

- Function:
  - Module Interface: Ensure that information flows properly into and out of the module.
  - Local data structures: Ensure that data stored temporarily maintain its integrity during all steps in an algorithm execution.
- Driver and Stub:
  - The driver is a module that takes input from the test case, passes this input to the unit to be tested and prints the output produced. A stub is a module that works as a unit referenced by the unit being tested. It uses the interface of the subordinate unit, does minimum data manipulation, and returns control back to the unit being tested.



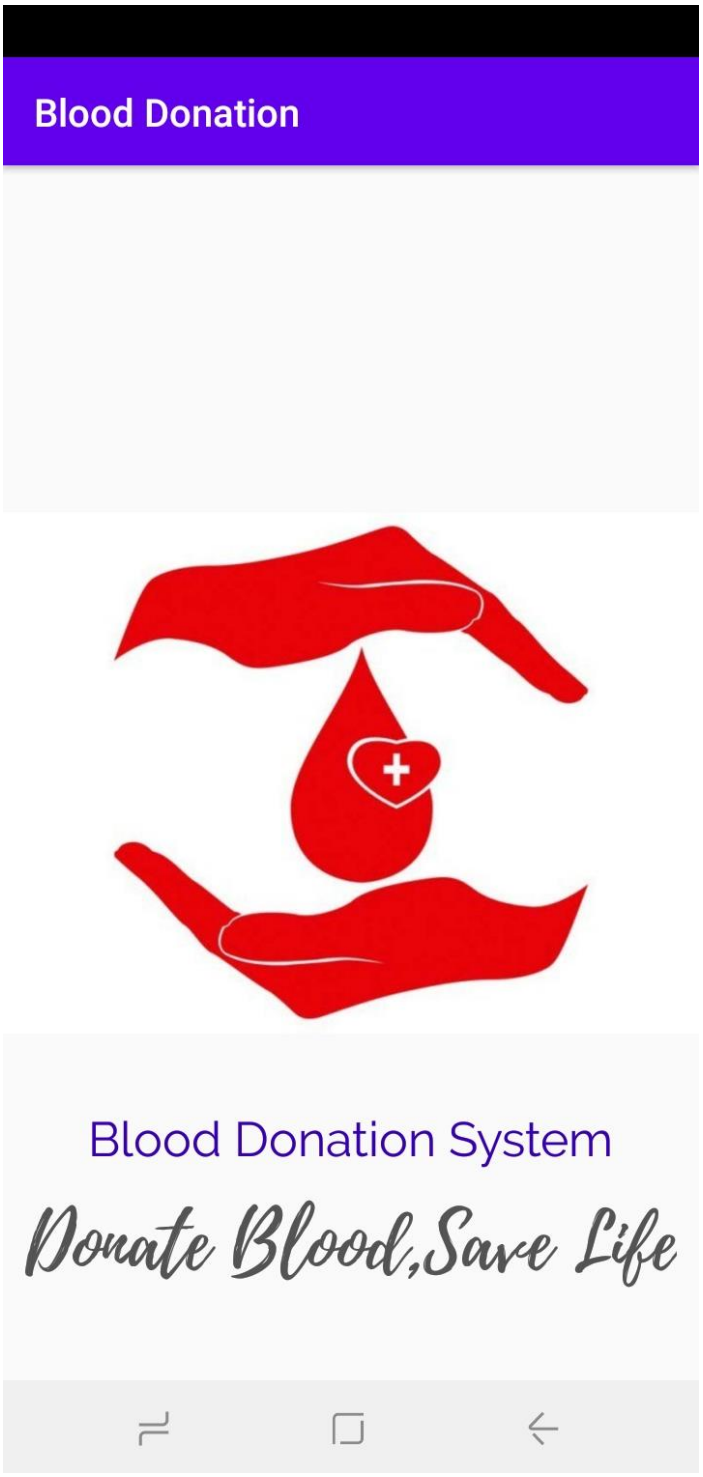
7.1.2 Integration testing :

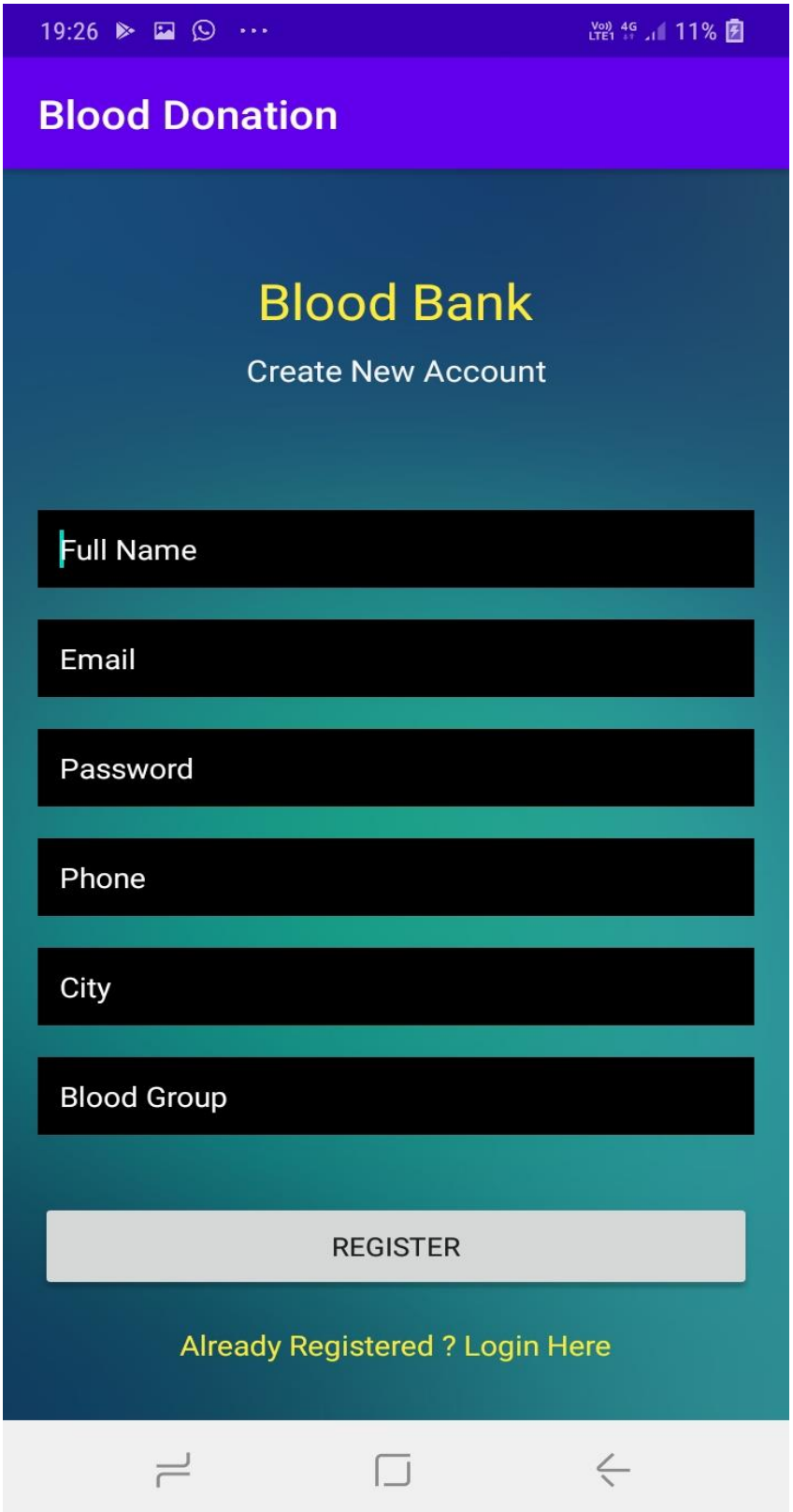
- It tests integration or interface between components, interactions to a different part of the system. It is to verify the function, performance, and reliability between the modules that are integrated.
- Defined as a systematic technique for constructing the software architecture. At the same time integration is occurring, conduct tests to uncover errors associated with interfaces.
- The objective is to take unit tested modules and build a program structure based on the prescribed design.
- It ensures that all modules work together properly and transfer accurate data across their interfaces.
- It is performed to uncover errors that lie in the interfaces among the integrated components.
- It tests those components that are new or have been modified or affected due to a change.

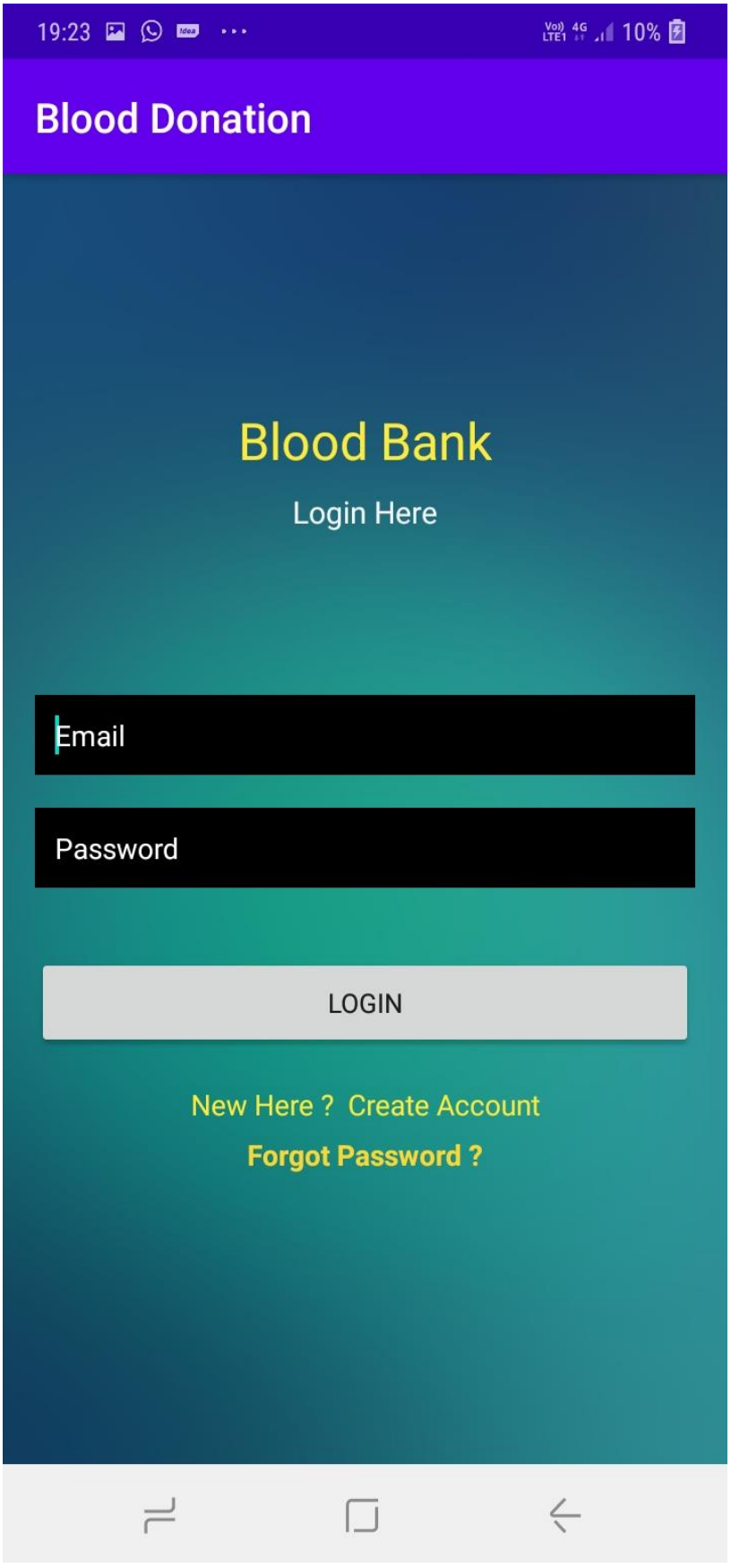
Chapter 8

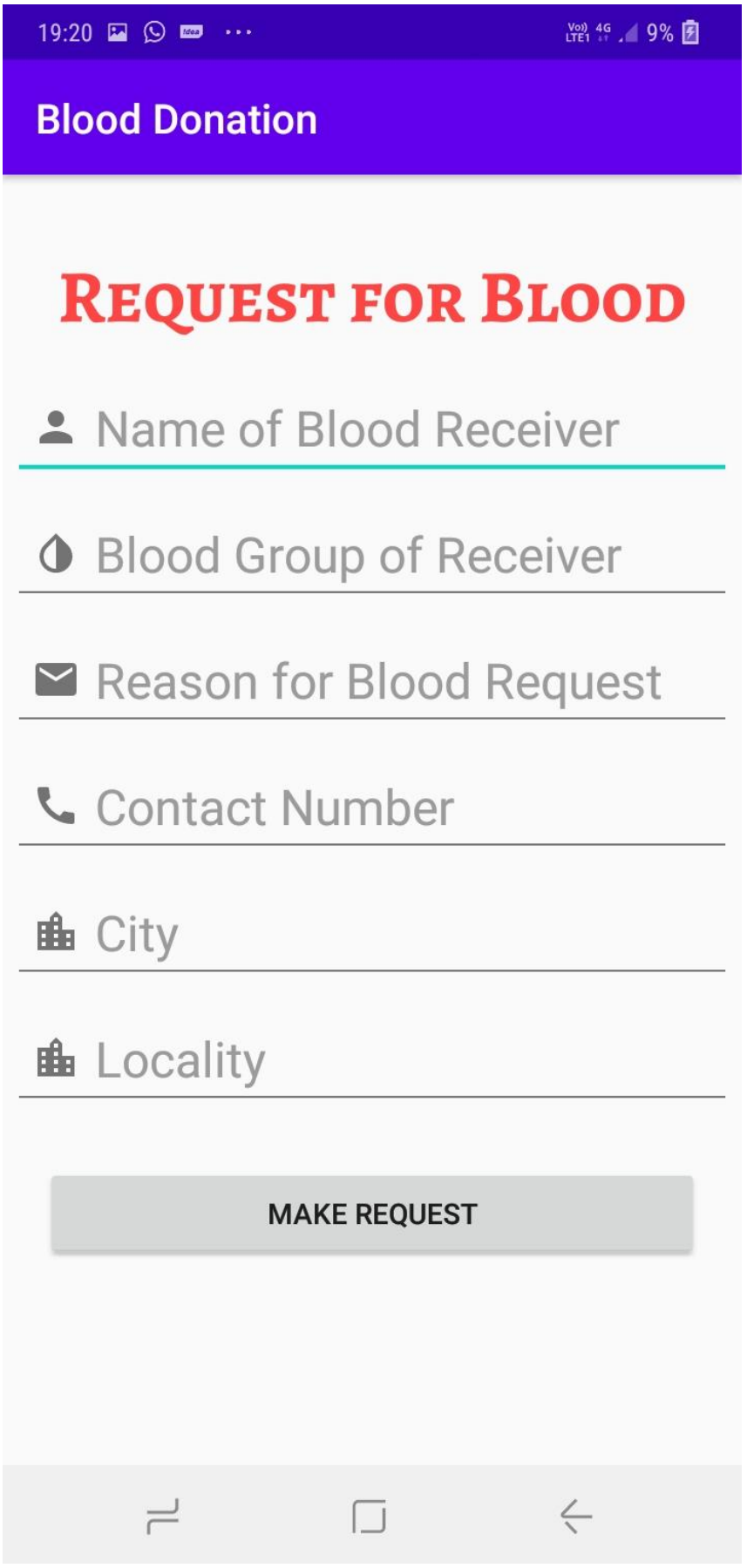
Result

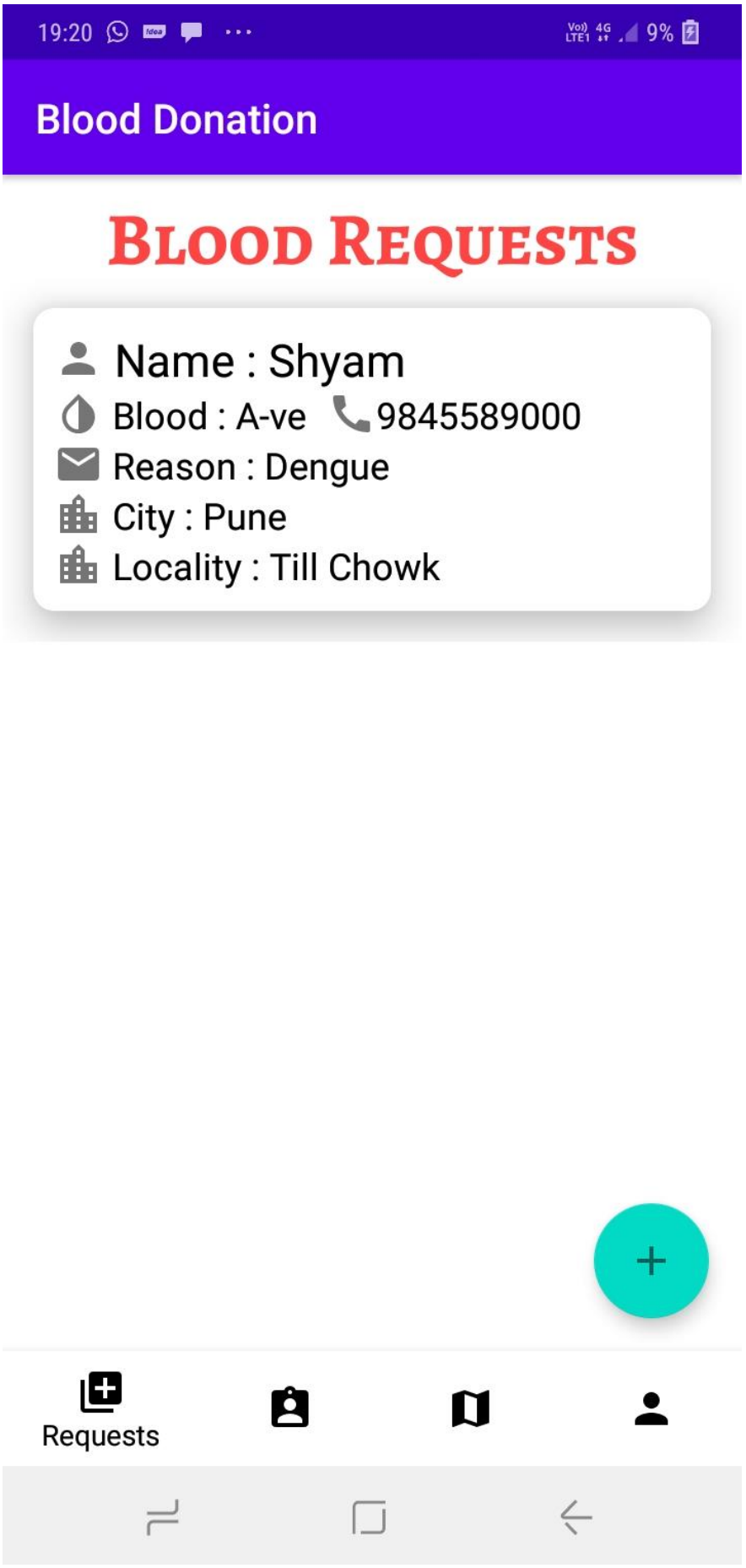
Screenshots

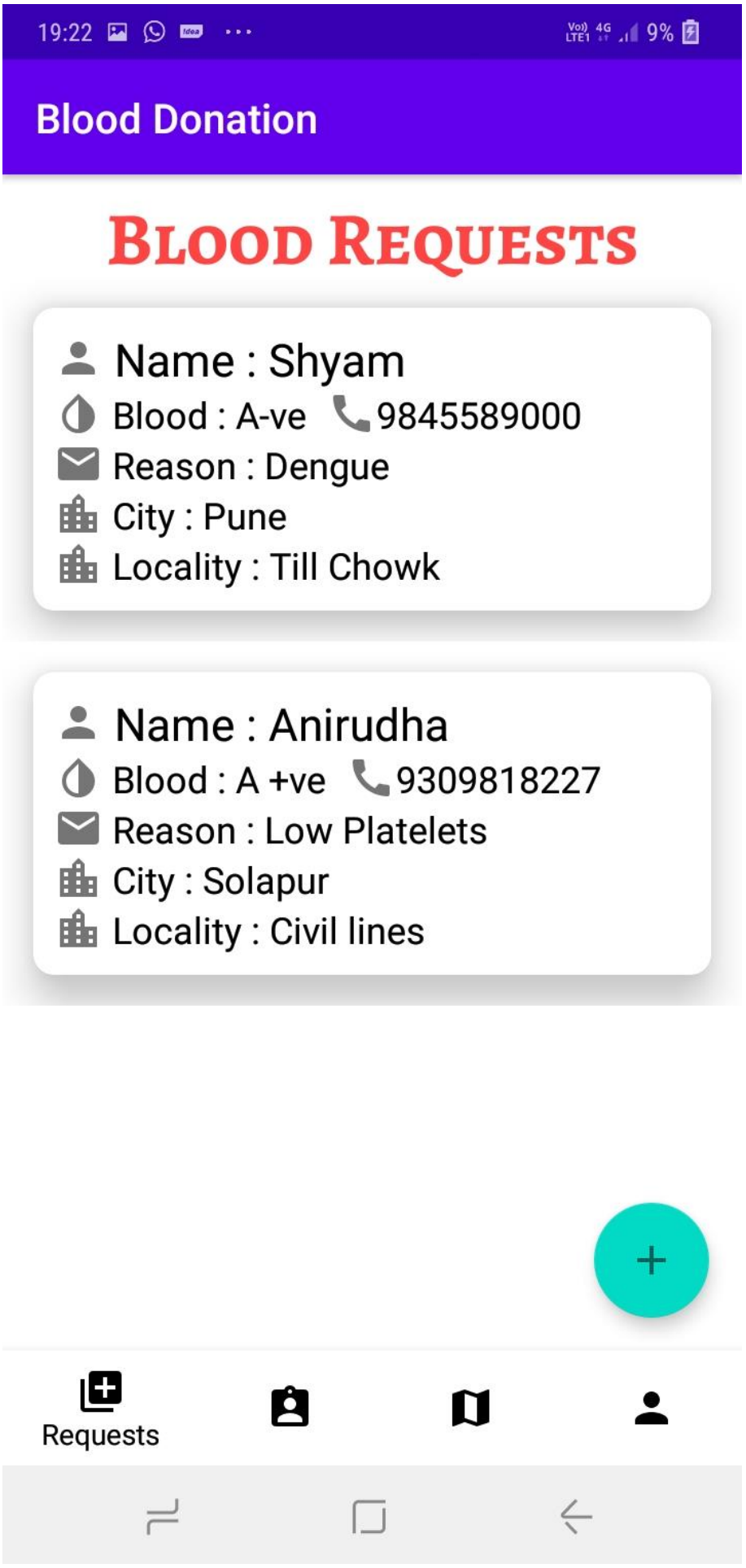


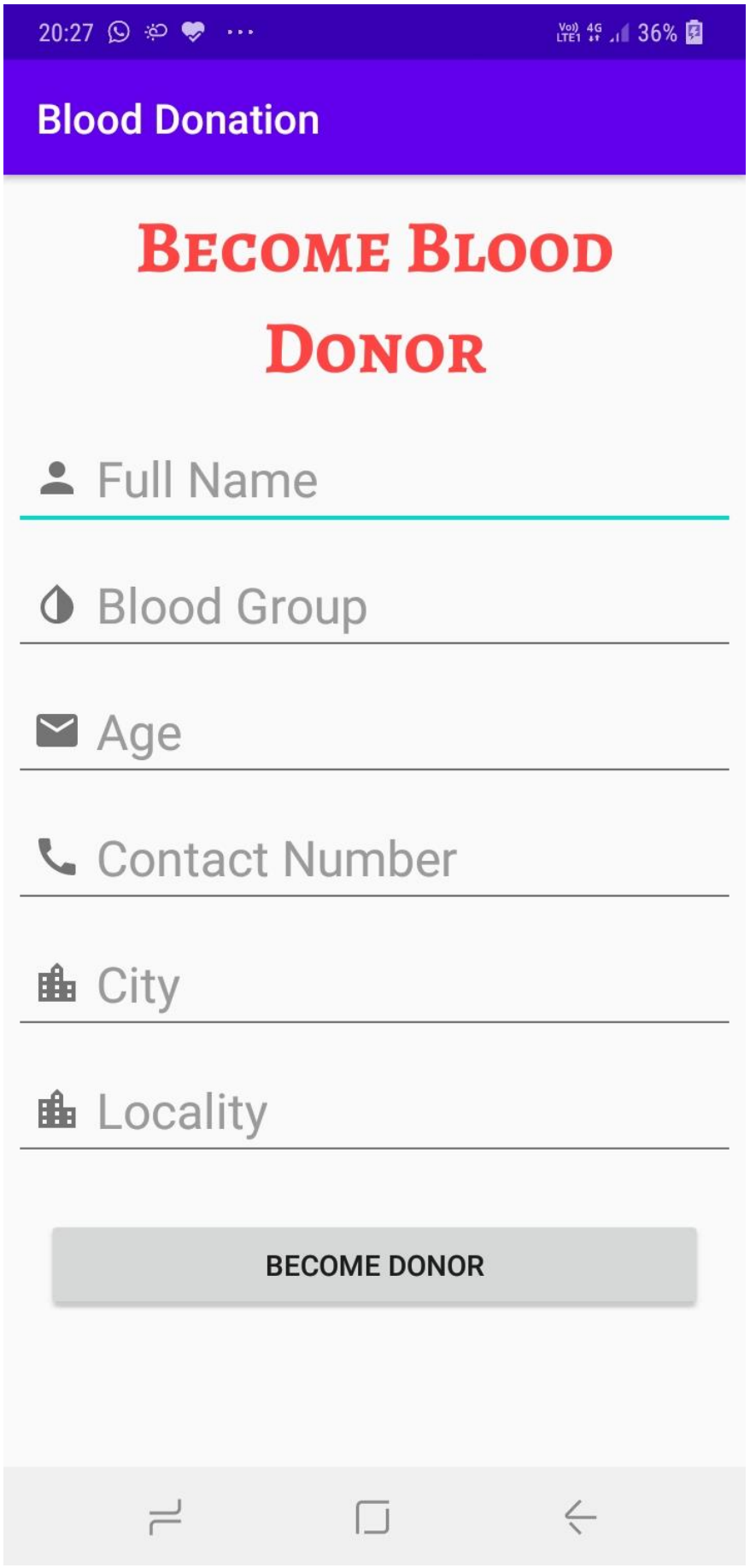

19:26
11%
Blood Donation
Blood Bank
Create New Account
Full Name
Email
Password
Phone
City
Blood Group
REGISTER
Already Registered ? Login Here

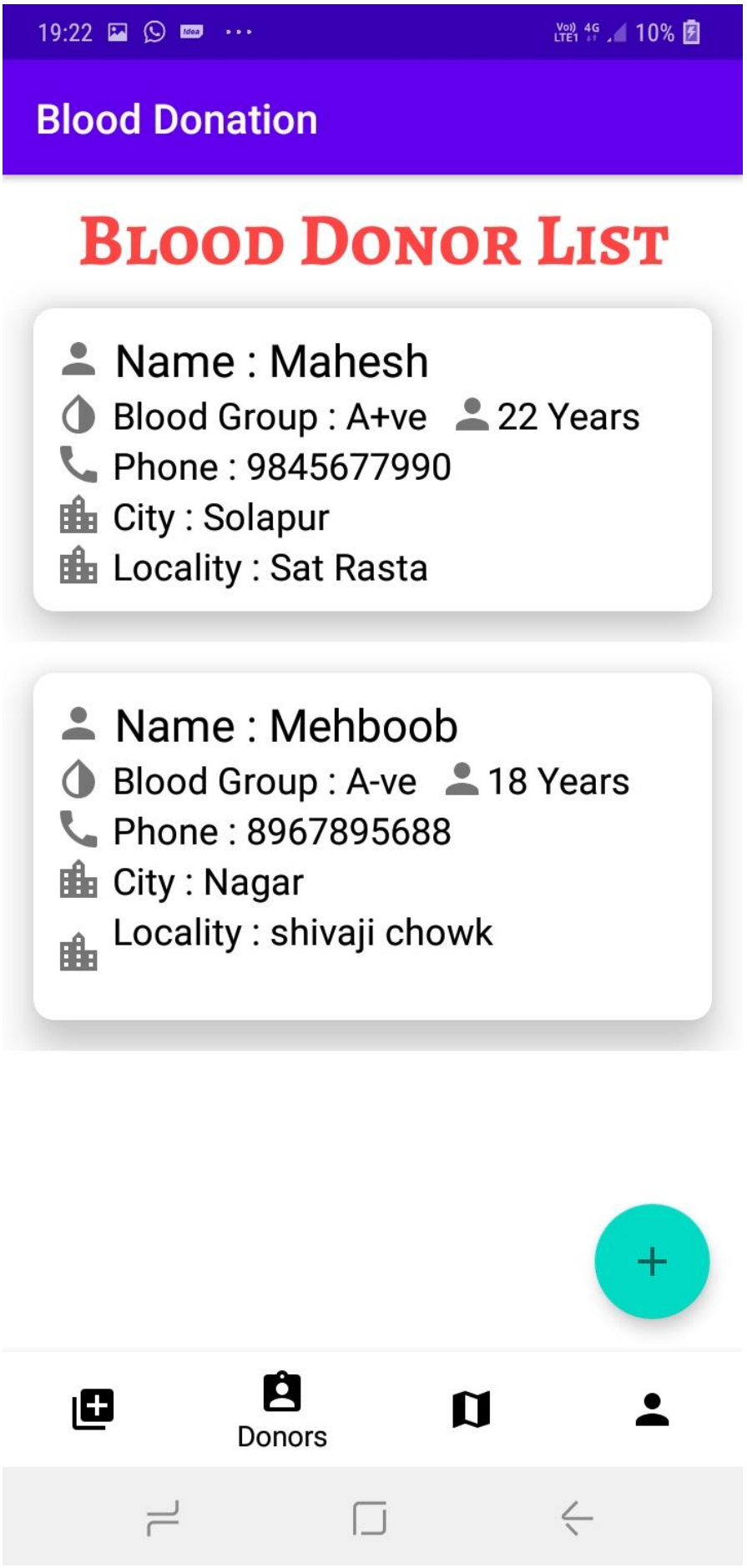

19:23
10%
Blood Donation
Blood Bank
Login Here
Email
Password
LOGIN
New Here ? Create Account
Forgot Password ?

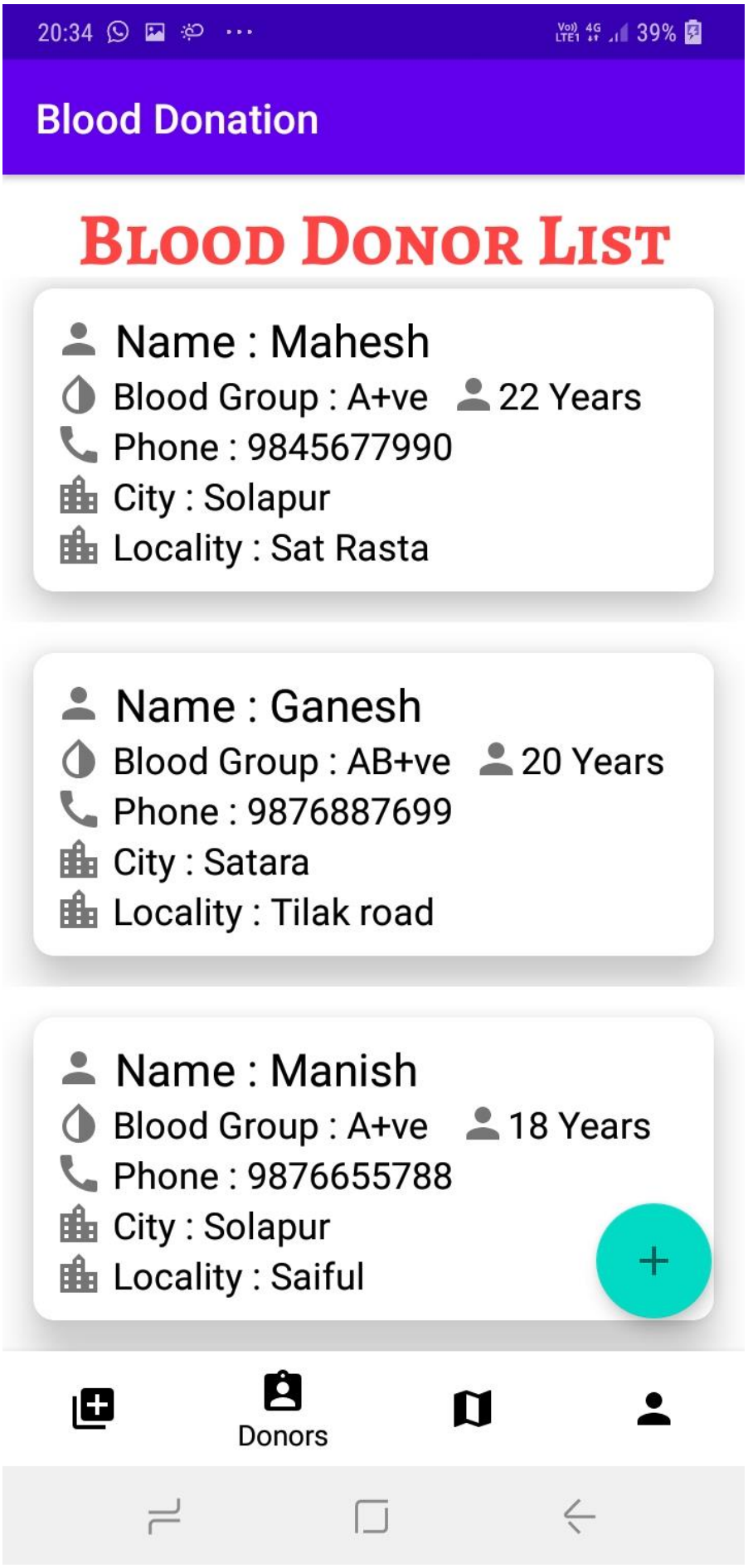

19:20
9%
Blood Donation
REQUEST FOR BLOOD
Name of Blood Receiver
Blood Group of Receiver
Reason for Blood Request
Contact Number
City
Locality
MAKE REQUEST


19:20
9%
Blood Donation
BLOOD REQUESTS
Name : Shyam
Blood : A-ve
9845589000
Reason : Dengue
City : Pune
Locality : Till Chowk
Requests

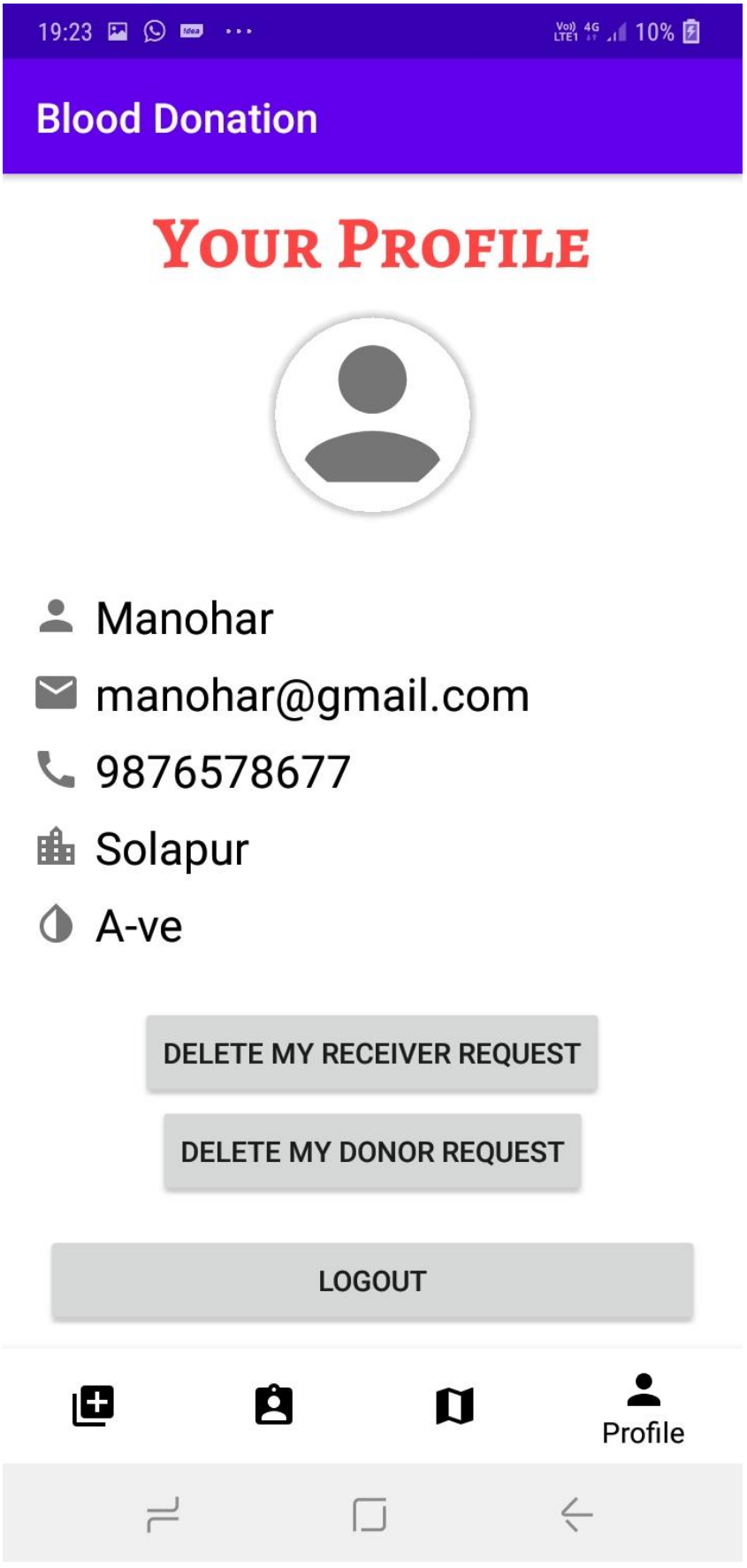

19:22
9%
Blood Donation
BLOOD REQUESTS
Name : Shyam
Blood : A-ve
9845589000
Reason : Dengue
City : Pune
Locality : Till Chowk
Name : Anirudha
Blood : A +ve
9309818227
Reason : Low Platelets
City : Solapur
Locality : Civil lines
Requests


20:27
36%
Blood Donation
Become Blood Donor
Full Name
Blood Group
Age
Contact Number
City
Locality
BECOME DONOR


19:22
10%
Blood Donation
BLOOD DONOR LIST
Name : Mahesh
Blood Group : A+ve
22 Years
Phone : 9845677990
City : Solapur
Locality : Sat Rasta
Name : Mehboob
Blood Group : A-ve
18 Years
Phone : 8967895688
City : Nagar
Locality : shivaji chowk
Donors


20:34
39%
Blood Donation
BLOOD DONOR LIST
Name : Mahesh
Blood Group : A+ve
22 Years
Phone : 9845677990
City : Solapur
Locality : Sat Rasta
Name : Ganesh
Blood Group : AB+ve
20 Years
Phone : 9876887699
City : Satara
Locality : Tilak road
Name : Manish
Blood Group : A+ve
18 Years
Phone : 9876655788
City : Solapur
Locality : Saiful
Donors


19:22
10%
Blood Donation
Aurangabad
Shirdi
Jalna
MAHARASHTRA
Parbhani
Ahmednagar
Beed
Latur
Solapur
Gulbarga
Vijayapura
Google
Belgaum
Map


19:23
10%
Blood Donation
YOUR PROFILE
Manohar
manohar@gmail.com
9876578677
Solapur
A-ve
DELETE MY RECEIVER REQUEST
DELETE MY DONOR REQUEST
LOGOUT
Profile

Chapter 9

Conclusion and future scope

We have proposed an efficient and reliable android application for the blood bank. When there is an urgent need for blood, it may not be possible for people to communicate with each and every hospital and blood bank. For that, the application can fulfill their requirements in a short period so that it can overcome the death rate. Thus, the proposed system can help everyone who needs blood anytime and anywhere.

This system is not only used for the blood bank automation system but also used for the organ donation system. This system is very helpful for the smart city and smart nation purpose.

Future Scope:

The future scope of this project is including more functionalities such as:

1. Notification
2. Blood donation camp
3. Extended Functionality
4. Email System
5. Function to check if a person has donated blood in the last 3 months.

Chapter 10

References

1) Firebase: https://firebase.google.com/doc
2) Android: https://developer.android.com/docs
3) XML: https://www.tutorialspoint.com/xml/index.htm