BD DOCTOR ASSISTANT

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering.

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APPROVAL

This Project titled **"BD DOCTOR ASSISTANT**", submitted by Md. Nobeul Islam, ID: 142-15-3540, Md. Mosharof Hossain, ID: 142-15-3976, to the Department of Computer Science and Engineering, Daffodil International University, has been 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. The presentation has been held on 7th May, 2018.

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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Mr. Shah Md Tanvir Siddiquee, Senior 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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We would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, we must acknowledge with due respect the constant support and patients of our parents.

ABSTRACT

This project is on "**Design and Development of Bd Doctor Assistant**". This is an android based application which requires an android device to run and helps the patients to get doctor's token, so called serial. The aim of the application is to assist the user in finding their desired doctor's token by providing sufficient information. From stored information, user will find a list of doctors of different departments including the doctor's information, location, availability day and time and contact number if it is given. Using all these, user will be able to get desired doctor's serial for treatment only if the doctor's token list is available. One patient or user may not request more than once. If same user tries to request more than once through the same user id the system would not allow to get new token more than once. So that no one can down our system intentionally. In the development of this application the most essential elements were computer, an android device and an android application development tool. The development of this application is described in the project report. Using this application user will also get facilities which includes details about a desired doctor, online service for taking serial rather than physical appearance or harassment and a specialized free service that is easy for both doctor and patient. After development session of this application we have tested it by different user and found it to be a well build application which works perfectly.

TABLE OF CONTENT

CHAPTER 1

INTRODUCTION

1.1 Introduction

In this modern world human life has become very easy by the use of modern technology. But still there are some places in our country which are not blessed by modern technologies. Such a place is our hospital management system. For example a person that may be a patient or any relative of a patient has to suffer a lot for getting serial of a desired doctor for treatment. They have to stand for a huge queue for this purpose, wasting lots of valuable times. If the patient himself/herself has to wait in the queue the sufferings are knows no bound. From this point of view for doing something helpful that can eliminate the sufferings of the people, idea of building an application have crossed our mind. An application that can help a patient and their family to avoid the sufferings and valuable times we implemented our idea in an android application that is much more easier, user friendly and less time consuming. By using this application people can very easily request for token for their desired doctor by only a single touch by using their own email or phone. Now a days applications and websites are helping people more than ever before. Starting from kitchen to spaceship we are using computer and mobile application everywhere. Thus we are taking efforts forward to the hospital token system. [12]

1.2 Motivation

We know that "Time is Money". Time flows by it's own. For the family members of a patient it is hard to wait in a long line only for getting a single token of a desired doctor. And if the patient is alone then this turns more crucial for him/her to stand in a line for a day long. But if a single application can save their time and sufferings, that will be very much helpful.

So we have decided to build this application by the least effort to save their valuable time and reduce harassment of standing along. [11]

1.3 Objectives

Keeping in mind the goodwill of our people we have decided to build an application that will diverge the sufferings of the people those who had to wait earlier. Through this idea we have started gathering data which contains different departments, doctor's information related to those departments, doctor's contact (if available), doctor's available time and location. Using this application client can easily access desired doctor's details by searching. They can request for token for that specific doctor. However surfing through internet we found some related rough application that is either incomplete or inefficient or just a static application. Thus our developed application may help thousands of people in their critical moment. [12]

1.4 Expected Outcome

Users can access the system by being registered once using either valid phone number or email and password. After logging in users can search for their desired section for the desired doctor. They can search for a specific doctor either by scrolling or by searching through search bar. This will take an user to the specific doctor's profile. Then the user can ask for a serial form that specific doctor through a button. Thus the user does not have to wait for a huge queue for a single token and reduce harassment.

1.5 Report Layout

Chapter 1: Introduction

In this section we have examined about the inspiration, destinations and the normal result of the task. Later looked after the report format.

Chapter 2: Background

We talk about the foundation conditions of our task. We likewise discuss the related work, correlation with other applicant frameworks, the extent of the issue and difficulties of the venture.

Chapter 3: Requirement Specification

This part is about the prerequisites, business process modeling, requirement collection and analysis, use case modeling and description, logical data model, design requirements.

Chapter 4: Design Specification

In this section every one planned the project. Front-end configuration, back-end plan, connection outline and UX and the implementation Requirements.

Chapter 5: Implementation and Testing

This part contains the execution of database, front-end plans, connections and the test aftereffects of the task.

Chapter 6: Conclusion and Future Scope

We examined about the conclusion and the extension for advance improvements which essentially infer about the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

We work on the area of medical services. Taking token of a doctor from a clinic is a lengthy process. Again we know that some specialists are not found available every time. So that patients has to suffer for unlimited time, that can even lead to the death of the patient which is only for not getting just a token. But if the patient can be taken to another doctor who is also related to this particular field, then patient's sufferings can be reduced in a big circumstance. Even they can search for a particular doctor in a particular department. So that everyone can know which doctor is busy in that particular date and also can go for another doctor very easily(only by scrolling top to down). Thus it becomes easier for a patient or relative of the patient to get the token of a doctor.

So just get token by this application and go to get treatment in the particular time without any hassle. [10]

2.2 Related works

Some works are done earlier on the information of hospital but not getting token properly. For instance, there are some applications named:

2.2.1 BD Doctor Finder

“BD Doctor Finder” is a static application that contains only static informations about doctor’s. Even in some departments there is no informations. There is no such option to get appointment or contact with them. This is actually an inefficient application.

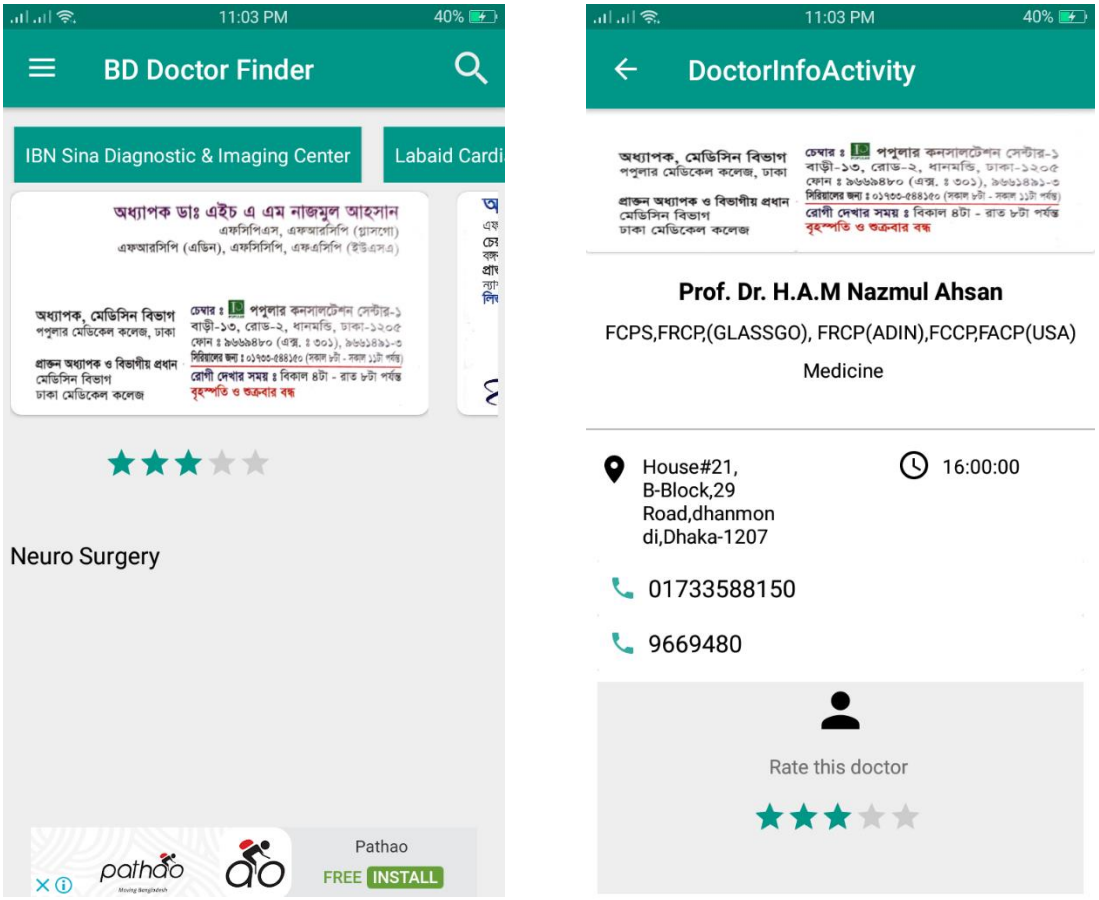

Fig 2.1: BD Doctor Finder

2.2.2 Doctor Assistant

This application has just one activity and used only frontend design with a lame button. Nothing can be done by this application.

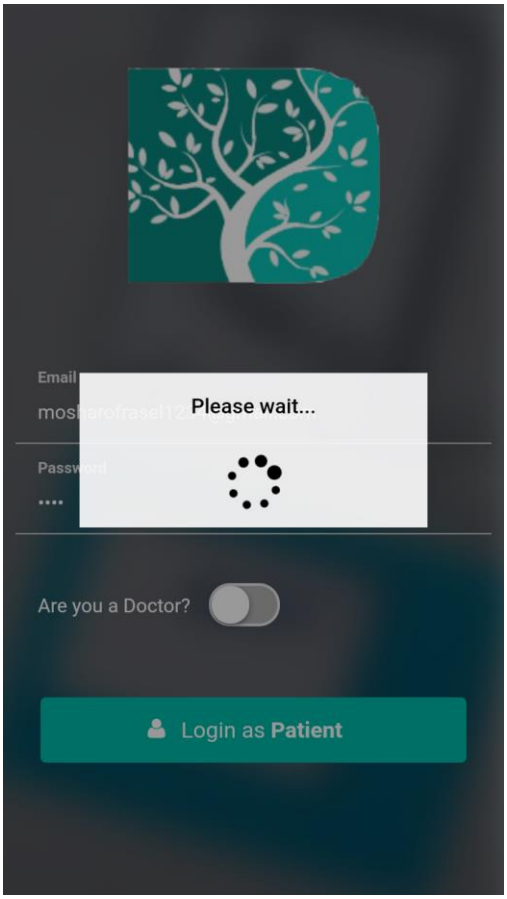

Fig 2.2: Doctor Assistant

2.2.3 Doctor List BD

This application is also a complete static application. There are some information only but no way to connect to the doctor.

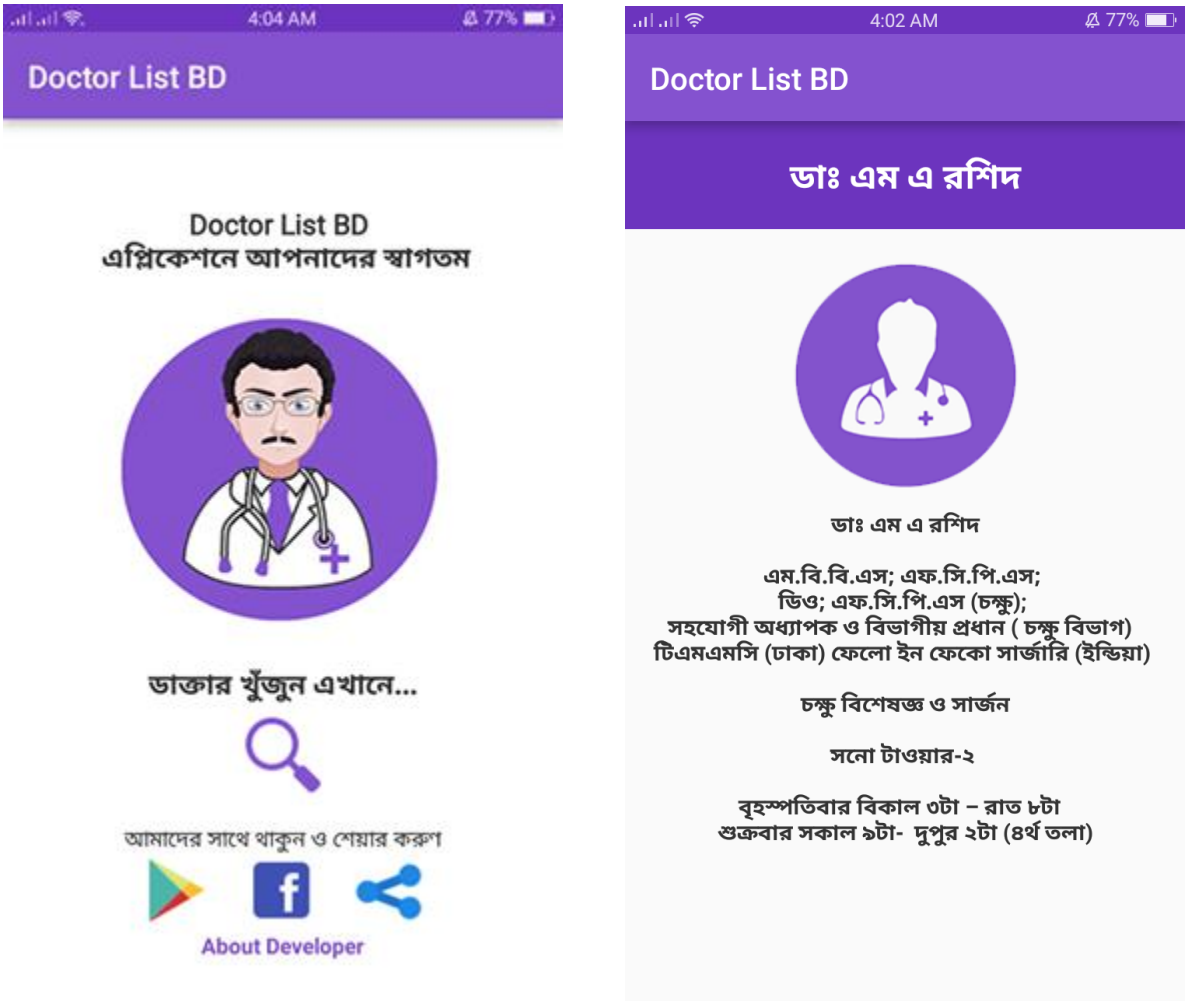

Fig 2.3: Doctor List BD

2.2.4 Bangladesh Doctors Directory

This application provide some more informations than others application but again this is a static application and there is no option to contact with the doctors dynamically. It seems like one has to go through the address physically.

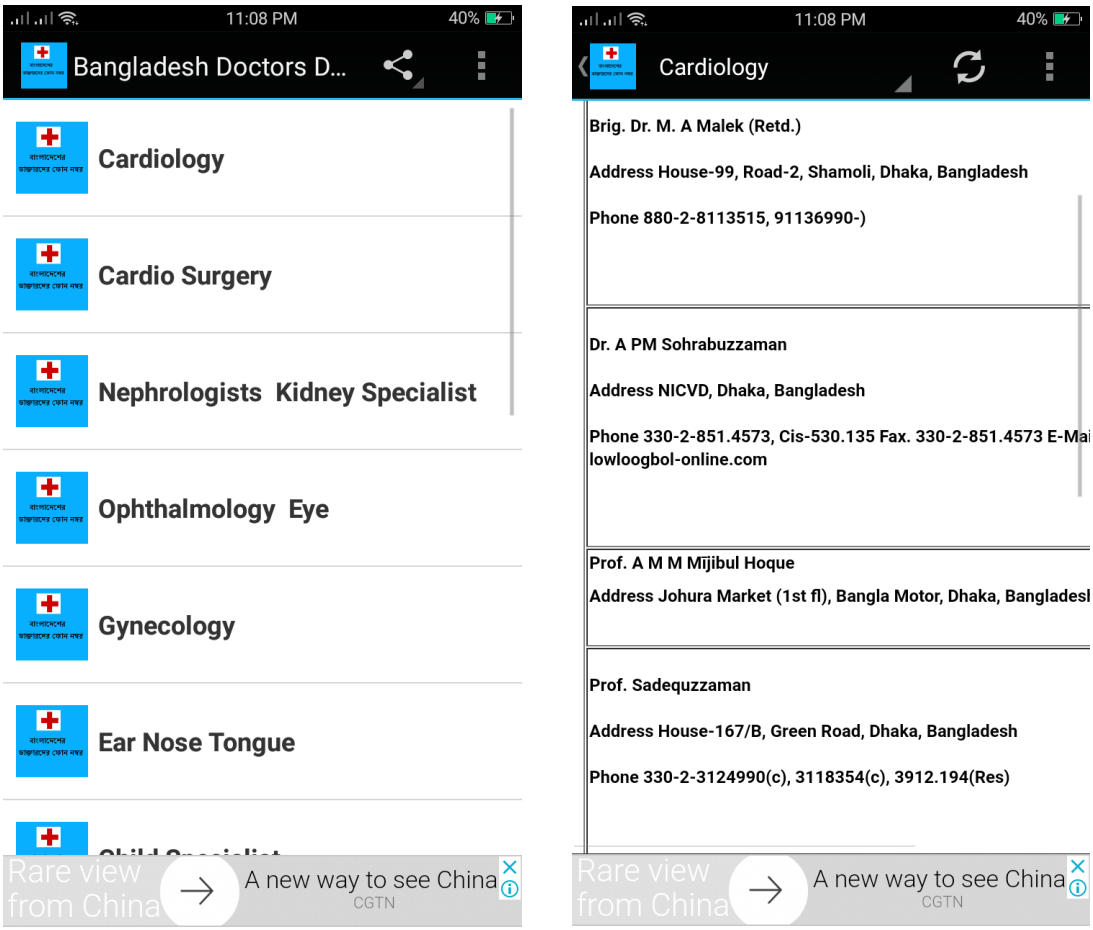

Fig 2.4: Bangladesh Doctors Directory

2.2.5 DocApp

This is a good concept application with great user interface. But this application is probably is under development. The main drawback of this app is this app is developed may be only for Indian people. We could not find out any usable functionality for Bangladeshi people.

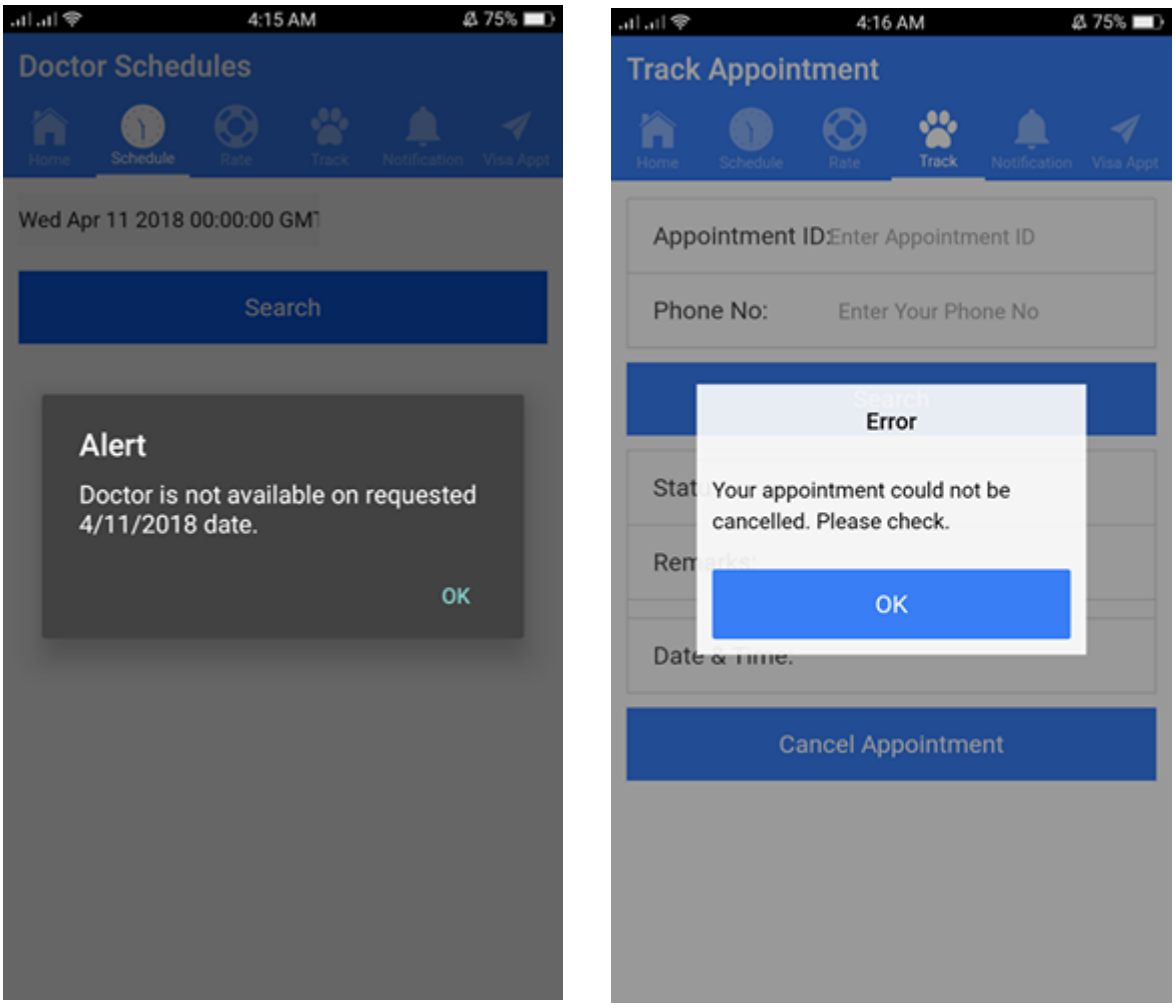

Fig 2.5: DocApp

2.3 Comparative Studies

As we shown earlier there are some applications available in the playstore which are not completely developed. Some applications are completely static and some has only front end design. There is no such application related to this that can perform very well, can give a nice user interface and a real life problem solution or to contact to a doctor to inform for a serial. That ’s why we took such step to go ahead so that we can be a part of human goodwill.

2.4 Scope of the Problem

Different trouble may occur in the way to the clinic. So that lots of time may have wasted. Again this will cause to a long line to stand after. If the token receiving individual is a relative of the patient then he/she has to waste lots of time. But if the patient thyself needs to go to the line and wait for the token then the state of that patient may be more critical. It would be much more useful if we can build an application which can eradicate such sufferings that should be praiseworthy to everyone. One can ask for a doctor’s serial from home lying down to bed that can also do the same thing without elapse of time and harassment.

2.5 Challenges

Different trouble may occur in the way to the clinic. So that lots of time may have wasted. Again this will cause to a long line to stand after. If the token receiving individual is a relative of the patient then he/she has to waste lots of time. But if the patient himself/herself needs to go to the line and wait for the token then the state of that patient may go awful.

Moreover searching for a specialist for a particular disease is also tedious and effort full. Real life problems are much more difficult to implement in coding to perform actually same. Thus designing user friendly interface, designing database and performing everything in a sequence is quite difficult.[13]

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 E-R Diagram

Following figure shows the total Business Process Model diagram:

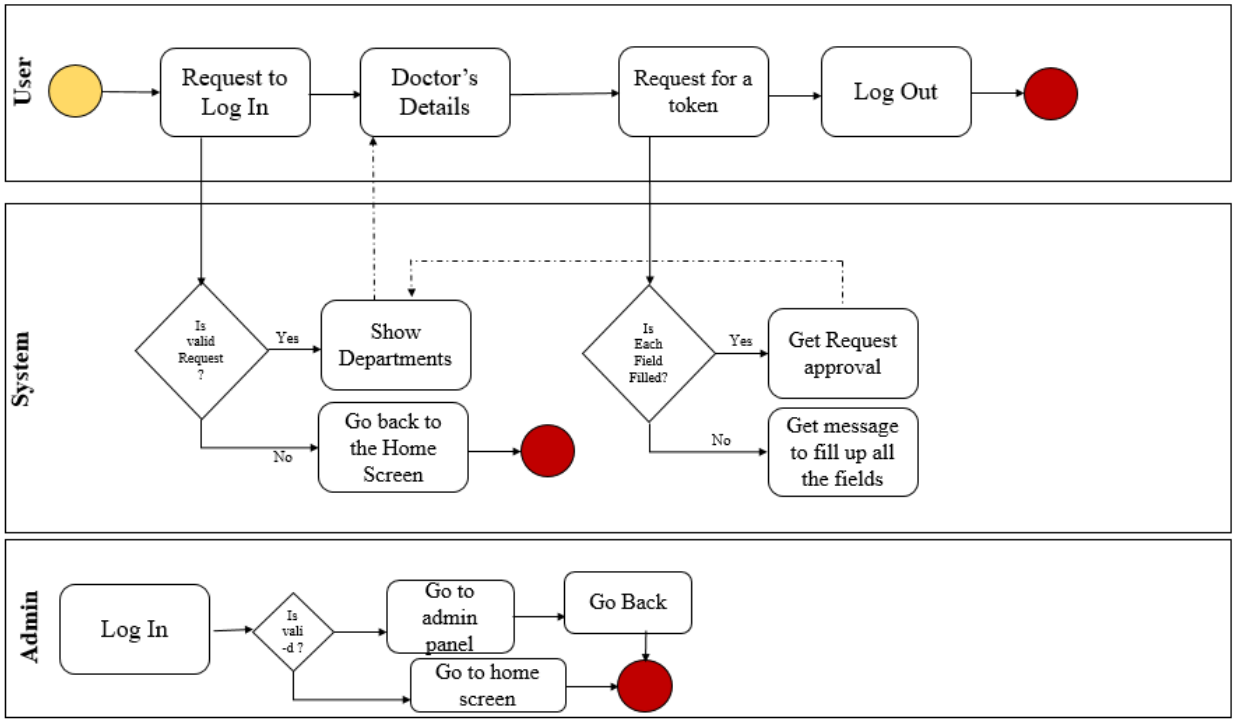

Figure 3.1: Business Process Model Diagram.

3.2 Requirement Collection and Analysis

For the sake of collection of data first we gathered some of our friends and neighbors. Then asked them to register them using their phone and email both. At time of analysis we found that some fake account were also added by us only for testing. But 99% was the successful rate. Again we had to travel through different hospitals and online services for gathering information of doctors.

3.2.1 Non-functional Requirement

- Help text will be provided in English.
- The process of using the application will always be available.
- There is no user limit for browsing the application.
- This application can be used only on android OS.
- During browsing through the application system responses should be no more than 1 second.
- Only admin can modify the information of the application.

3.2.2 Usability requirement

- An android OS based device (Android version 4.2 - 7.0) with internet connection and GPS support.
- The interface of the application is suitable even for the color-blind people.
- Anyone who knows Bengali or English can use this application.

3.3 Use Case Modeling and Description

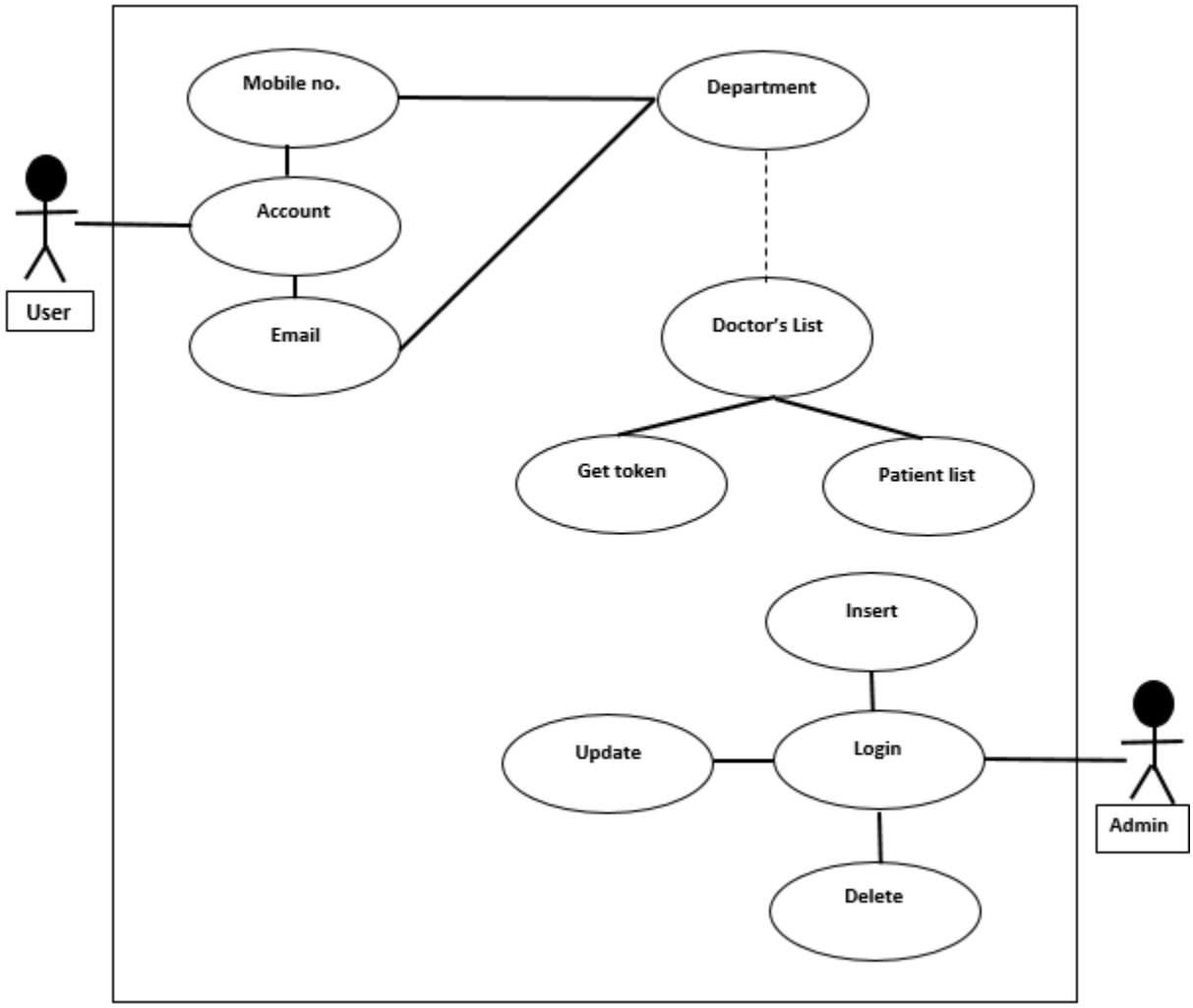

Fig 3.2: Use case diagram of Bd Doctor Assistant

3.3.1 Use case narrative for User

3.3.1.1 Account

Use case: Account

Actor: user

Pre-condition:

- Android OS based handset.
- Turn on internet connection.
- Valid email or phone number.

Scenario:

- User can see all the available departments and corresponding doctor’s list.

Alternative Scenario: Check the internet connection, if user is not connected.

Post-condition: Application will be running without an error.

3.3.1.2 Mobile Number

Use case: Mobile Number

Actor: user

Pre-condition:

- Valid phone number.
- Turn on internet connection.

Scenario:

- User can see all the available departments and corresponding doctor’s list.

Alternative Scenario: Check the internet connection, if user is not connected.

Post-condition: If user is not registered by the phone number then he/she has to verify through verification code.

3.3.1.3 Email

Use case: Email

Actor: user

Pre-condition:

- Valid email.
- Turn on internet connection.

Scenario:

- User can see all the available departments and corresponding doctor ’s list.

Alternative Scenario: Check the internet connection, if user is not connected.

Post-condition: If user is not registered by the email, use email and password in the “REGISTER” section.

3.3.1.4 Department

Use case: Department

Actor: user

Pre-condition:

- Registered email or phone number.
- Turn on internet connection.

Scenario:

- User can scroll top to down and vice versa.
- User can choose any doctor by search bar.

Alternative Scenario: Check the internet connection, if user is not connected. User can access doctor's list if needed. User can also log out from this event.

Post-condition: None.

3.3.1.5 Doctor's List

Use case: Doctor's List

Actor: user

Pre-condition:

- Registered email or phone number.
- Turn on internet connection.

Scenario:

- User can access the detailed information about the doctor.
- User can request for token of that particular doctor.
- User can see the patient list those who requested on that particular date.

Alternative Scenario: Check the internet connection, if user is not connected. User can access doctor's list if needed. User can also log out from this event.

Post-condition: None.

3.3.1.6 Get Token

Use case: Get Token

Actor: user

Pre-condition:

- Registered email or phone number.
- Turn on internet connection.

Scenario:

- User can request for token of that particular doctor.
- User can see the patient list those who requested on that particular date.

Alternative Scenario: Check the internet connection, if user is not connected. User can go back to the doctor's list if needed. User can also log out from this event.

Post-condition: User is not allowed to request more than once for a particular doctor.

3.3.1.7 Patient List

Use case: Patient List

Actor: user

Pre-condition:

- Registered email or phone number.
- Turn on internet connection.

Scenario:

- User can see the patient list those who requested on that particular date.

Alternative Scenario: Check the internet connection, if user is not connected. User can go back to the doctor's list if needed. User can also log out from this event.

Post-condition: User is not allowed to request more than once for a particular doctor.

3.3.1.8 Login

Use case: Login

Actor: admin

Pre-condition:

- Particular email id and password.
- Turn on internet connection.

Scenario:

- Admin can insert, delete and update information of doctor by corresponding department.

Alternative Scenario: Admin device has to be connected to internet.

Post-condition: None.

3.3.1.9 Insert

Use case: Insert

Actor: admin

Pre-condition:

- Particular email id and password.
- Turn on internet connection.

Scenario:

- Admin can insert information of doctor by corresponding department.

Alternative Scenario: Admin device has to be connected to internet.

Post-condition: None.

3.3.1.10 Update

Use case: Update

Actor: admin

Pre-condition:

- Particular email id and password.
- Turn on internet connection.

Scenario:

- Admin can delete information of doctor by corresponding department.

Alternative Scenario: Admin device has to be connected to internet.

Post-condition: None.

3.3.1.11 Delete

Use case: Delete

Actor: admin

Pre-condition:

- Particular email id and password.
- Turn on internet connection.

Scenario:

- Admin can delete information of doctor by corresponding department.

Alternative Scenario: Admin device has to be connected to internet.

Post-condition: None.

3.4 Logical Data Model

A logical information demonstrate is an information model of a particular issue space communicated freely of a specific database administration item or capacity innovation yet as far as information structures, for example, departments and sections, object-oriented classes, or XML labels.

3.5 Design Requirements

- Help text will be provided in English.
- The process of using the application will always be available.
- There is no user limit for browsing the application.
- This application can be used only on android OS.
- During browsing through the application system responses should be no more than 1 second.
- Only admin can modify the information of the application.
- An android OS based device (Android version 4.2 - 7.0) with internet connection and GPS support.
- The interface of the application is suitable even for the color-blind people.
- Anyone who knows Bengali or English can use this application. [15]

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

User Interface (UI) that allows user to interact with the mobile devices or other electronic devices. UI design usually refers to the design of Graphical User Interface(GUI), but can also refer to others, such as natural and voice user interfaces.

4.1.1 Home Screen

Home screen shows four items such as Sign in, Register, Login with phone, Login as Admin . User can select any from Sign in, Register, Login with phone, Login as Admin for go forward.

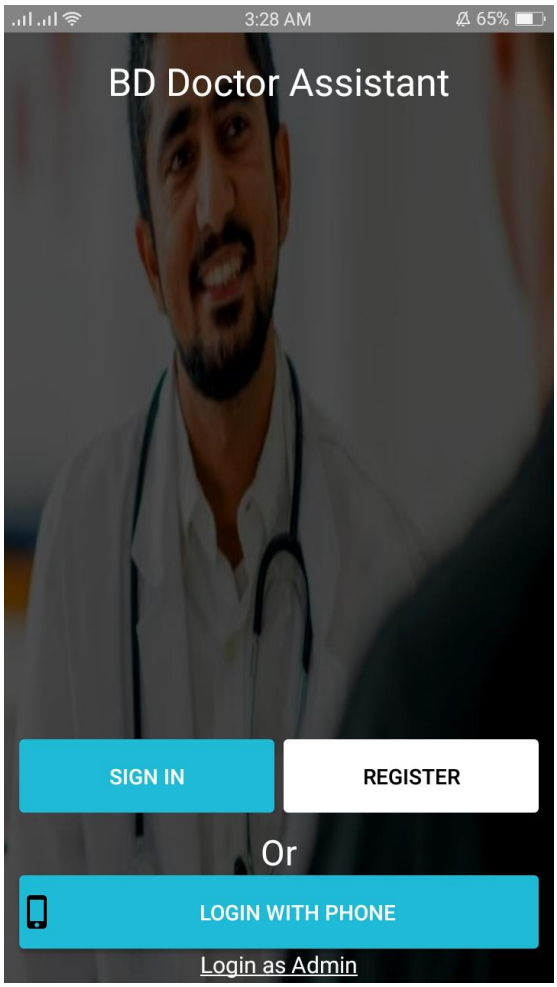

Fig 4.1: Home Screen

4.1.2 Sign In

Sign in pops up a toolbar containing user's email and password to enter. There are two buttons, one for canceling another to sign in.

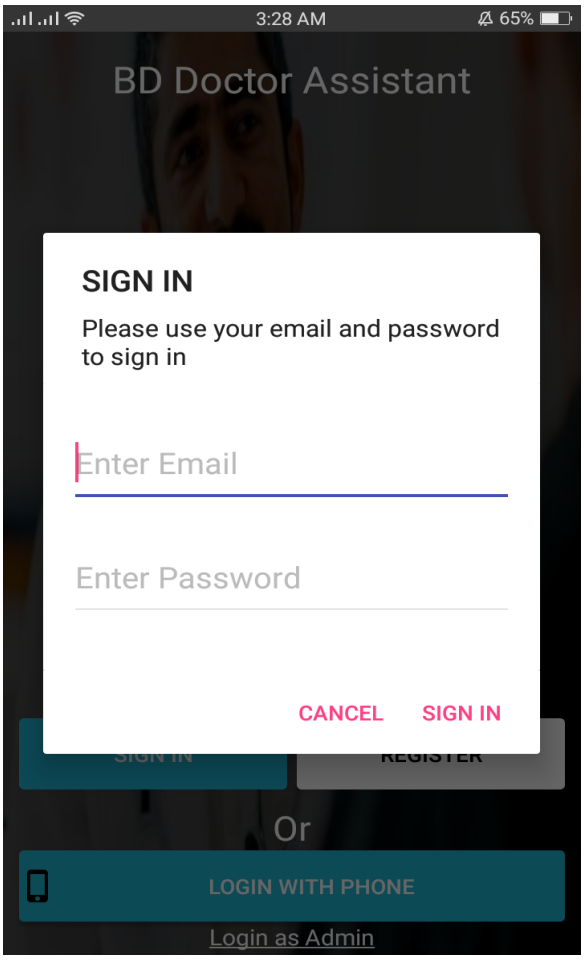

Fig 4.2: Sign In

4.1.3 Register

Register pops up a toolbar containing user's name, email and password to enter. There are two buttons, one for canceling another to register.

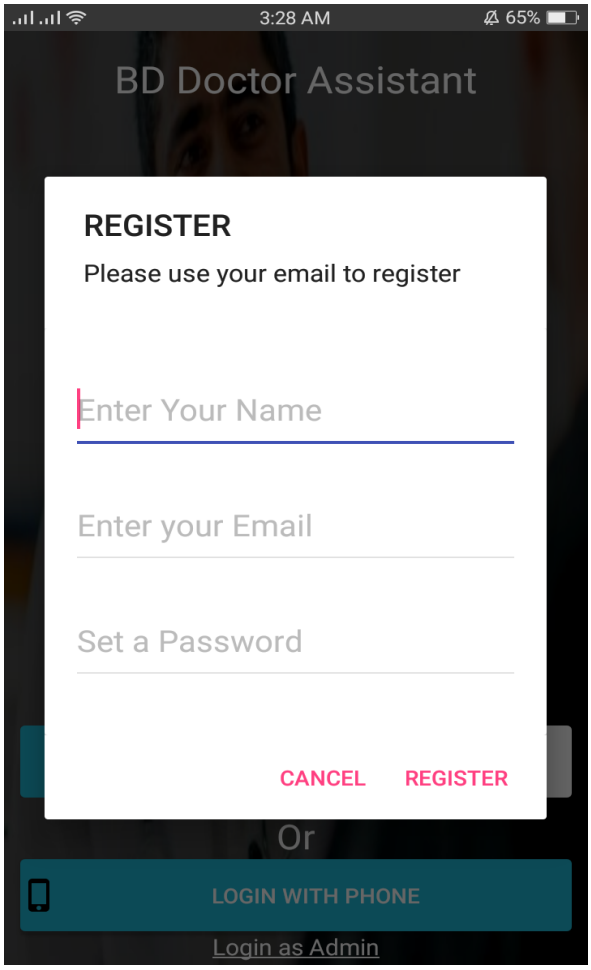

Fig 4.3: Register

4.1.4 Login with Phone no

Login with Phone no pops up a toolbar containing user's phone number to enter. After entering phone number user has to wait for a few moments to get verification code. Then user has to put verification code to verify. There is one button for verifying.

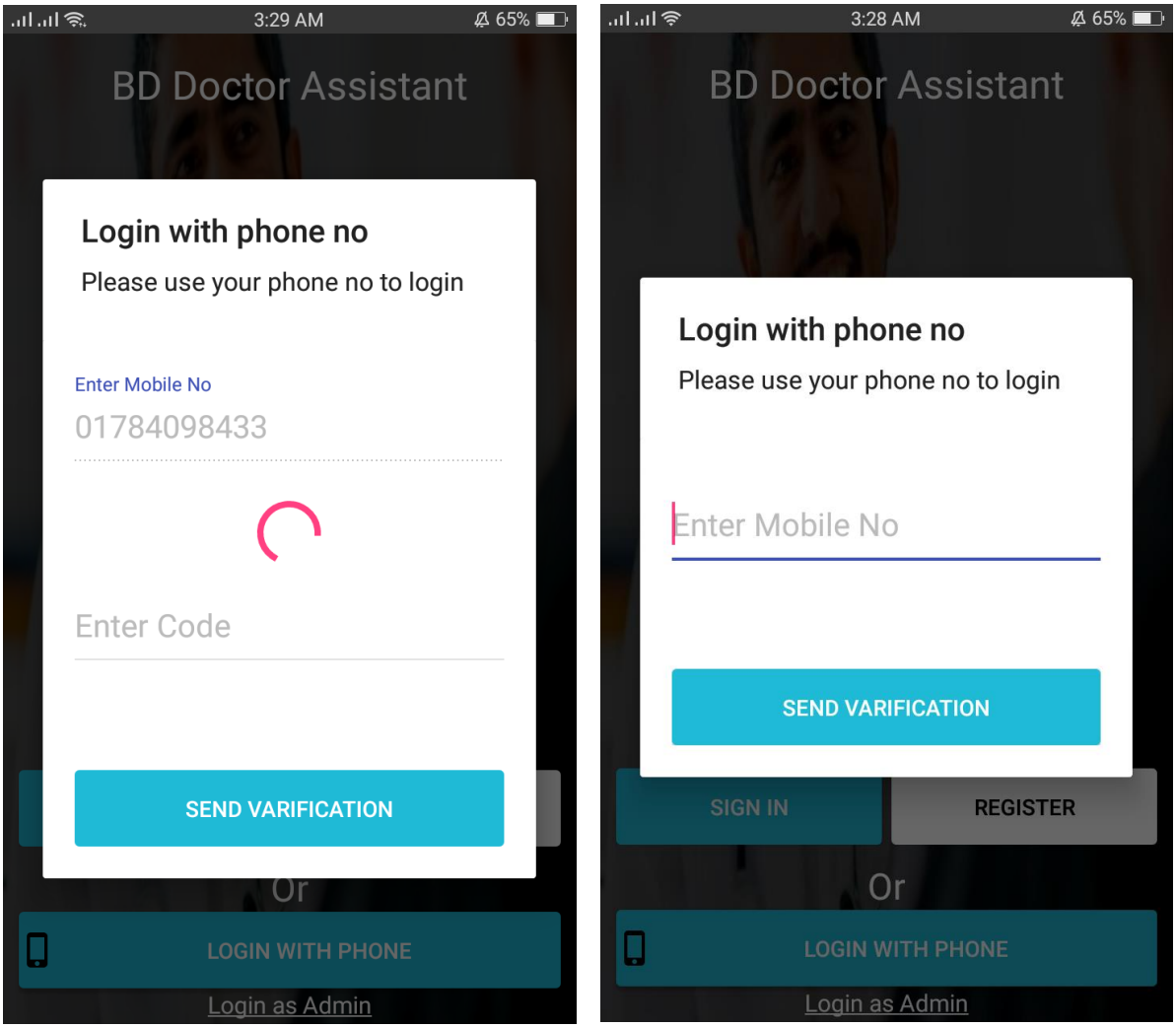

Fig 4.4: Login with Phone no

4.1.5 Login as Admin

Login as Admin pops up a toolbar containing admin 's phone number and password to enter. There are two buttons, one for canceling another for sign in.

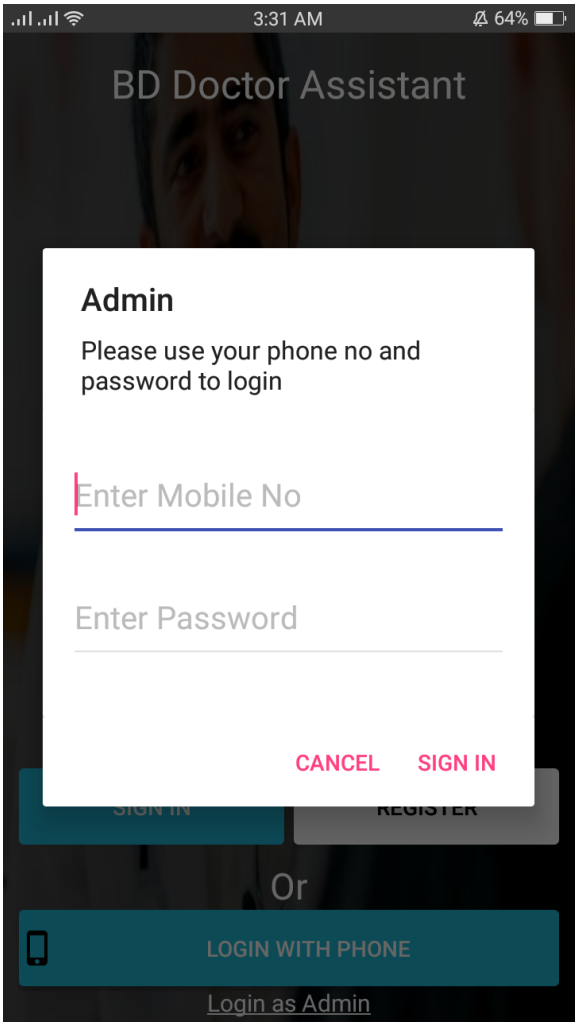

Fig 4.5: Login as Admin

4.1.6 Departments

Department shows different types of sections available such as anatomy, anesthetics, orthopedics etc with Bangla meaning for being easier for everyone. This section is scrollable.

Fig 4.6: Department

4.1.7 Sections

Section denotes categories of the department. Through sections user can search for different doctors and find out their desired one.

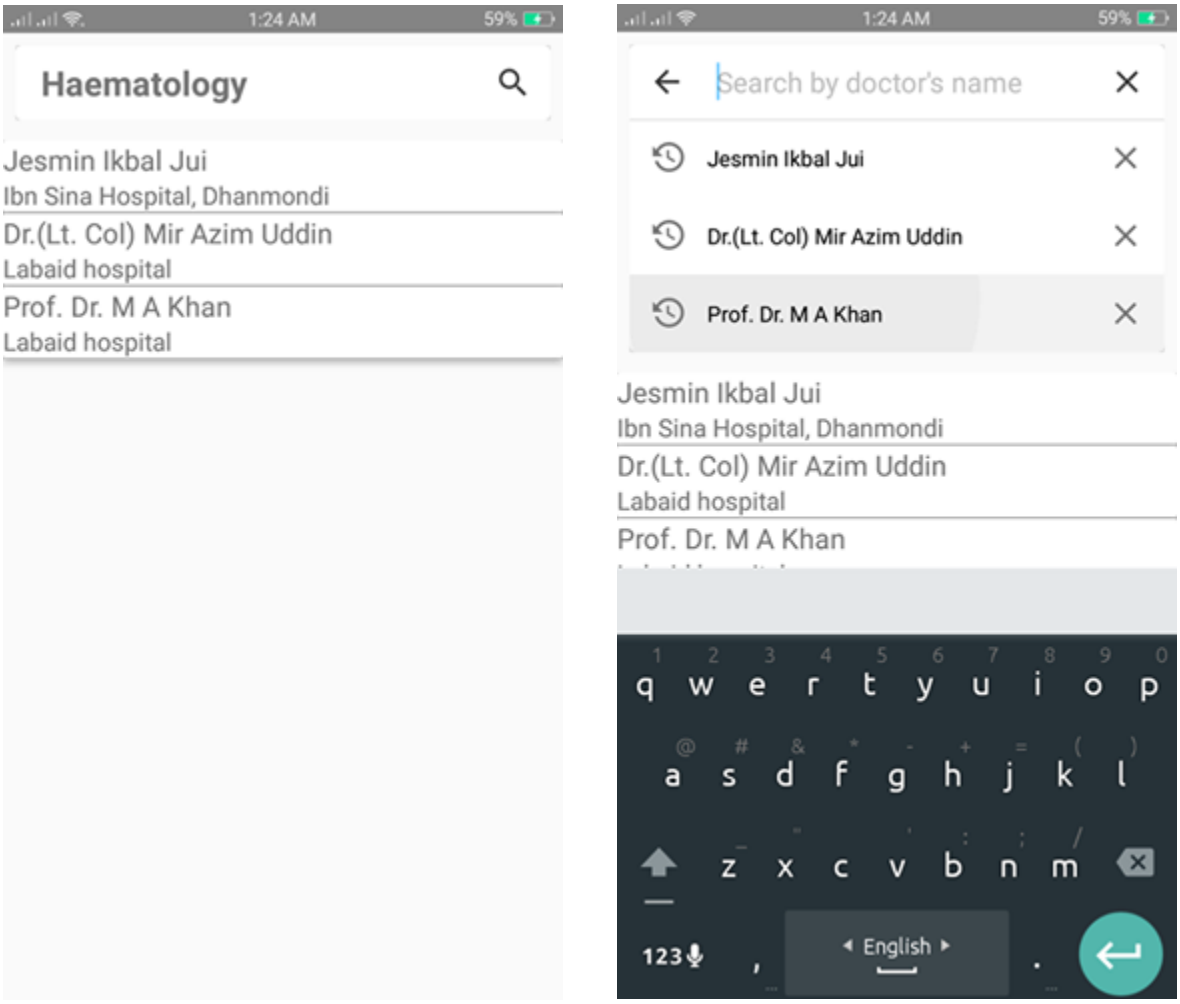

Fig 4.7: Section

4.1.8 Token Getting System

In this activity user has to submit his/her name or patient ’s name to get token from that particular doctor. User can also see the list of the patients, their name and serial time. Before requesting for a token user must have to check the availability date and time of the corresponding doctor. After pressing “BOOK APPOINTMENT NOW” a new intent will appear before the user to input required fields. After filling up all the fields one user may confirm the request or may press back button for another purpose.

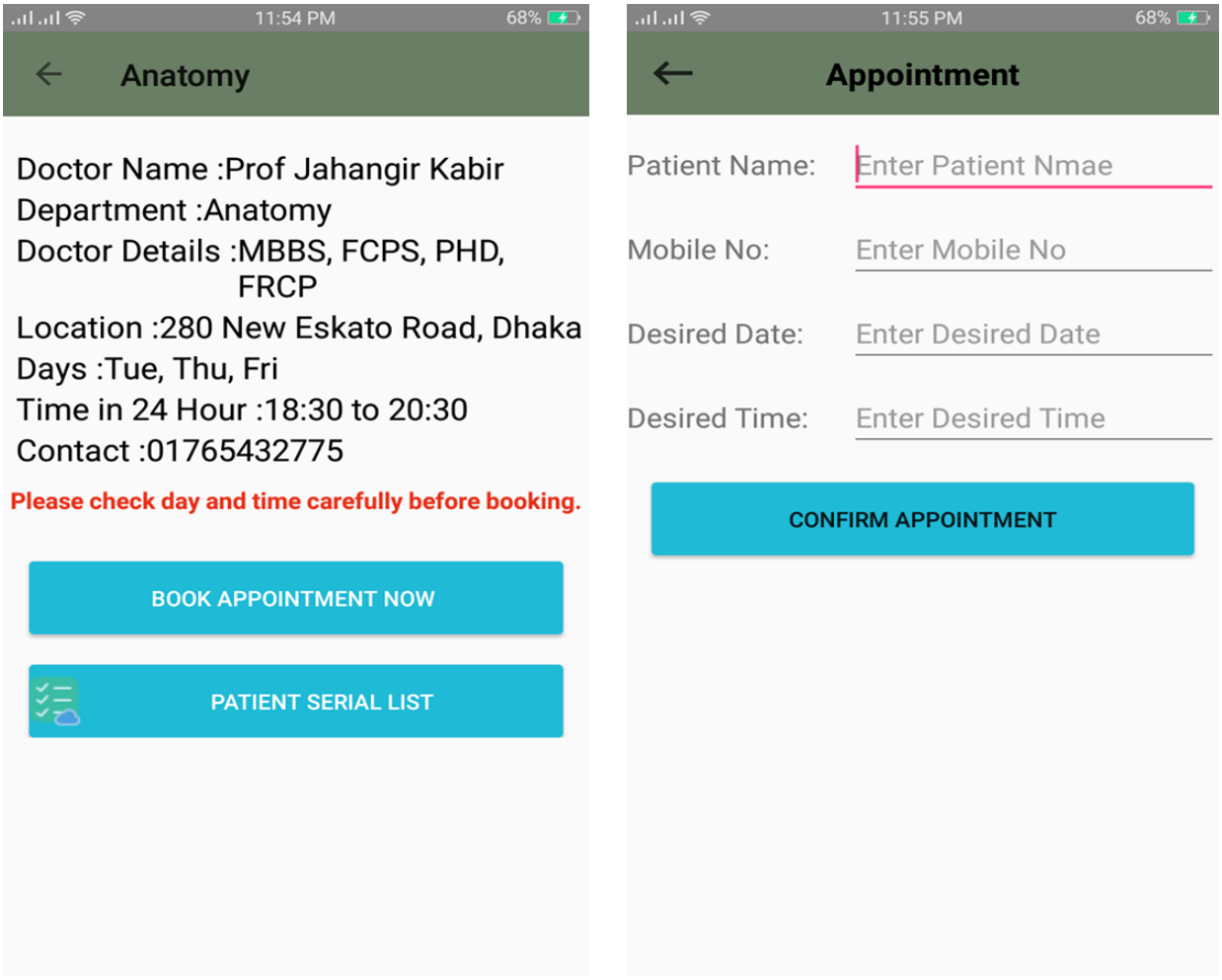

Fig 4.8: Token getting system

4.1.9 Admin Activity

Here admin can customize doctor's informations through selecting a definite department. Admin has to add doctor's details, location, contact (if available), available days and times. Then admin has to hit the "Save Detail" button to save it to the database.

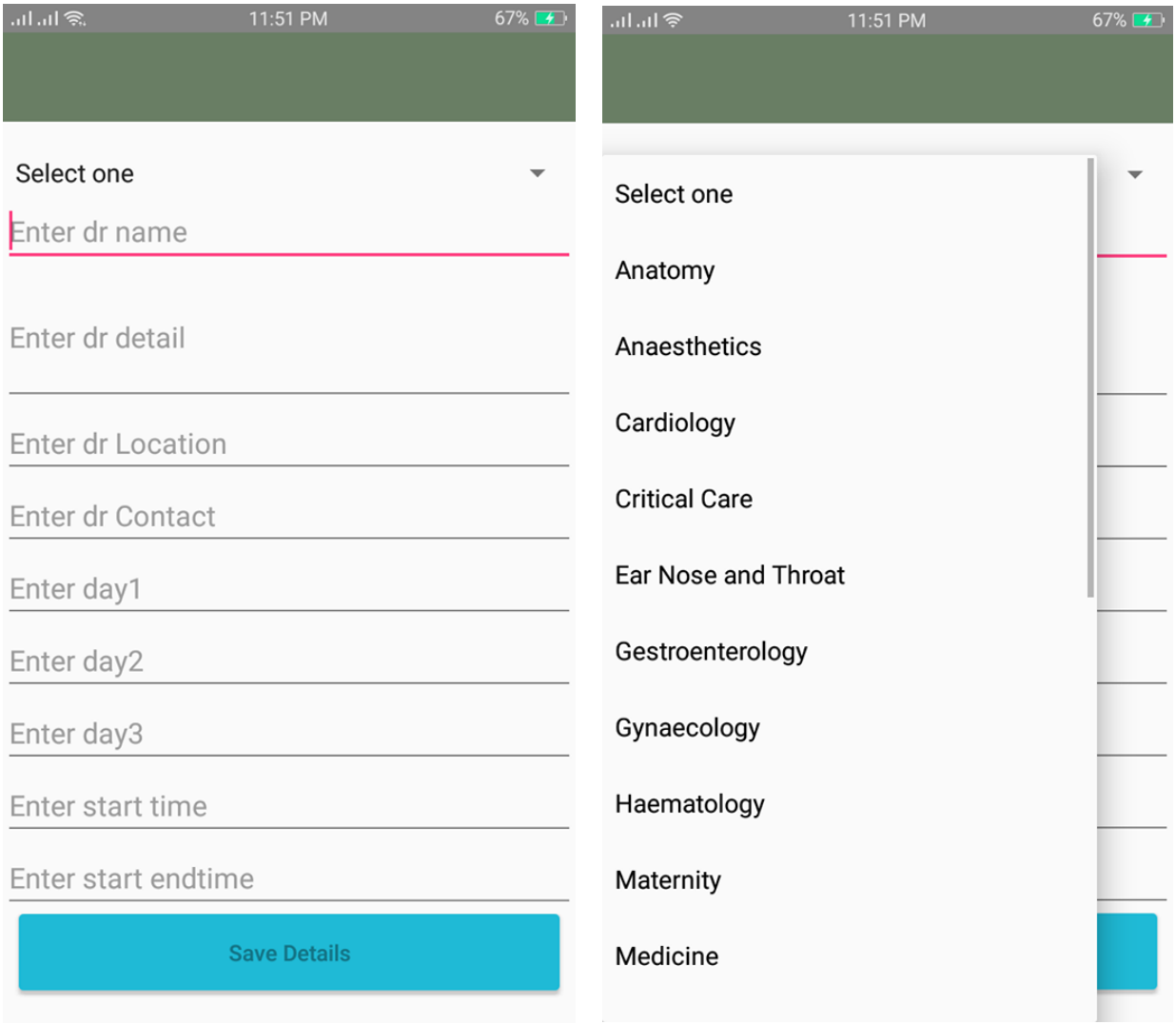

Fig 4.9: Admin Activity

4.2 Back-end Design

Database design is the way toward producing a point by point data model of database.

Figure below dictates the Database Design of our developed application. This database acts as host of data from which the application can fetch data whenever it needs. The first, second and third part of assigned database configuration is shown in fig. 4.2.1, 4.2.2, 4.2.3 and 4.2.4.

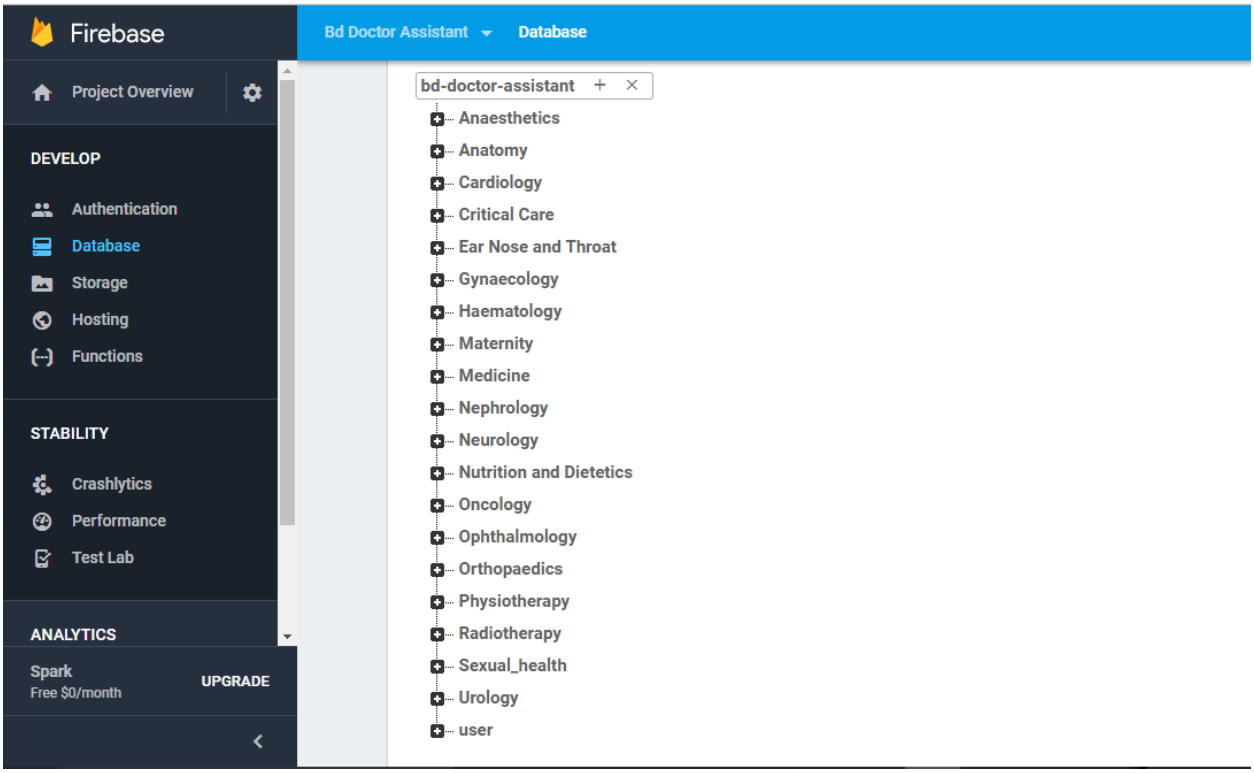

Fig 4.10: Database design for Android App (Part 1)

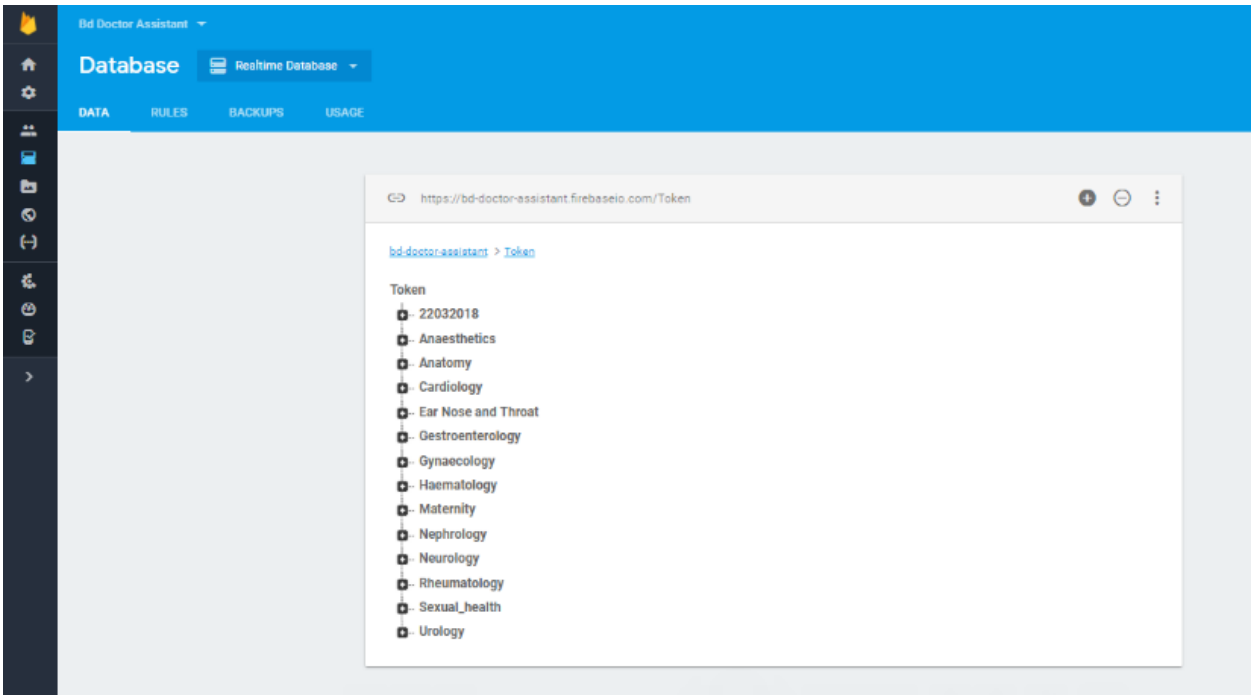

Fig 4.11: Database design for Android App (Part 2)

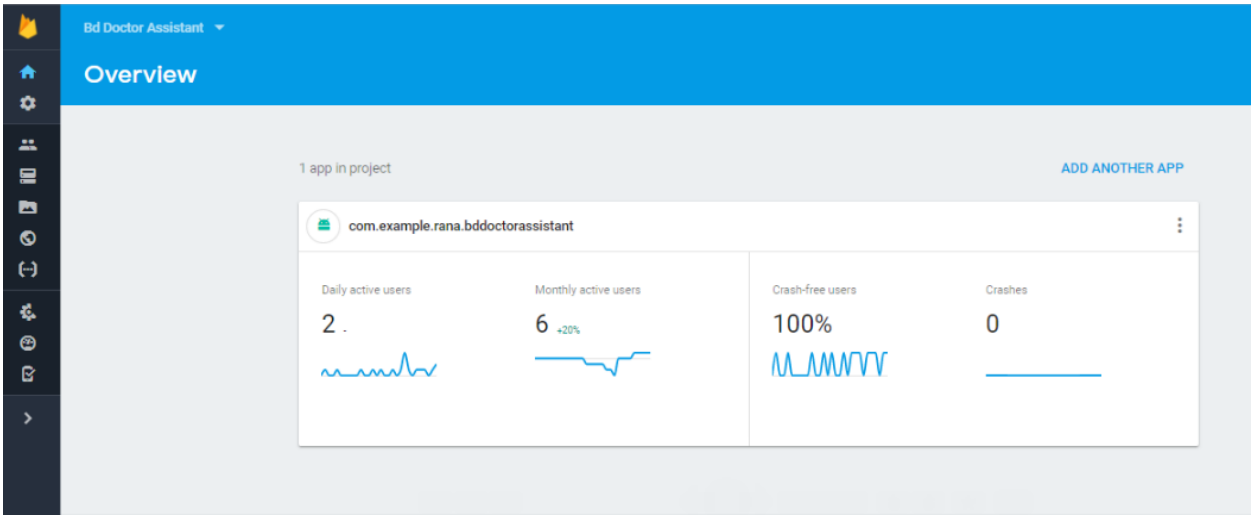

Fig 4.12: Database design for Android App (Part 3)

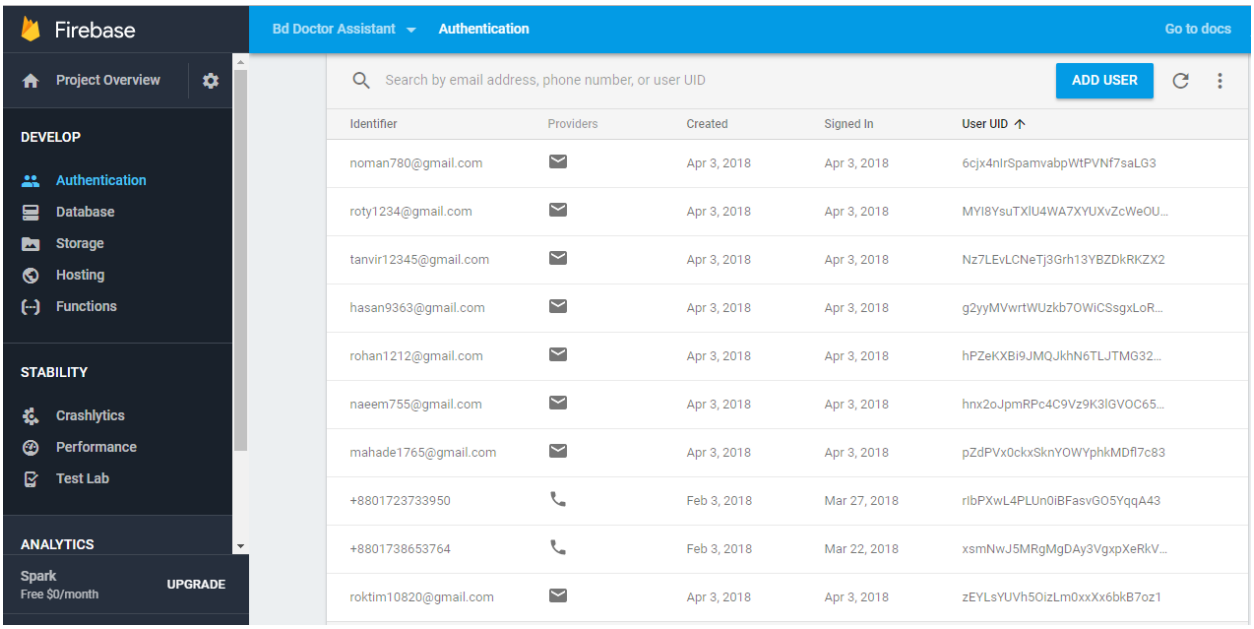

Fig 4.13: Database design for Android App (Part 4)

4.3 Interaction Design and UX

Interaction design of our application is made in five steps of trial. The login system took three steps and the home screen took two steps of trial. After the analysis most of the user's feedback was "very nice user interface". Interaction of user with the system is very fast and efficient. Only retrieving data from database may vary depending on the user internet connection.

Our developed system is much easier to use thus experience is still now adorable.

4.4 Implementation Requirement

Implementation of our project needs the followings:

4.4.1 Android Studio

Android Studio is the IDE(integrated development environment) to run android operating system. It is designed specifically for android application development. By android studio, we developed our application. [16]

4.4.2 Android SDK

Android SDK provides the API libraries and developer tools necessary to build, test, and debug android applications.

To develop Android application, Android SDK is a must. This SDK is very efficient tool that includes not only the library for development, but also includes the simulator to run test application.[16]

4.4.3 Java Development Kit (JDK)

JDK is an implementation of either one of the Java SE, Java EE or Java ME platforms. [16]

4.4.4 Android Virtual Device (AVD)

The AVD manager provides a graphical interface which run the android application called emulator. A QEMU-based device-emulation tool that is used to debug and test applications. [16]

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

The usage stage is the place designer introduces the Database Management System (DBMS) on the required equipment, streamline the database to run best on that equipment and programming stage, and make the database and load the information. The underlying information could be either new information caught specifically or existing information imported from a DBMS. The engineer can set up database security and give the different clients that the designer has recognized access appropriate to their requirements. [14]

5.2 Implementation of Front-end Design

It is really a good challenge to develop a gorgeous front-end design which will be attracted to user. Because, for developing a design for android devices, all the time developer has to consider the display dimension of android device, it is very tough work to balance the design with android display size. Sometimes it can't fix with the display for many reasons. So, a developer needs to check several times of his/her android application by building or running within an android device. For interactive design we always try to think as a simple and easier in user interface design for creating user attraction to our android application. We also tried some materials and tools, design for making and creating attraction to the user. On the other hand, the user can enjoy to using a very simple and easier interface. So it was really a good challenge to us when we were designed our android application's user interface. But most challenging part is to make our android application. There are a lot of and many types of smart-phones that support android. But all of these are not same quality assurance. Some of them have very weak hardware component, in a little bit pressure those device getting hang and behave like weird. These reasons occur for different types of version. So we design the application which will be support to all the devices as like older to newer version and we insure that our android application is secure and will not create any extra pressure on devices.[15]

5.3 Implementation of Interactions

Interaction design of our application is made in five steps of trial. The login system took three steps and the home screen took two steps of trial. After the analysis most of the user's feedback was "very nice user interface and fast user and system interaction". Interaction of user with the system is very fast and efficient. Only retrieving data from database may vary depending on the user internet connection.

Our developed system is much easier to use thus experience is still now appreciable. [14]

5.4 Testing Implementation

We did a test of different users and the details is given below:

5.4.1 Usability Test

In ease of use testing fundamentally, we as analyzers tests the simplicity with which the UIs can be utilized. It is tests that whether the application or the item assembled is easy to use or not. We ran a review among 30 clients, matured between 18-35, where 20 of them were male and 10 were female. Barely any inquiries were incorporated into this overview which had parameters to guarantee the accomplishment of this study. The example of the study frame with questions is given in the Appendix. [14]

So, at the end we can carry out the results as the benefits of usability testing to the end user or the leaner:

- Better quality Application.
- Application is easier to use.
- Application is more readily accepted by users.
- Shortens the information for new users.
- Better UI.

5.5 Test Results and Reports

Test results and reports are given following:

5.5.1 Unit Test

Unit testing is utilized as a part of a subtle elements outlining and executing of a venture. Unit testing is a procedure of utilization advancement in which the littlest testable parts of an application, called units, are separately and freely tried and executed subsequent to breezing through the test. Unit testing includes just those qualities that are imperative to the execution of the unit under test. [14]

The Unit test was done in time of actualizing the codes of this application and endless supply of this task. The aftereffects of the Unit test is appeared beneath in Table 1:

5.5.2 Result of Unit Test

Table 1: Result of Unit Test

Test Case	**Test Input**	**Expected Output**	**Actual Output**	**Result**
Interface visibility	Tested on AVD	Interface are display correctly.	Interface are displayed correctly.	Pass
Correct Response for each button	Tested on AVD	Display correct activity	Displayed correctly	Pass
Click Sign in Button	Tested on AVD	It should take a registered user to the	Successfully signed in	Pass

		department activity		
Click Register Button	Tested on AVD	Should register an user with valid email and valid password not less than 8 characters	Successfully registered	Pass
Click Login with phone	Tested on AVD	It should login a valid user through a valid phone number and send verification code to verify the number.	Successfully logged in	Pass
Click Get Token button	Tested on AVD	It should add the user request to the database and save the request.	Successfully requested for token	Pass
Click Patient Serial List	Tested on AVD	It should show the list of the patient requested	Successfully showed the list	Pass
Click Log out	Tested on AVD	It should make an user logged out from the system	Successfully logged out	Pass

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

"Bd Doctor Assistant" is an android based mobile application that helps patient to get token from their desired doctor. Different trouble may occur in the way to the clinic. So that lots of time may have wasted. Again this will cause to a long line to stand after. If the token receiving individual is a relative of the patient then he/she has to waste lots of time. But if the patient thyself needs to go to the line and wait for the token then the state of that patient may be more critical. Thus our project may reduce all these problems and make a problem free token system that may save lots of time.[13]

6.2 Scope for Further Developments

As all the renowned doctors practice in Dhaka city, so for now we are working for Dhaka only. But in future our application will cover information about doctors all over Bangladesh. We have also included a very few specific departments in the application, which will also include all the departments and doctors specialized on those in future. Again we will try to develop user and doctor interaction more reliable and easy. We will try our best to add features that may make doctor's and patient's information more secured.[13]

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APPENDIX

Related Diagrams

Plagiarism Check Report