**Design and Development of an android application named**
# ‘‘Blood Share’’

**BY**

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This report is presented in partial fulfillment of the requirements for the Degree of Bachelor of Science in Computer Science and Engineering

Supervised by

**Nadira Anjum Nipa**
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Department of CSE
Daffodil International University

**DAFFODIL INTERNATIONAL UNIVERSITY**
**DHAKA, BANGLADESH**
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# APPROVAL

This Project titled **"DESIGN AND DEVELOPMENT OF ANDROID APPLICATION NAMED 'Blood Finder** submitted by Md.Ashrafull Kabir Ashik, Sabiqun Nahar Rome and Shantanu Mazumder to the Department of Computer Science and Engineering, Daffodil International University has accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents.

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# DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Nadira Anjum Nipa, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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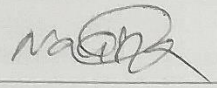

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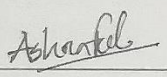

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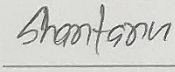

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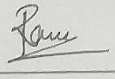

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We would like to express our deepest appreciation to all those who provided me the possibility to complete this report. A special gratitude we give to our final year project supervisor, Nadira Anjum Nipa, Lecturer, Department of CSE, Daffodil International University, whose contribution in stimulating suggestions and encouragement, helped me to coordinate my project especially in writing this report. Her endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

Furthermore we would also like to acknowledge with our heartiest gratitude to Head, Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

My thanks and appreciation also go to my course mate in Daffodil International University, who took part in this discuss while completing the course work.

# ABSTRACT

"Blood Share" is a mobile application that can be used for search blood donor in real time user. The idea goes a little something like this:

The purpose of this study is to develop and implement an application to find out blood donor according to area under divisions of Bangladesh right now. Anyone can be able to find donor from remote area with expected blood groups.

Now a days, some fraud cycle imperiled people who search for blood donor. They harassed people for money by taking the chance of finding donor in short time. Sometimes people lost their lives because of unmanaged of blood timely.

Users should download the free Blood Share app for Android and user could use it to signal his/her need for a blood donor. User could use the map and donor phone's GPS to know the current location with a pointer view of a donor. Next step, tap of finger any available donor around user, it will show the contact number, name and blood group. If the blood group matches, user could call the donor and wait for their response.

This apps will be verified the user with their valid email, password, contact number when they become registered. So the security both of user and donor become safe.

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# CHAPTER 1

# Introduction

## 1.1 Introduction

Blood donate is definitely a noble act. Many clinics and hospitals has constantly need blood for different purposes. The idea of blood donation tries to help as a life-saver for people and patients. A human body contains 4 to 5 liters blood that can be donated after every third month for men and every 4 months for women. Many people think that donating blood is bad for their body, however, this is wrong thought. There is lots of benefit of donating blood, Such as:

- Helps as a Life-saver.
- Refreshes our internal body system.
- Helps to restoration of our blood cells.
- Helps to reduce weight without any exercise or anything.
- Increases life span by giving blood.

For all of these necessities of donating blood, we thought about developing an android app named “Blood share” that can help patients with more ease. A user can easily find out blood donor through this app. Therefore our project “Blood Share” is a technological platform which helps to make easier communication between donors and users.

## 1.2 Motivation

These days we usually see that there are so many donors and they are also willing to donate blood to people who need it. Still there are so many rural areas in our country where patients do not meet donor who could donate blood to them, and most of the time patient are died. This is shame for us while a patient died in want of blood despite of having sufficient donor. Watching this scenario we came up with a thought which includes underprivileged people to get this facility along with people in general.

## Figure of Internet User

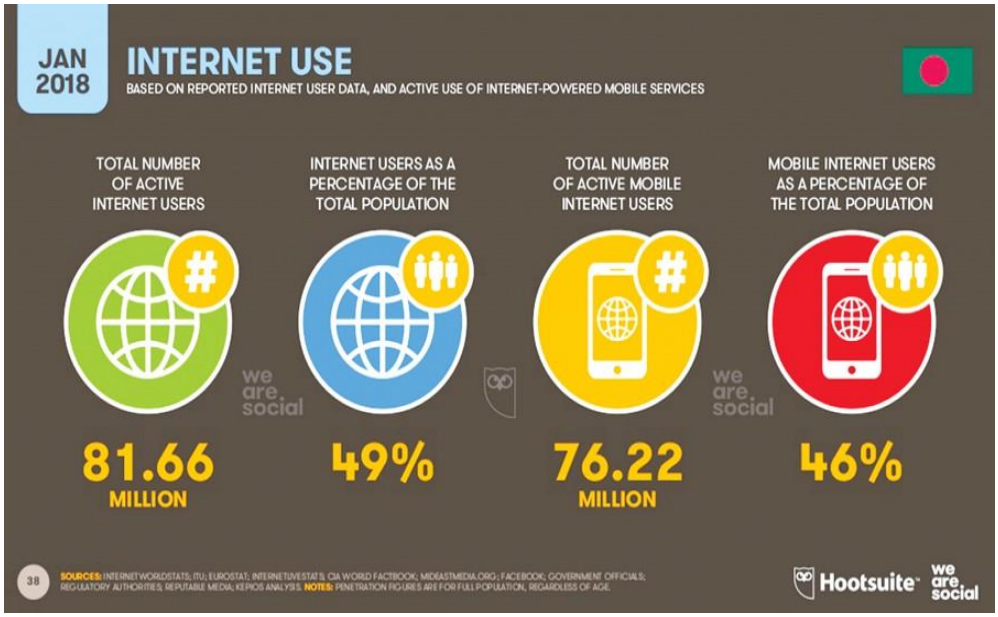


Figure: 1.2 Internet User.

Here we can see that 49% percent people use internet of the total population amongst them we can assume that 15-20% people in rural area use internet. Further we also can see that 46% are the mobile internet user of the total population whither we can conjecture that about 13-15% in rural area people uses the mobile internet.

Keeping the condition of our country, patients and donors we have created this app that works in the most effective way than we have experienced ever before. Patient who resides in the remotest areas of our country even they could easily find donors as this app included donors around the whole country. One can easily picked donors of their blood group as we have categorized them in the most sorted way. Around Bangladesh one can easily find donors through this app. One can even trace their donor's location using map on this app. This app is built to facilitate the process of donating and receiving blood.

Our motive is to make the communication easier between the patient and donor.

### 1.3 Objective

- To save time for finding blood donor.
- To easily connect with the donor.
- Try to make optimizing the whole process of the app.
- To develop it with the most effective way for the user.
- To show the donor current location via map.
- To add direct calling system to donor from the map.

# CHAPTER 2

# Blood Share

## 2.1 Overview of the Project

For developing our whole project, we had to sort out some process. For this users need to follow some steps to use this app. First of all, user must be registered to access our app then he/she can login from our app. Then app shows donor current location and last active location in map. We have used pointer in map of every online donors and offline donors, that pointer helps to show donor's information such as: blood group, phone number, donor name and user easily connect with donor with calling system. In pointer we have added calling button, where a user call the donor by pressing calling button. Then we have added, Add Donor option where users add a donor by fill up a Add Donor form. Also we have added Blood bank information and a user create a request post for blood and other user show this post from view request activity.

## 2.2 Application features

**2.2.1 Online Donor:** In Online donor features there is a map where show the donor's location with the phone number including calling system. And also there is a search option of blood group where a user search blood with group which is helps to easily find out the donor.

**2.2.2 Offline Donor:** This feature means last location of the donor who was in the online last time. There is also search bar of a blood group.

**2.2.3 Add Donor:** This means we can add a known donor who is our known person who gives blood.

**2.2.4 Create Request:** This feature means user can create post for blood with current time and date with location.

**2.2.5 View Request**: When a user creates a post for blood, this feature helps to show those request in this activities.

**2.2.6 Search Option:** In this app we add different types of search option which are searching blood group, searching division with area.

### 2.3 Requirements for Project:

- Language: Java, XML.
- Software: Android Studio for development.
- Design: Adobe XD.
- Database: Firebase data base

# CHAPTER 3

# Requirement Specification

## 3.1 Requirement Management

Requirements are abilities that a product must fit to satisfy our project's necessity to solve a problem. For building our project we had to define all the requirements for our project. To develop such type of project we had to gather huge project relatable information and figure out all the expectation which were needed for project.

## 3.2 Tools and Software

- Android Studio for development.
- Java, xml for Language.
- Adobe XD for Design.
- Firebase for database.

### 3.2.1 Android Studio:

Android studio is an integrated development environment (IDE) for android apps development. It is founded on Intellij IDEA and java integrated development software and including with code editing tools. For supporting apps development within the android operating system, android studio uses a Gradle-based build system, emulator, code templates and Github integration.

For developing our project, we initially used 3.1.4.0 version where we have face lots of problem such as apps build in problem, code error, take time for build system, slow running etc. But present version of android studio 3.5 is much better for smoothing, better code suggestion, and first apps build process.

### 3.2.2 Java

Java is one of the known and popular programming language that is used to create web applications and platforms. It was develop for elasticity, allowing programmers to write code that would run on any machine, regardless of architecture. Java is used to develop application and platforms for a number of devices, including computers, laptops, gaming consoles etc. Java is used for writing the backend codes.

### 3.2.3 Xml

Originally, xml is used for layout designing in android studio. It also used for drawing the interfaces of an application. Xml is written for fronted codes. Xml is not only for just design but also it helps to handle other attributes and parsing data either from database or server.

### 3.2.4 Adobe XD

Adobe Experience Design (XD) is an optimized design process. This tool is used to create wireframes, mockups and prototypes that can be showing in live previews on the desktop and on the mobile devices including files storage, and is available on multiple operating systems and devices.

### 3.2.5 Firebase Database

Databases are an essential part for any type of android project also web project which is helps for storing, retrieving, deleting and updating data in the database taken from the application that we have made. Things become harder when we update data because that update data should be reflected back in our application at that very instant. But that matter becomes easier when we use Firebase Real-time Database. This is a cloud-hosted database that supports multiple platforms android, iOS, and Web. It can be accessed easily from any platforms and its data storing system is JSON format. Some advantages of Firebase Real-time database are:

- Real-time
- Large accessibility
- Offline Mode
- No application server need
- Control access to data.

# CHAPTER 4

# Design Specification

## 4.1 UML Diagram

UML Diagram is essential for maintenance and development of an application. An UML diagram helps to show the structure and logic of an object oriented programs. Also UML diagram used as a general purpose modeling language in the field of software engineering. There are different types of UML diagram where we create use case diagram on our project. It helps to develop our application and also helps to analyze the system's requirement.

### 4.1.1 Use Case Diagram

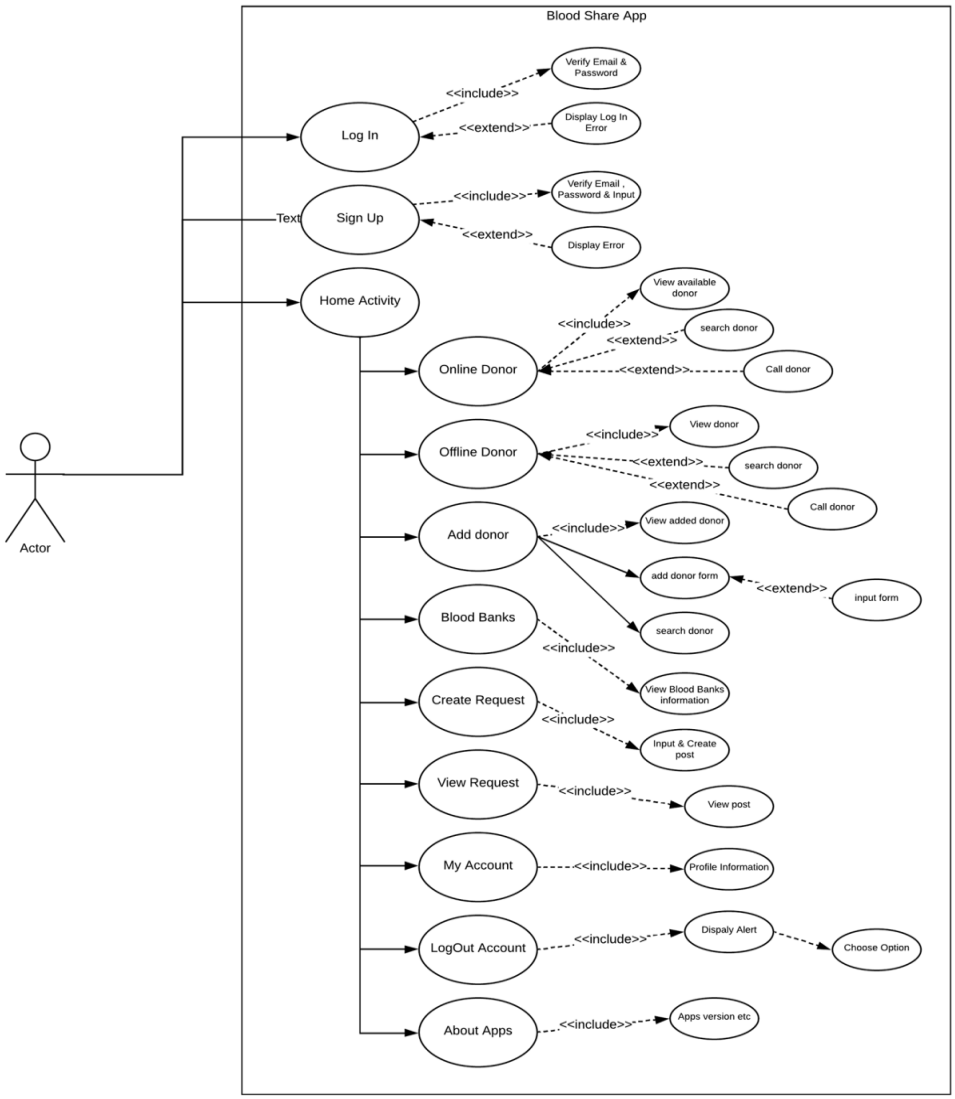


Figure: 4.1.1 Use Case Diagram

### 4.2 Front to End Design with explanation

- Splash Screen

Here splash screen containing project logo and image for few seconds. Figure shows the splash screen.

Figure: 4.2.1 Splash Screen

- Login Form

Here Login form helps to enter our home page. But when a new user installs this app, he/she can't go to home page directly because user must be signup firstly. Figure shows the login page

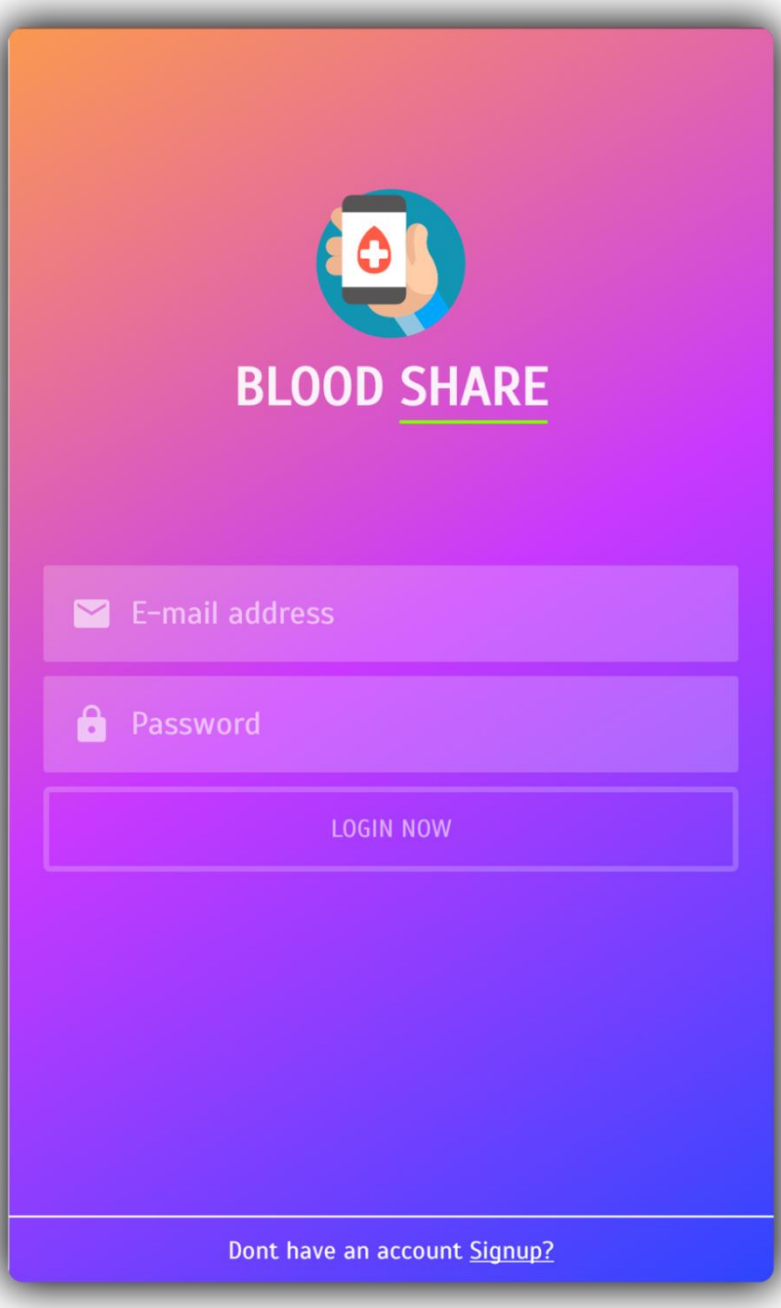


Figure: 4.2.2 Login Form

- Signup Form

Here this signup form is a list of field that users have to fill up all required field and submit it our app. This will help to go our home page and take services from our app. Figure shows the Signup form.

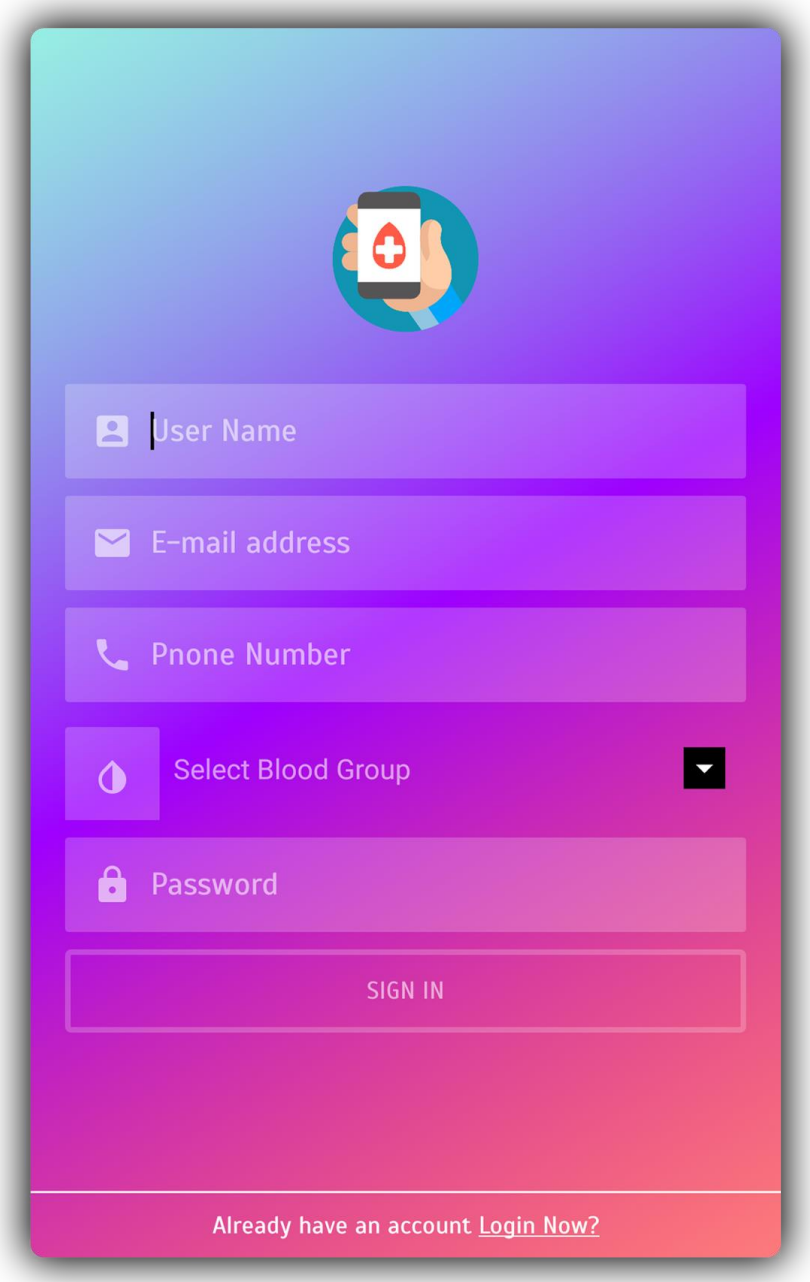


Figure: 4.2.3 Signup Form

- Home Page

This is main activity or home page where user can choose option what they want to do. Figure shows the home page

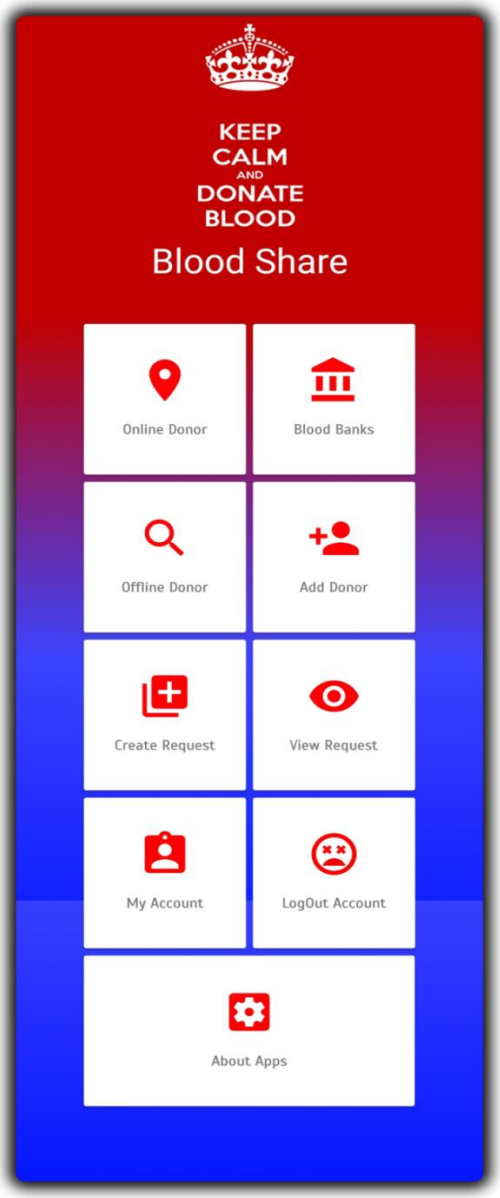


Figure: 4.2.4 Home Page

- Online Donor

This is online donor activity. This part of our apps gets donor's current location and can see donor information and direct connect with donor by calling system. Also we add search option on top position of blood group where user can be search blood donor by group. Figure shows the online donor.

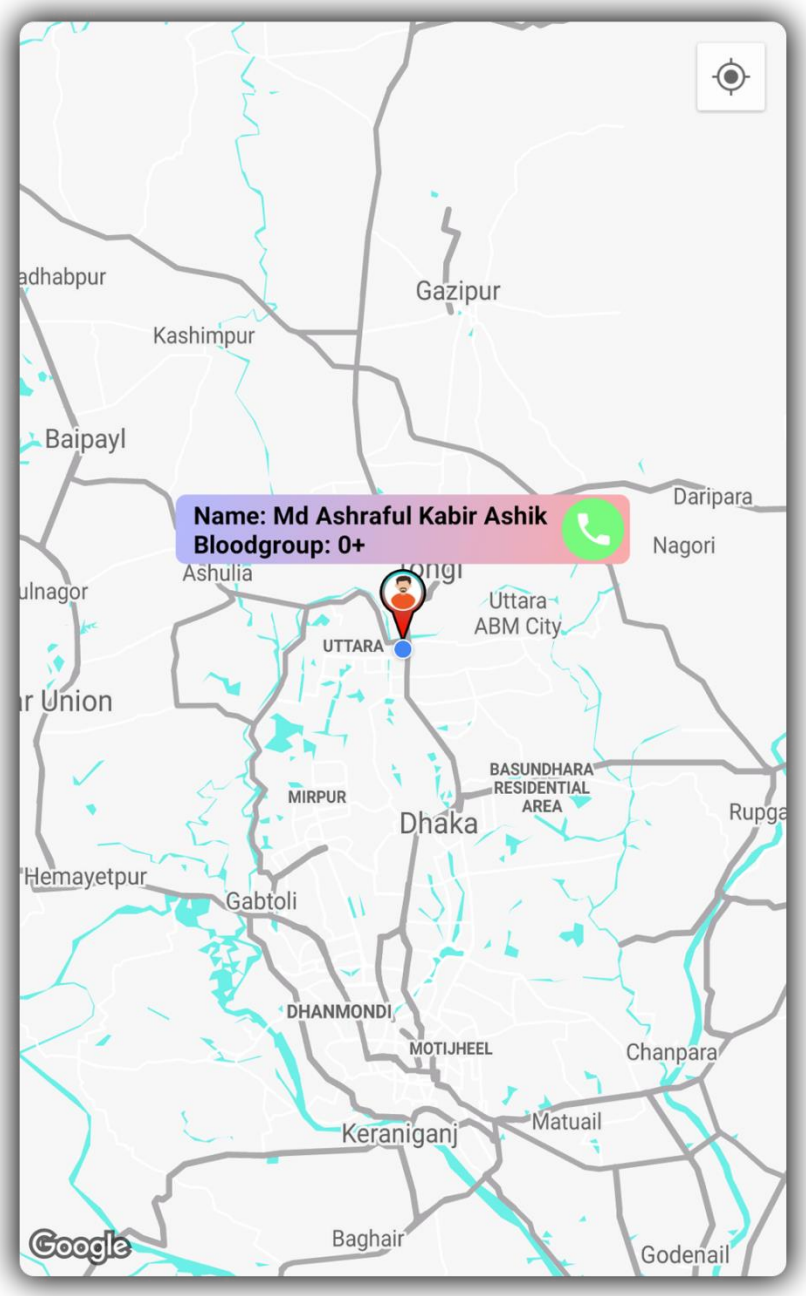


Figure: 4.2.5 Online Donor

- Offline Donor

In this activity show all information of our online user's last location. Figure shows the offline donor.

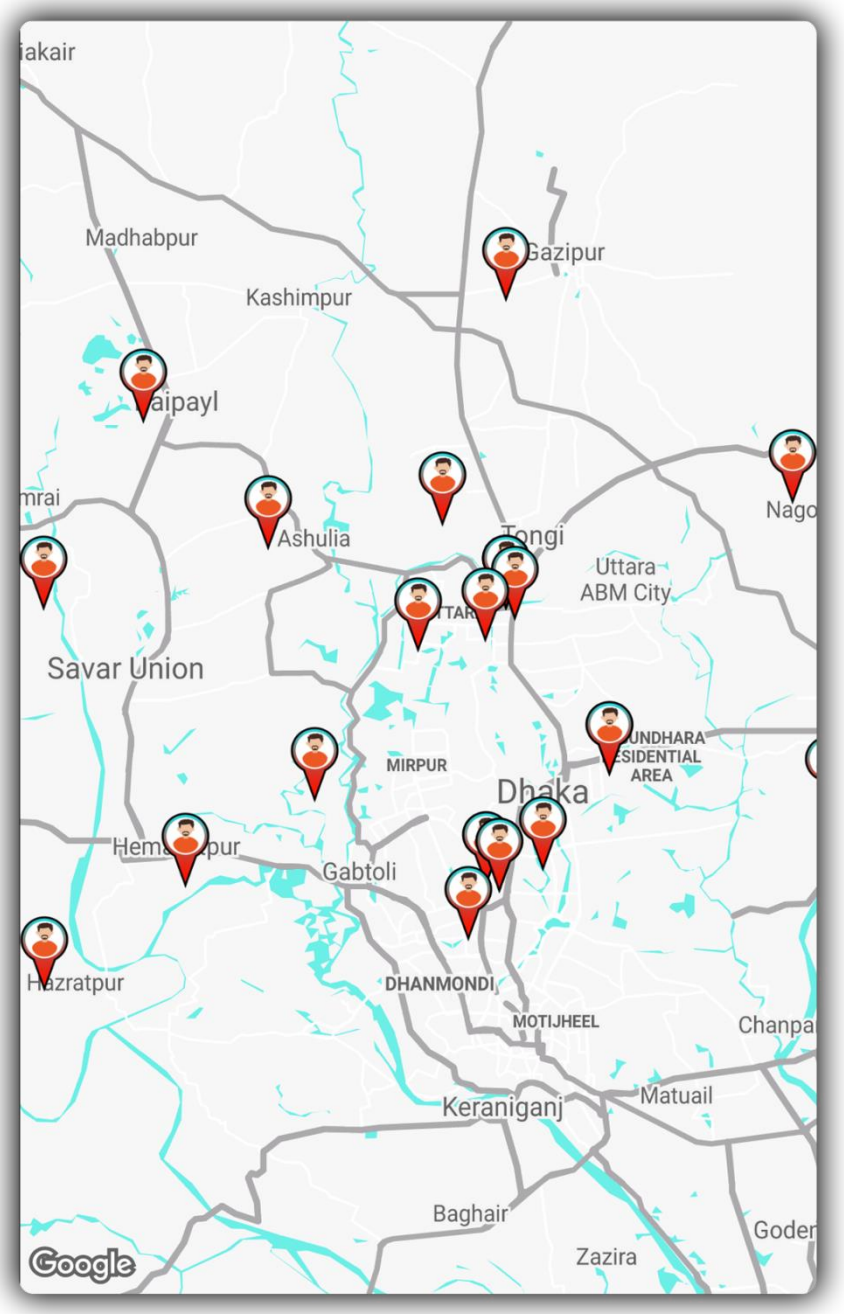


Figure: 4.2.6 Offline Donor

- Blood Bank

Here in blood bank activity, show all blood bank information and has a search option with division wise. Figure shows the blood banks.

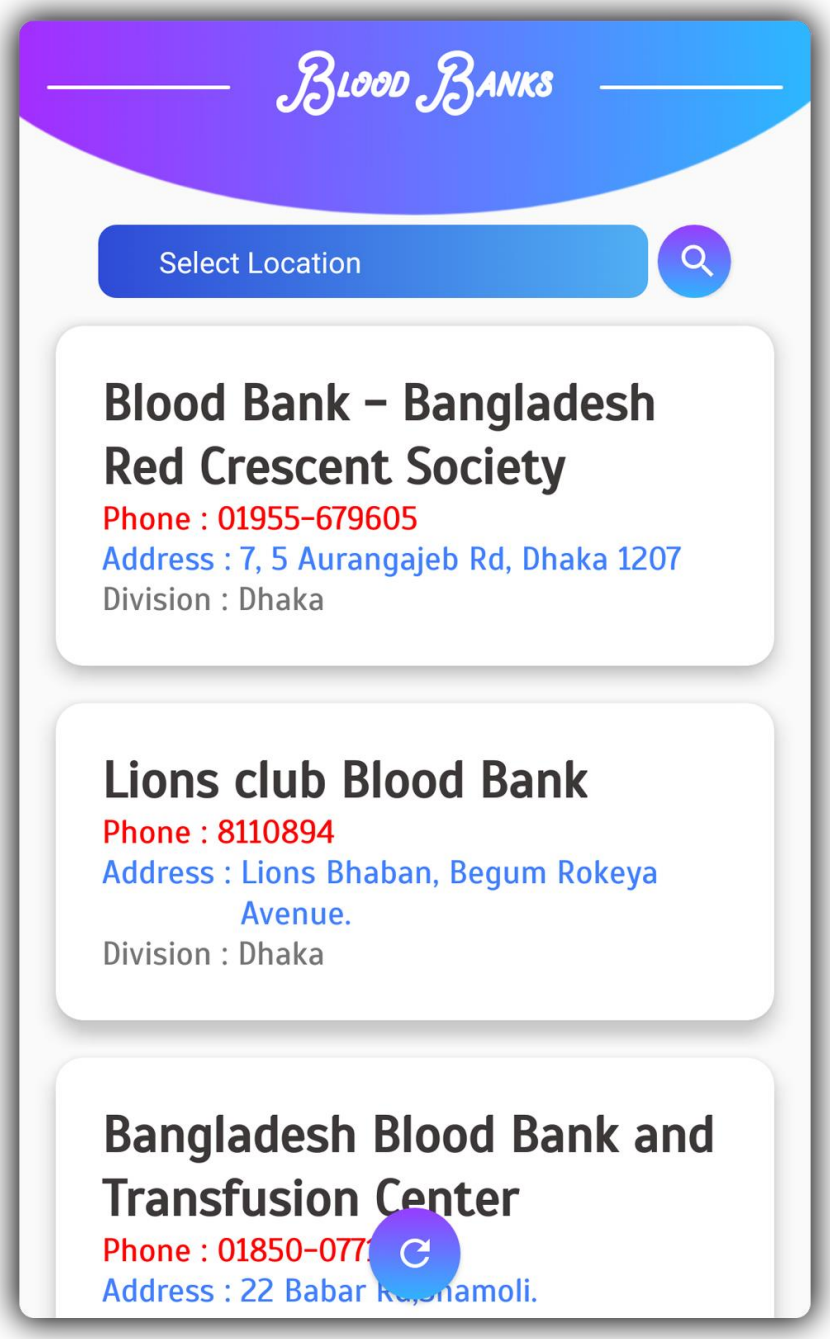


Figure: 4.2.7 Blood Bank

- Add Donor

This is the add donor list who are added by user. Figure shows the add donor.

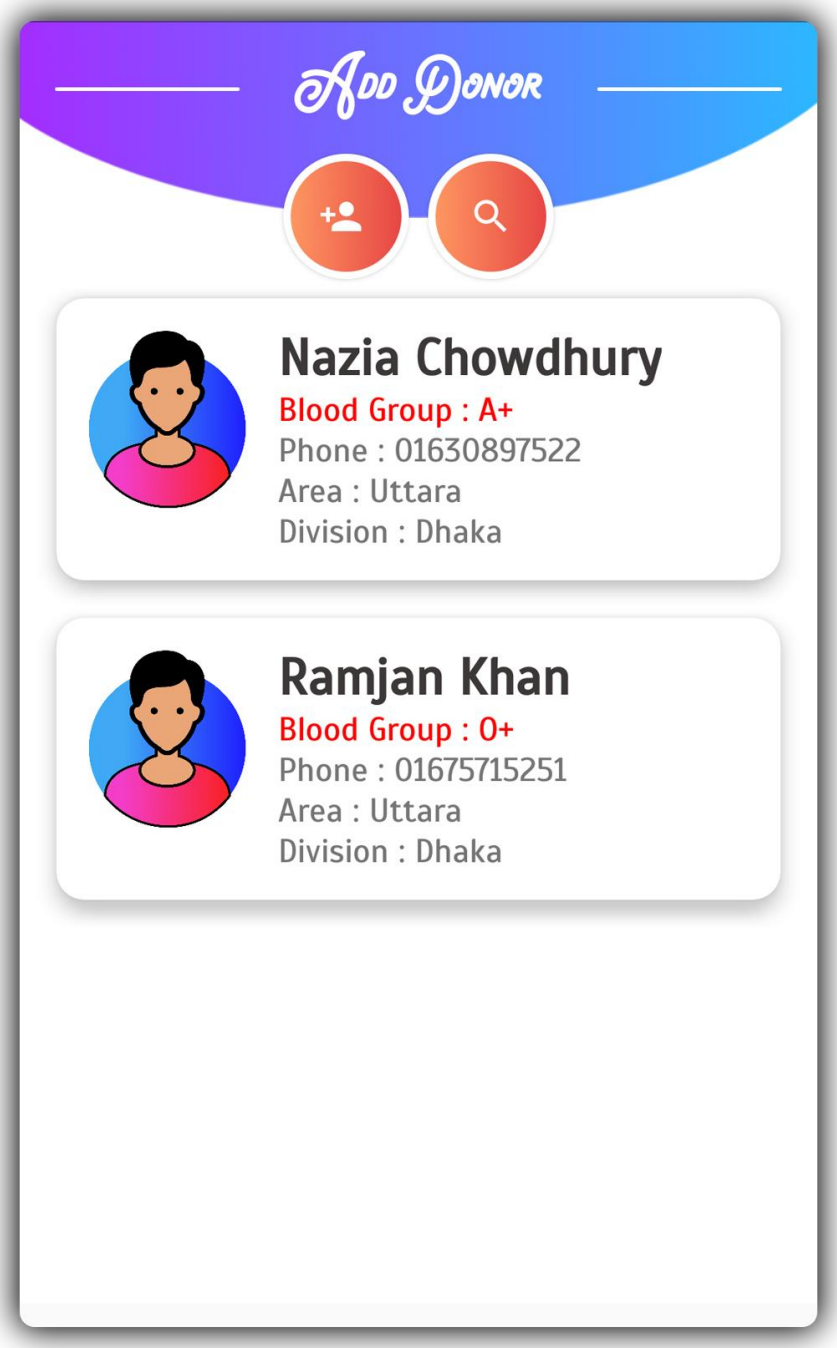


Figure: 4.2.8 Add Donor

- Search Donor

Here this is adding donor list who are added by user and searching donor by blood group, division and area from the donor list. Figure shows the search donor.

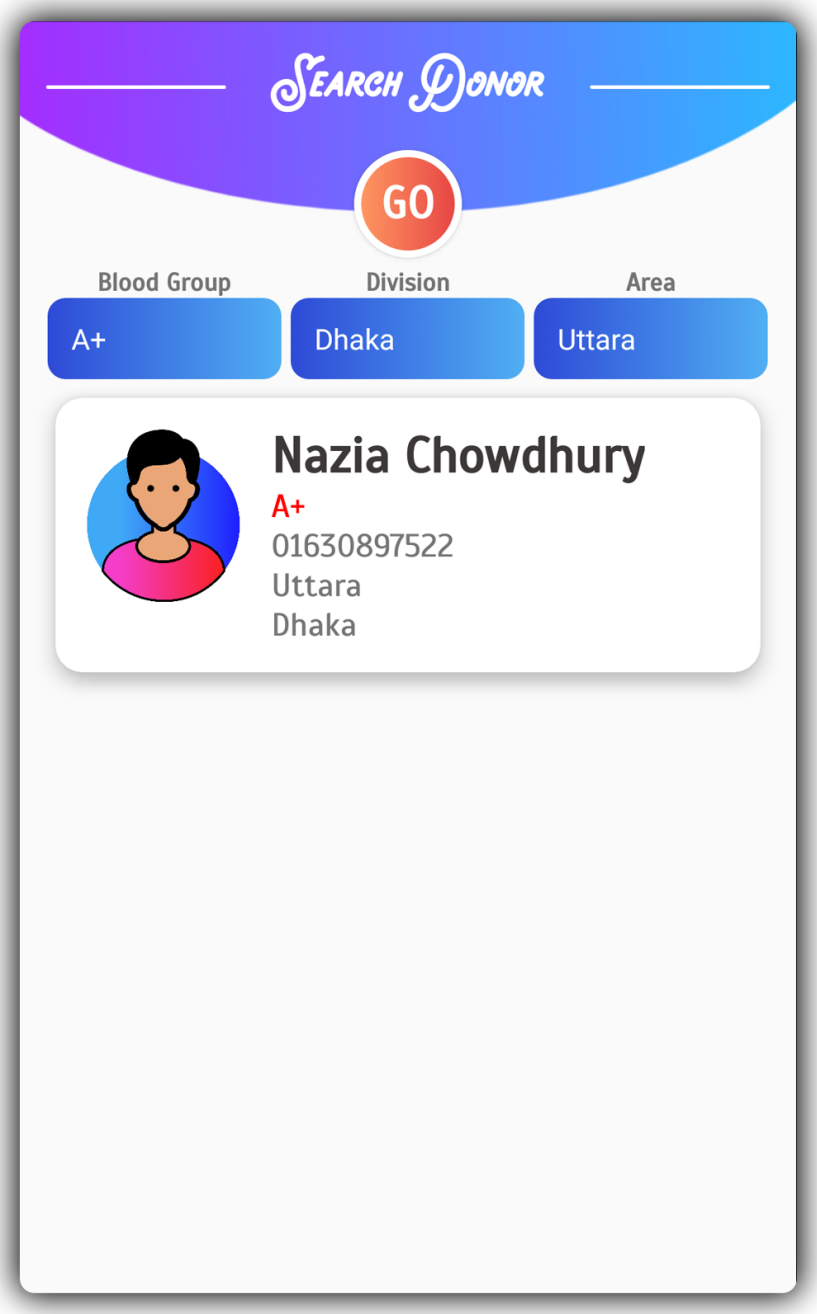


Figure: 4.2.9 Search Donor

- Add Donor Form

This is Add Donor form where user can be adding the donor by clicking “ADD” button. Figure shows the add donor

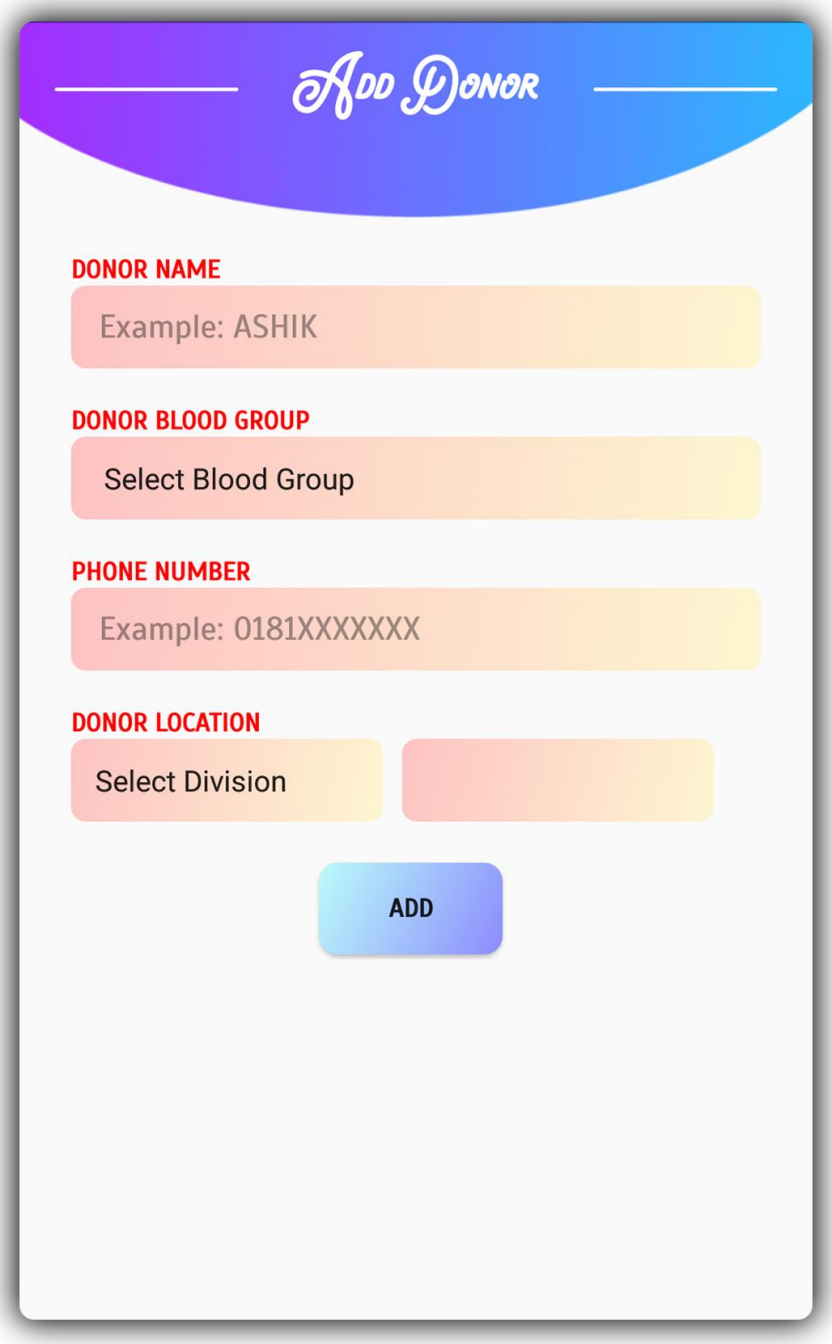


Figure: 4.2.10 Add Donor Form

- Create Request Activity

This activity helps as a creating post for blood when no one in online. Figure shows the create request.

Figure: 4.2.11 Create Request Activity

- View Request Activity

Here user can see all requests that have been created. Figure shows the view request

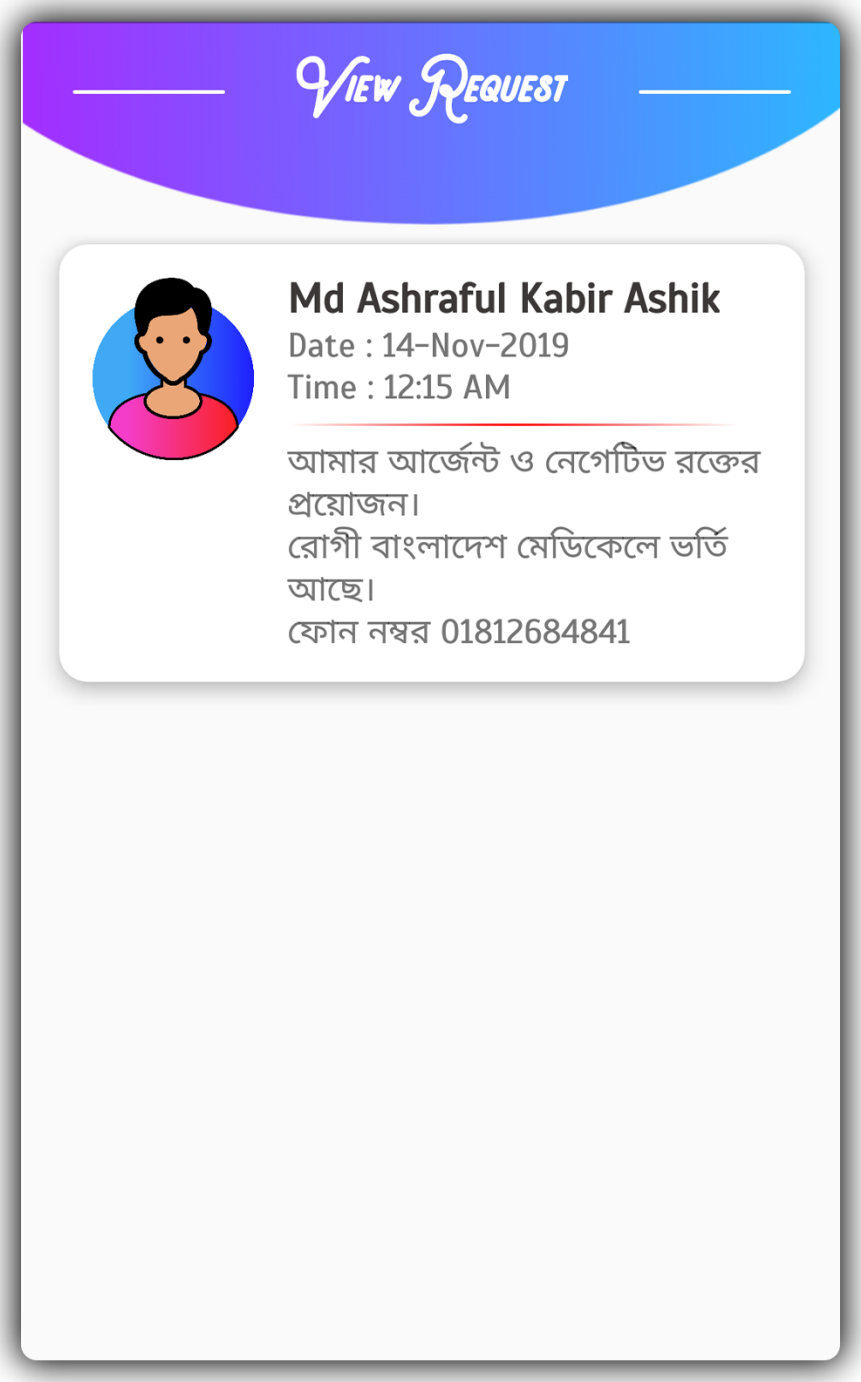


Figure: 4.2.12 View Request Activity

- My Account

This activity will show user information who will install this app. Figure shows the my account.

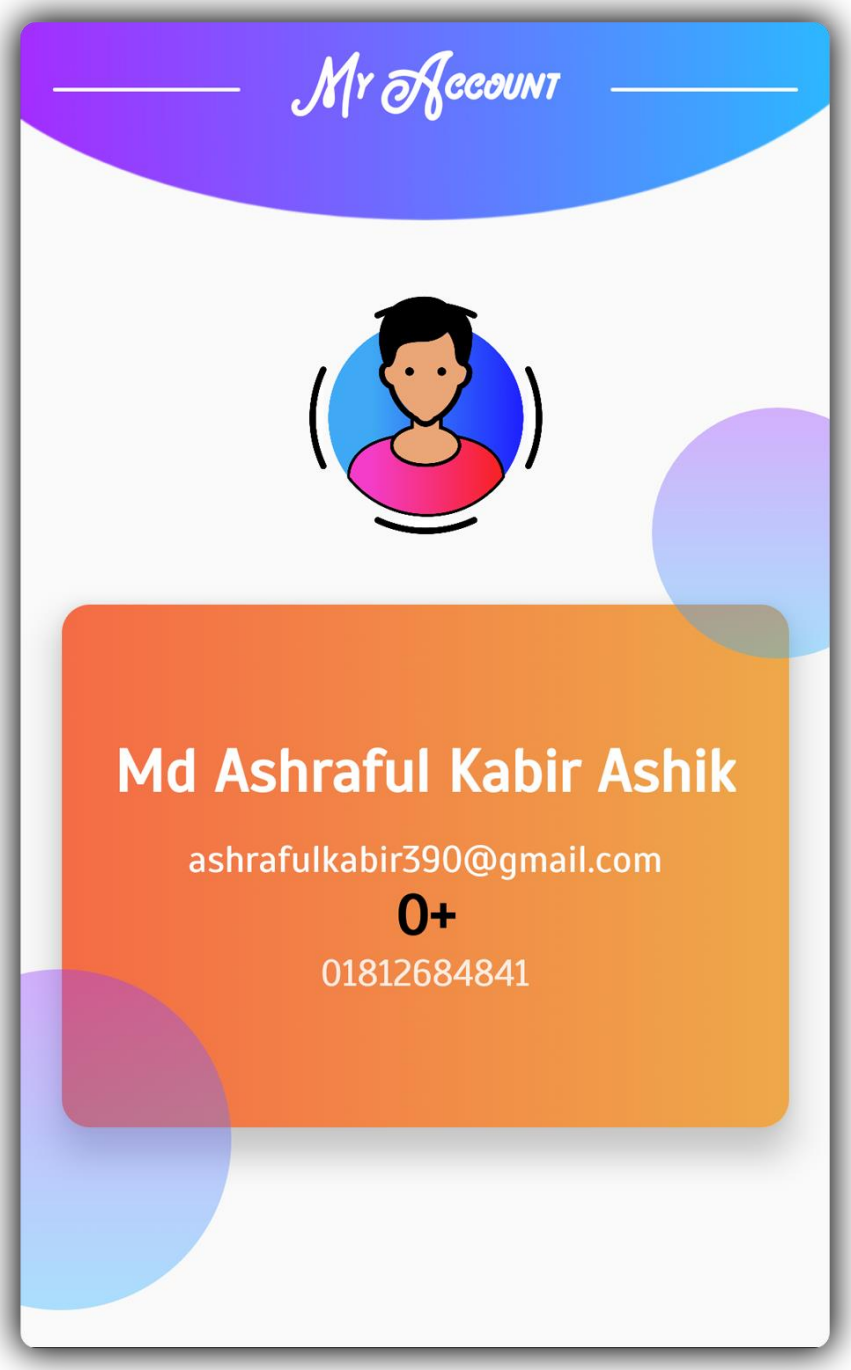


Figure: 4.2.13 My Account

- Logout Activity

Here users get a custom dialogue box where we can see two option stay login or logout sign. If user clicks logout option then user goes to the login page. Figure shows the logout form.

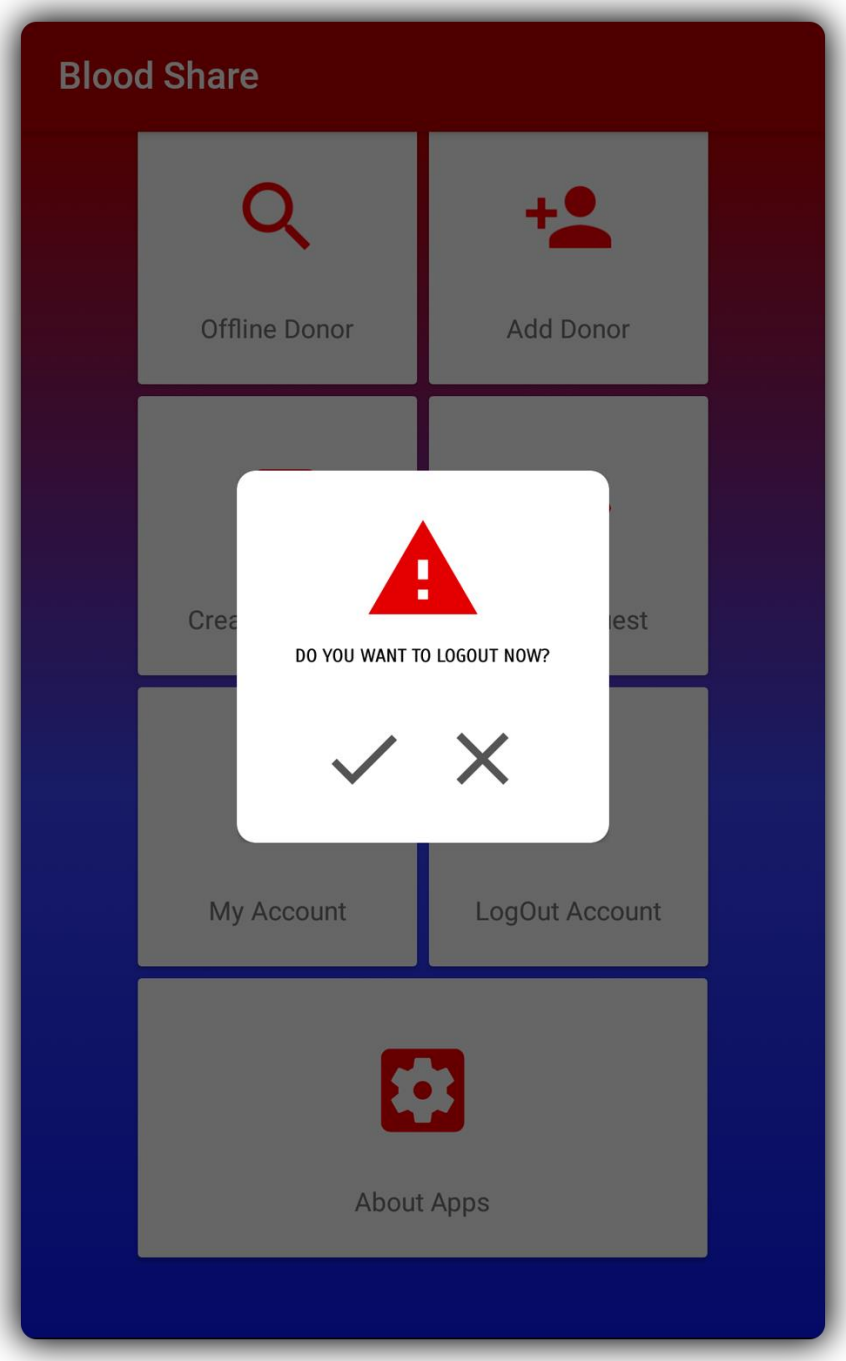


Figure: 4.2.14 Logout Activity

- About App

Here we can see about apps version, Group name. Figure shows the about apps.

Figure: 4.2.15 Logout Activity

# CHAPTER 5

# Implementation and Testing

## 5.1 Implementation of database

Database plays a vital role for implementing of any type of android and web project. In our project, we work with firebase database for implementing the background task of the whole project. In our project, we store registered user information, online user information, offline user information, blood bank, add donor, and request data for blood. After gathering all data we are able to develop our project and it help us to implement the whole project.

### 5.1.1 Authentication

First step for implementing our project is that we need users who use our apps and for these users have to be registered. And in this figure, this is the registered users' lists who sign up in this app. Figure shows the authentication user list.

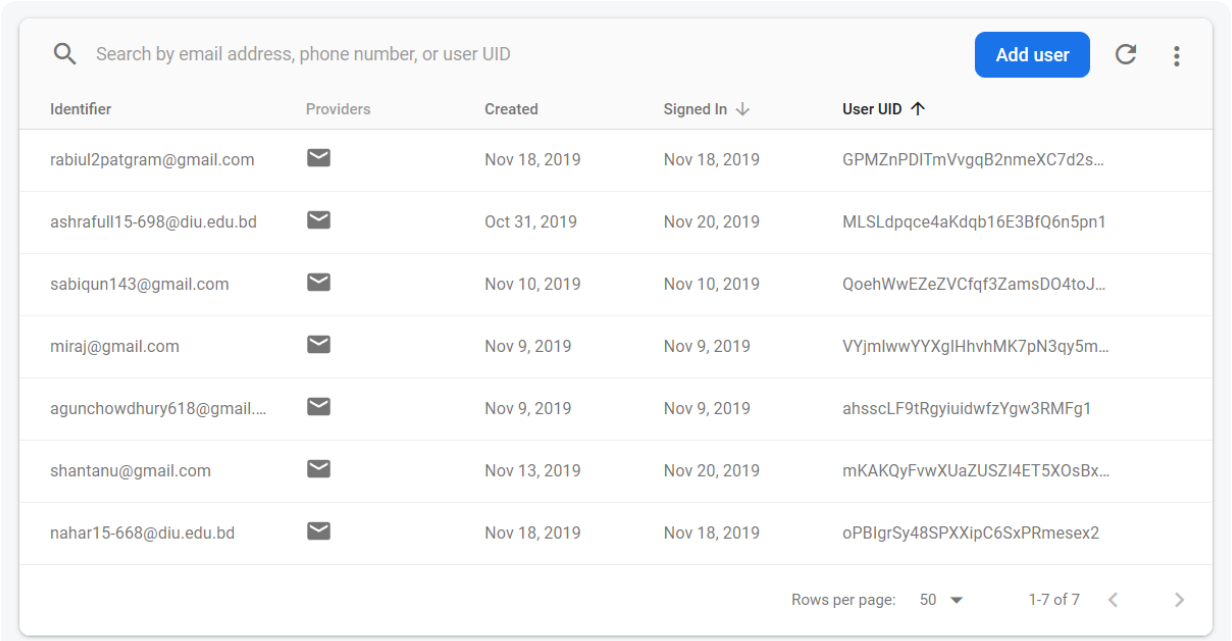


Figure: 5.2.1 Authentication

### 5.1.2 Database list of Blood share

After authentication, we work with several database in firebase and in this figure, this is that list of database in firebase we work accordingly. This is the next step of implementation. Figure shows the blood share database table.

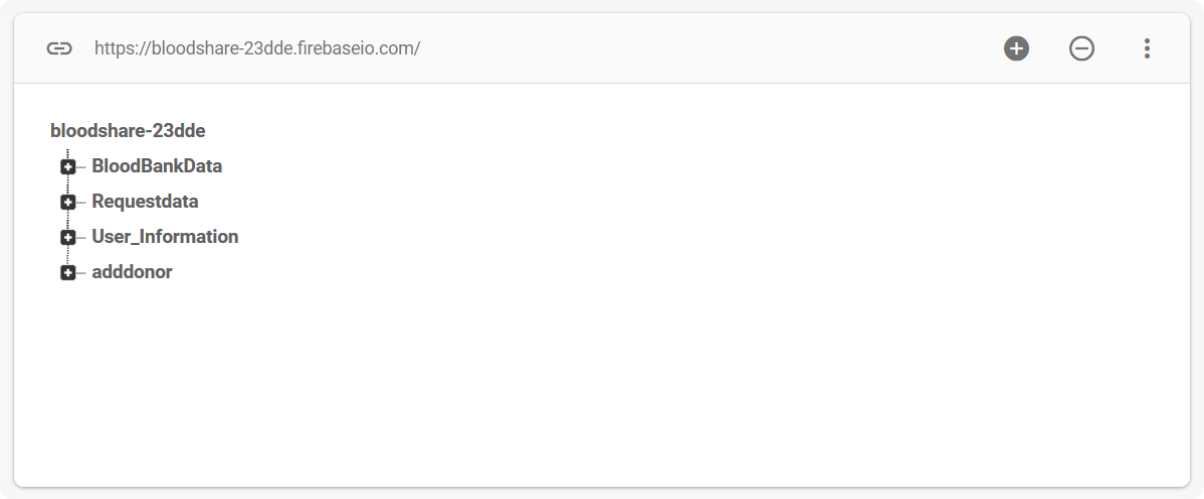


Figure: 5.2.2 Blood Share

### 5.1.3 Blood Bank Data

Here we collect blood bank data like address, location, name of blood bank, phone and storing into the database which will show in the Blood bank activity. Figure shows the blood banks database table.

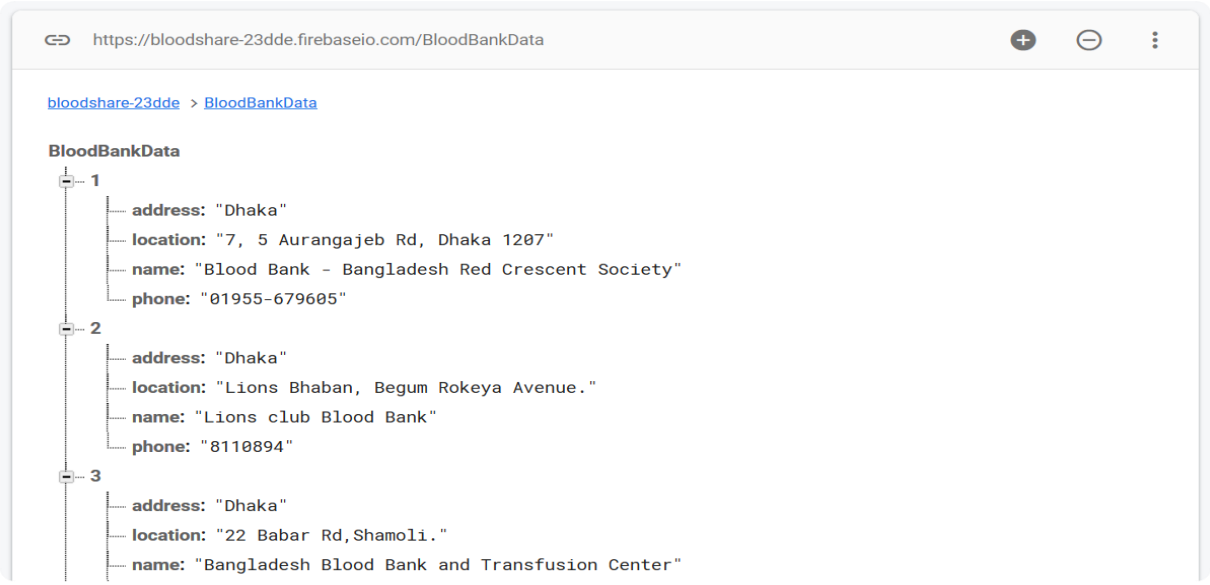


Figure: 5.1.3 Blood Bank Data

### 5.1.4 Request Data

Here data storing system is that when a user create a post for blood he/she gives some information like name, time, date, comment which is store into the database named request data and show this data in view request activity of app.

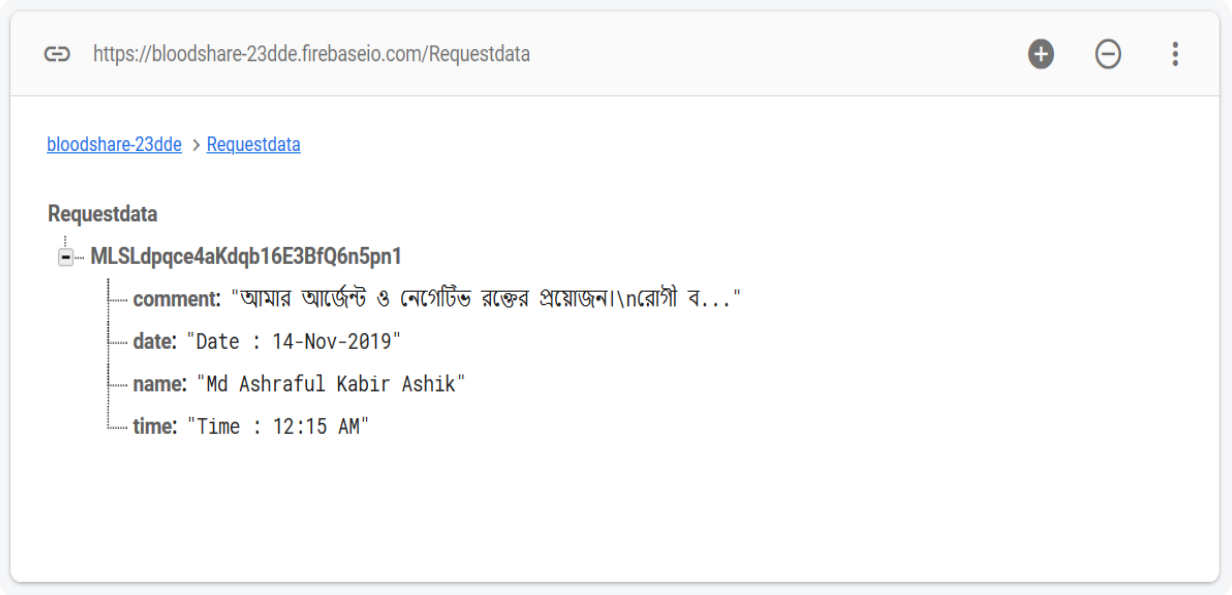


Figure: 5.1.4 Request Data

### 5.1.5 User Information Data

Here, this figure means that collecting information who sign in our app and also getting latitude and longitude of last active position of a users and save this in the users information data.

Figure: 5.1.5 User Information data

### 5.1.6 User Available Data

Here storing data of an online donor activity who are in online in the map and this data will be automatically remove when particular donor leave the online donor activity.

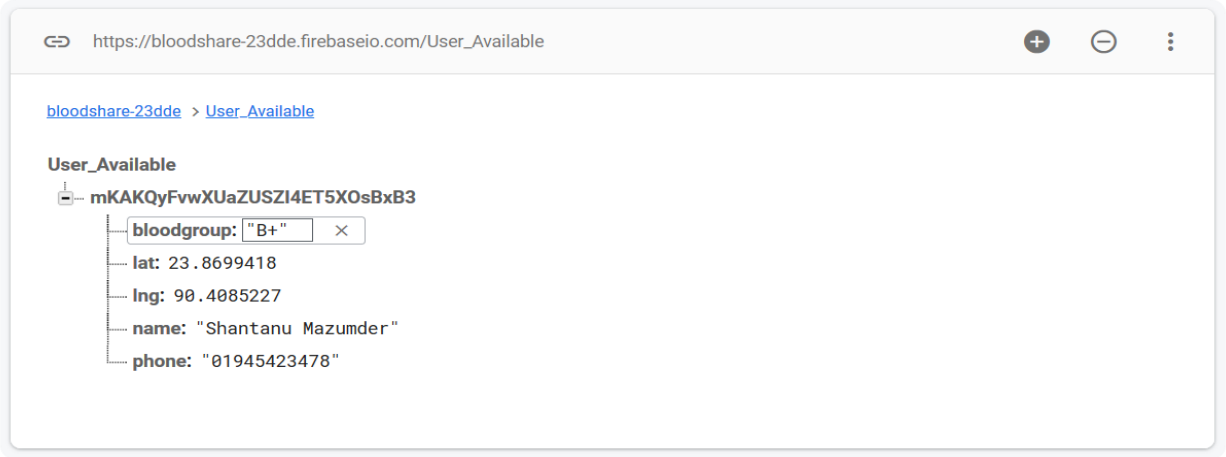


Figure: 5.1.6 User Available Data

### 5.1.7 Add Donor Data

This is the add donor list of data who are added by the user in our app. Here we are collecting blood group, district, division, name, phone number.

Figure: 5.1.7 Add Donor Data

## 5.2 Summary

By this way, we implement our project step by step with the help of firebase database and make a most effective use of our app.

## 5.3 Testing

### 5.3.1 Introduction

Testing is very important to check validation of our project; but for software testing there are lots of testing method such as: unit test, integration test, functional test, end to end tests and so on. For our project, we need integration test to verify the user validation, email validation, password validation, field checking. It can be testing the interaction with the database. Integration testing focuses on checking data communication among different types of module.

### 5.3.2 User Validation

This figure means that no one can randomly use this app because the entire users have to register this app who wants to use this. So here check the user validity to use this app.

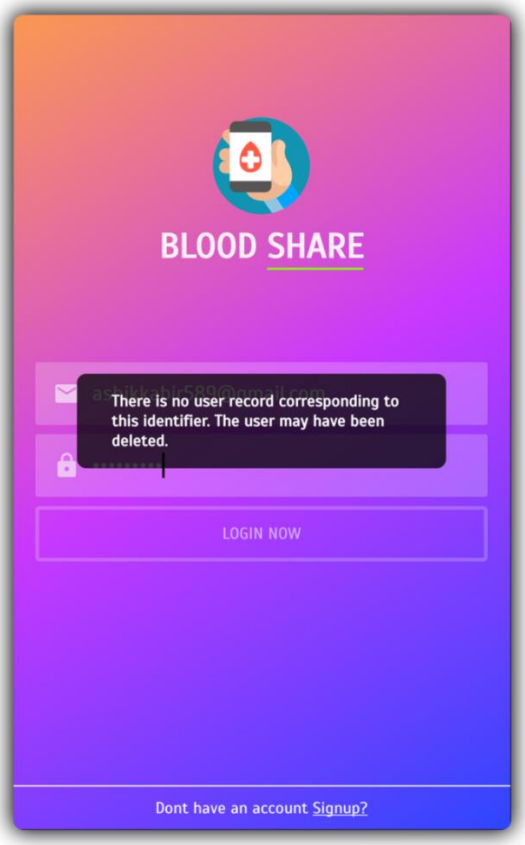


Figure: 5.3.2 User Validation

### 5.3.3 Email Validation

Here checking the email validity; wrong format email is not support. Users have to use "@gmail.com" format to sign in.

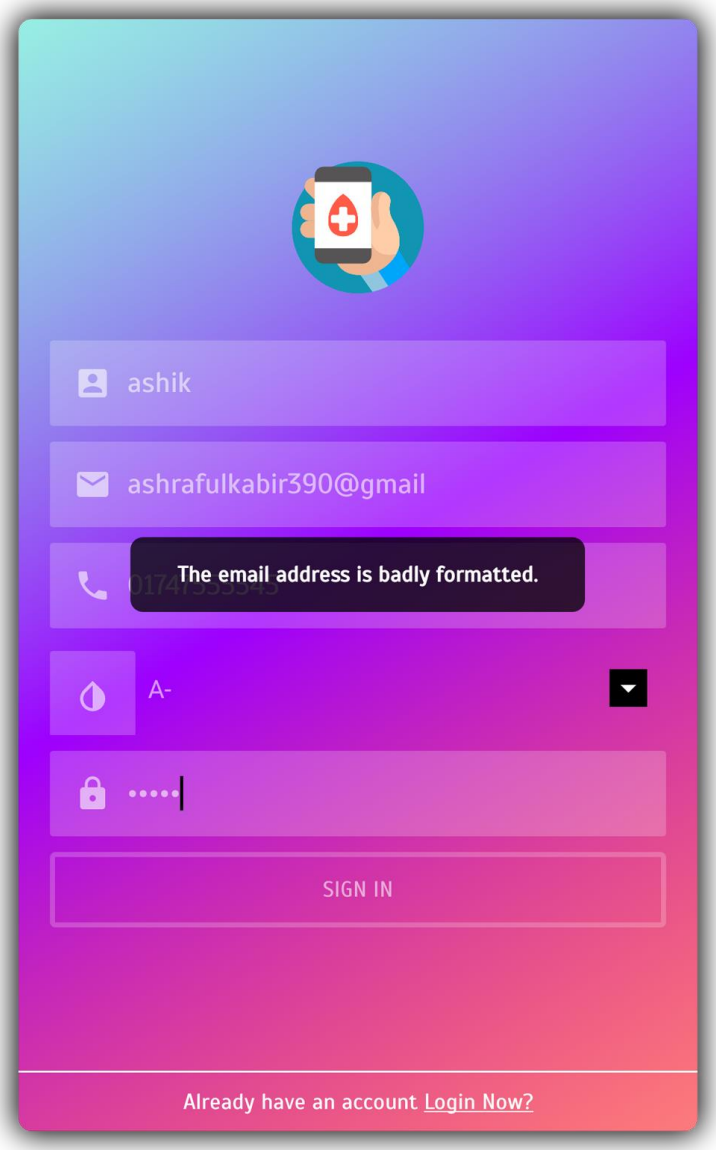


Figure: 5.3.3 Email Validation

### 5.3.4 Password Validation

Password is an important issue for giving security better where there are some formats or conditions to set a password. Here password is invalid until a user doesn't give minimum 6 characters.

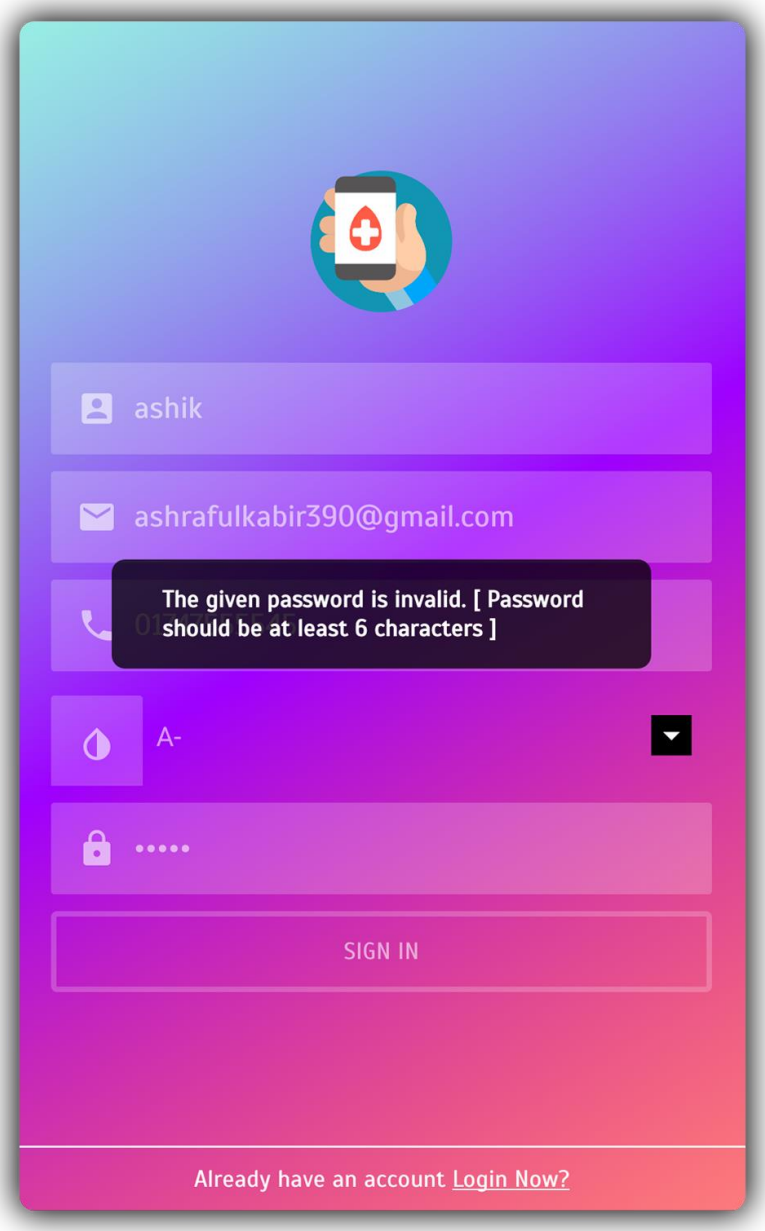


Figure: 5.3.4 Password Validation

### 5.3.5 Field Checking

To sign in or sign up, every field is required. No one can go next step without fill up a field.

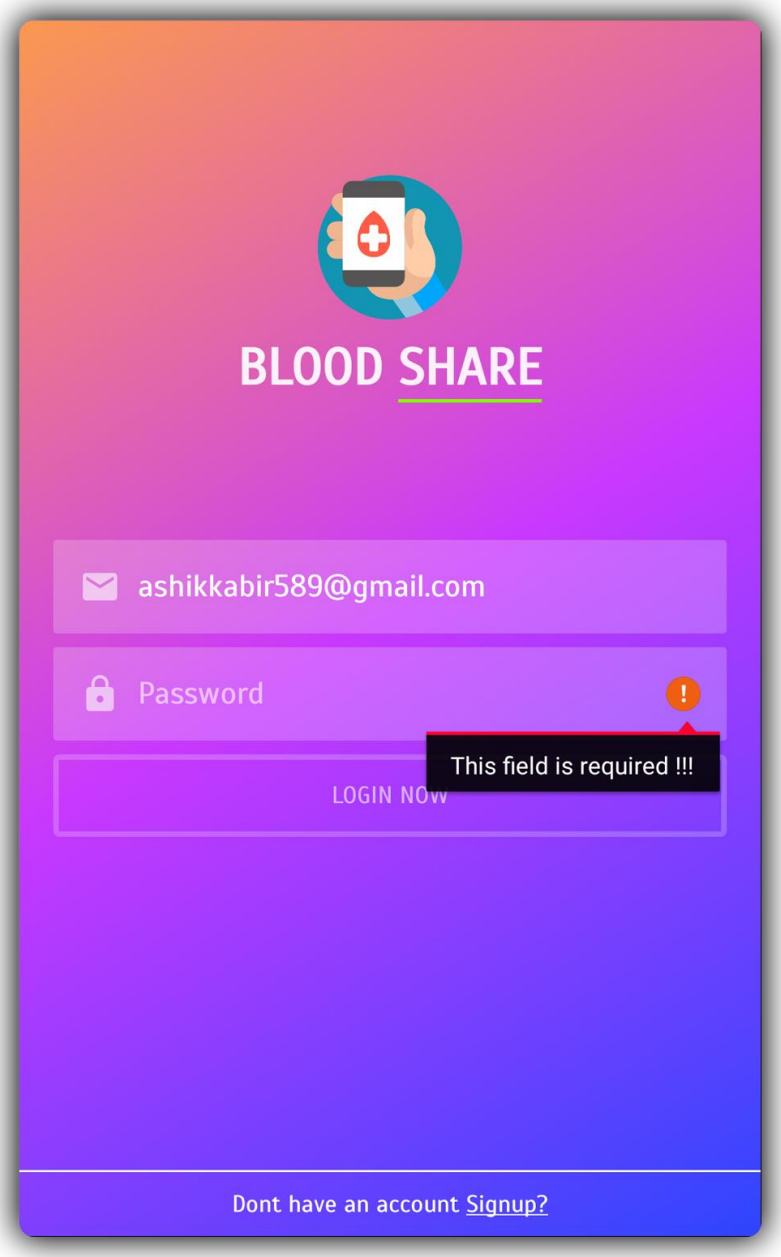


Figure: 5.3.5 Field Checking

# CHAPTER 6

# Conclusion and Future Scope

## 6.1 Conclusion

Bangladesh is advancing fast. So people of developed country should also experience advanced facilities in medical affairs too.

We all know that donating blood is a noble deed. And we must say that we are very blessed as our mass population is aware of this. Our app will help them to keep their good work going, as here they easily get in touch with people who need blood.

This app is going to serve people of every nooks and corners. It would play a significant role changing the statistics of public health. So many people died just in need of blood. Realizing the value of their life we have decided to serve people like them with this app. Hopefully it's also going to reduce rate of maternity death.

## 6.2 Limitation

There are some limitations in our apps and we will be working with those limitations in future. Right now our apps can't proceed with user verification. When user create request, a notification should be send to all donor. Right now our apps can't send the notification which is another limitation of our apps.

## 6.3 Future Scope

* Verification code system for Add Donor Activity.

* Updating Security system.

* User Profile editing option.

* Donor last time donating blood option.

## References

[1] Implementation available at <https://developer.android.com/?fbclid=IwAR08kA6__wFlGF03hVsTSthsQlPfiBKJoOlfMrKELz6hu9yyXzVY0rzlNA >[Last accessed on 23November 2019].

[2]Testing available at <https://developers.google.com/?fbclid=IwAR2ZsaYFQkyHTg0HlySvQE51el-vizFrl8ncZO1p1BpgUWsn9b9s9cFtJJM >[Last accessed on 23November 2019].

[3] Implementation available at <https://stackoverflow.com/?fbclid=IwAR2yR_s_ney8ntEg1hAWf9CN2cd-jsYzzJMmW34TcZk1ZY-zdkRju9kvuSc >[Last accessed on 23November 2019].

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