AN ANDROID BASED APPLICATION "Doctor's Appointment & Medicine Delivery"

BY

MD. Aminul Islam
ID: 163-15-8539

Fahim Ahmed Turza
ID: 163-15-784

Urmi Ammatun Akhi
ID: 172-15-9634

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

Supervised By

Aniruddha Rakshit
Senior Lecturer
Department of CSE
Daffodil International University

Co-Supervised By

Mr. Abdus Sattar
Assistant Professor
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY

June 2, 2021

APPROVAL

This Project titled "**Doctor's Appointment & Medicine Delivery**", submitted by Md. Aminul Islam, ID No: 163-15-8539 and Fahim Ahmed Turza, ID No: 163-15-784 and Urmi Ammatun Akhi, ID: 172-15-9634 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 June 2021.

BOARD OF EXAMINERS

Chairman

Dr. Touhid Bhuiyan
Professor and Head
Department of CSE
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Md. Tarek Habib
Assistant Professor
Department of CSE
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Nusrat Jahan
Senior Lecturer
Department of CSE
Faculty of Science & Information Technology
Daffodil International University

External Examiner

Dr. Mohammad Shorif Uddin
Professor
Department of Computer Science and Engineering
Jahangirnagar University

DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Aniruddha Rakshit, 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.

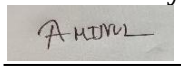
Supervised by:

Aniruddha Rakshit
Senior Lecturer
Department of CSE
Daffodil International University

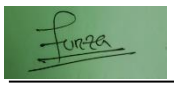
Co-Supervised by:

Mr. Abdus Sattar
Assistant Professor
Department of CSE
Daffodil International University

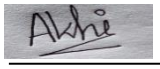
Submitted by:



Md. Aminul Islam
ID: 163 -15-8539
Department of CSE
Daffodil International University



Fahim Ahmed Turza
ID: 163 -15-784
Department of CSE
Daffodil International University



Urmi Ammatun Akhi
ID: 172-15-9634
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

First we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project/internship successfully.
We really grateful and wish our profound our indebtedness to our Supervisor **Aniruddha Rakshit**, **Senior Lecturer**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of "*Android Application Development*" to carry out this project. His endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to Professor Dr. Touhid Bhuiyan sir, Head of 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.

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

Our project named “Doctor’s Appointment & Medicine Delivery” is an Android and Web Application. Our application provides two separate accounts for both the doctors and the user. There is also an admin panel that controls all the functionalities. The application contains some features like login, registration, ordering, adding medicine etc. User can get appointment from doctor through this application. They can see their appointment list also and even doctors can see appointment list. User can order medicine from home through this application. They can upload a whole prescription or just mention the name of medicine through our application. Our application will make it easier and faster for doctors and user.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

NAME OF TABLES **PAGES**

Chapter 01

INTRODUCTION

Introduction

Now-a-days, there are a lot of issues about getting doctor's appointment and also finding medicine door to door on the pharmacy or medicine shops. As Bangladesh is densely populated and also in this pandemic situation of COVID19, We have to go to the hospital for our medical checkup or treatments whether we are affected by COVID19 or any other diseases. This is very time consuming as well as confusing for general peoples.

We have to face some serious trouble to get an appointment with doctors. At this current pandemic era, we can't easily go out from our home because of lockdown. If we go out of home, we will have to maintain keep distance from every human because we don't know that person is affected or not affected. It is very risky for both the doctors and the patients.

Besides on our country there is less hospitals. At present we don't have enough doctors, enough supplies, medical equipment, less ICU beds for patients. General people suffer in the long run.

In order to solve this problem, we need to think in a less complex and more resourceful way. Everything is available on the internet nowadays. We can save more time and be less confused about getting an appointment with doctors and also we can have the suggestive medicines by home delivery services. People can get appointment; they can upload their prescriptions and get their medicine easily. On the other hand, the owners ofmedicine shops, the delivery companies like ride sharing companies and also the medicinecompanies everyone can get a good profit with less effort at a short time.

Motivations

Many normal peoples, doctors, medicine buyers, sellers, delivery person will get the very advantages. It doesn't cost much time, effort or money. In the current pandemic situation, it will be very effective. We don't have to take risk. We can easily get our appointment, get medicine.

We can have a good, healthy, safety and digital life in this digital Country!

Our motivation for creating this app was to make our life very simple, fast and short cut and free experience.

Objective

The Objective of us creating this app is to make the process of getting appointment with doctors, order medicine and get medicine easily with less long and basically free. In the current situation, we won't be able to go to the hospitals. This cost's both money and time and also have very much risk. If the patient and doctors doesn't end up using this application properly, then the money and time spent goes to waste. But our app will make it possible for both doctors and patients to see the details and images of properties that match their criteria before get an appointment or upload prescriptions.

The key objects of the project are as follows:

1. Bringing the doctors checkup and medicine home delivery into an online platform.
2. Saving time and making healthy life and also faster life.
3. Strengthen the relationship between Doctors and Patient.

Expected outcomes

We expect our app to have a considerable impact on the market. The app would likely make the process of getting appointment with doctors and get home delivery medicines more fast-paced and it will also maintain the privacy also. This will make the environment friendly and as a result, it will save time as well as privacy. Moreover patient can use this apps without hesitate to share their problems. Everyone will get benefited. They can also get to know the price of medicines. People will get more options and better flexibility in their life.

Report layout

In this Chapter 1: We discussed basic concept of "Doctor's appointment and medicine delivery shop". We covered introduction, motivation, objective, expected outcome and project management and finance.

In Chapter 2: We will discuss background of our application. We will try to cover Preliminaries, Related work, Challenge, Problem etc.

In Chapter 3: We will discuss ‘Requirement specification’ of this application.

In Chapter 4: We will discuss ‘Design Specification’ of this application.

In Chapter 5: We will discuss ‘Implementation and Testing’ of this application.

In Chapter 6: We will discuss about Impact on society, Environment and Sustainability.

In final Chapter 7: We will discuss about conclusion and our future scope, limitation. Improvement and Conclusion of our project.

Chapter 02

BACKGROUND

Preliminary

Bangladesh is now a digital and fastest developing country. Bangladesh is rapidly get digital. Right now, most people in our country are using android devices and the internet. People are now heavily reliant on the internet and consequently, their mobile phones for most tasks. As a result, android apps are the most common form of app used by Bangladeshi people. Due to the popularity as well as the ease of use, android is the best way to reach a wide user base. Increasing use of smart phones, tabs and laptops. Because of that android movement rates also increased day by day. Make our life easier, android applications are used to serve us and they also do create many different types of features on their android phone by many different applications.

Related works

There are many kinds of Android apps in Google Play Store (like: Health checkup, Shebaghor, Apollo doctor, Medicine app, Doctors appointment Bd, Practo, telocure, Maya etc.) but our application will have both doctor's appointment and medicine deliver andwill be user friendly, both government and private hospital will be included, moreover people can order medicine through online and get medicine home delivery easily. Manypeople can get appointment without visiting doctors chamber and get medicine at a same time services. Whereas other apps only provide one or two. This app will help everyone. Our application will also make the process of getting appointment with doctors and home deliver y medicine completely free and much.

Some related working sites are discussed below:

In Bangladesh, this is not so popular apps. Everybody knows about this apps but no-one used or we can say it has fewer users then it should be. Like this apps there are more like Health checkup, ShebaGhor, Doctors appointment bd, Telocure etc.

Those apps are not highly used in our country. Besides some institutional based apps like Apollo doctor, Ibn sina doctors etc. these apps are just some kind of show.

There is also medicine delivery apps like Medicine app it used casually.

Advantages

People get to know about doctors before get an appointment.

They can set times to visit.

They can get their serial number easily.

They can get face to face online counseling with doctors.

Disadvantages

If these apps used by people, it would be a great advantages. But the ratio of using those apps is less than 10% in our country.

They do not provide services properly.

Banking policy is not well enough any time account may get blocked.

Another disadvantage would be this app opens URLs inside the app which might not be a very good user experience.

Those apps are mostly institutional based.

Futures of related apps vs. our apps

	Our apps	Other apps
Online counselling	yes	yes
Chatting	yes	yes
Medicine delivery	yes	No

Payment online	yes	No
Upload prescription	yes	No
Govt. and private hospital	yes	No, Specific

Figure 1: Our apps vs. other apps

Comparative studies

There are many types of apps in the world that deal with doctors and patient. Many of these apps are free and help people. But we still don't have any major combined app in Bangladesh that does something similar. Our app will work on both medicine delivery and sitting up an appointment with doctors. That is why we have made this app to be the first in Bangladesh to perform. This app will make the process of getting appointment more inclusive, efficient and in a short period of time for our country's citizens.

Scope of the Problem

First, we tried to make a unique app like never make before. While our ideas for this app aren't anything new, it is certainly a valuable idea in Bangladesh. We did face some challenges in the development of this app. First of all, we visited various hospitals both government and private hospitals .we discussed about this current situations problems with government officials. We decided what features we should include based on our research. But creating a complex web of features for this app was a difficult challenge because this is the very much first time combined apps in our Bangladesh. This also led to a large number of errors on our part. Eventually, we will customize our application gradually and cope up with every time.

Challenges

We faced many challenges to develop our app. Such as, many hospitals were not given us permission to get into it. Many of the Doctors assistants were also hesitate to disclose their personal information where other users of the app could check their background.

General peoples trust issues was the main problems we faced. Gaining the trust of the users was the hardest part of the whole development process.

We sort-out our features to ensure that only the information a user wants to make public, can be seen by others. So, the privacy of our users is guaranteed surely.

CHAPTER-03

REQUEREMENT SPECIFICATION

Business Process Modeling

This project holds the model for "**Doctor's Appointment and Medicine Delivery Shop**". This model provides a good look at the project. This application will be available for both the doctors and the patients. It is unique in comparison to other appointment apps in Bangladesh. The business process model provides the breakdown of the framework, design and the deployment of the application. The following figure 3.1 shows the BPM of our application.

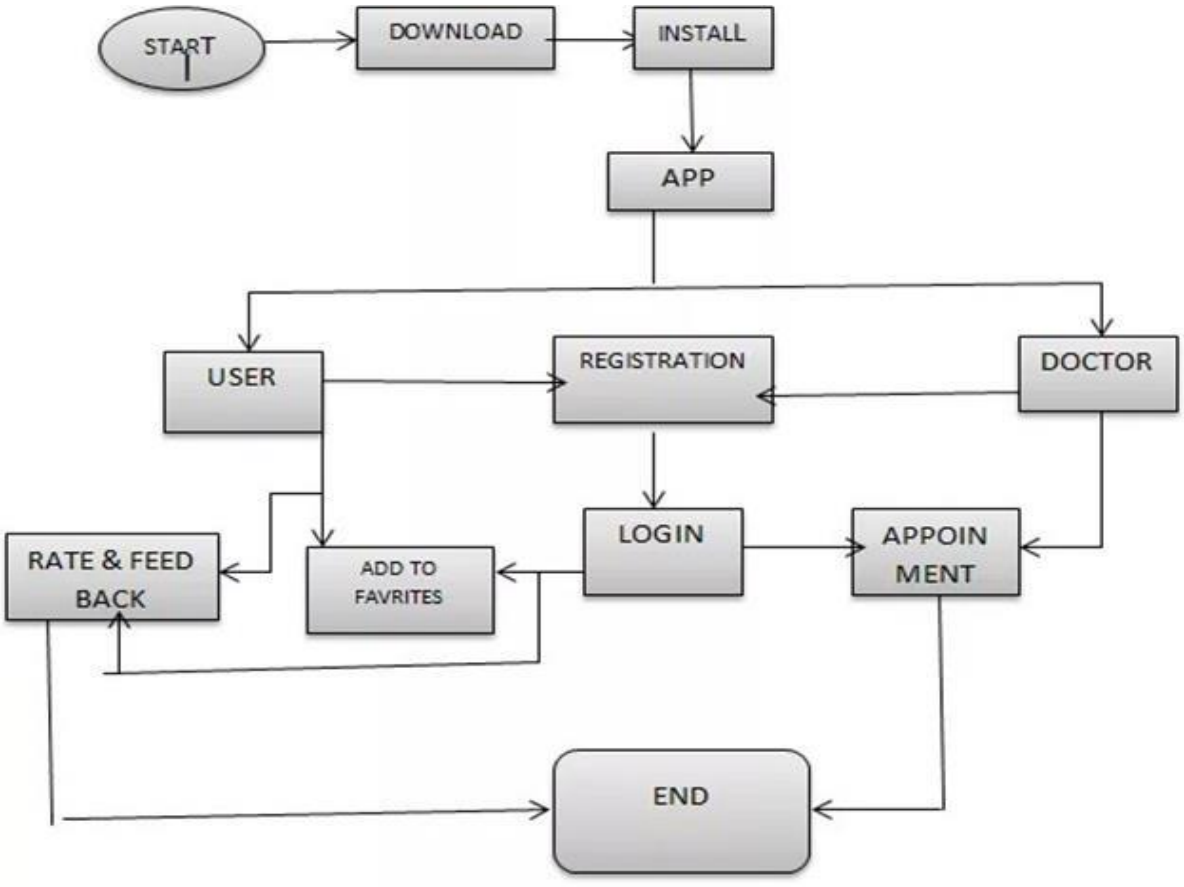


Fig: 3.1 Business Process Model

Requirement Collection and Analysis

Collecting information and Spot Out the best requirement from them is very important. We assembled information about the appointment and medicine by visiting Doctors chamber and Medicine shop. We asked them about these and also asked how willing they would be to use an app like ours. We also took some notes to analyze the quality and make perfect of it. This research has made us more informed about what features we should put in our app.

Resources Used to Develop and Improve the System

It is critical to differentiate all the requirements that are required for this project and to structure the modules so that all the requests are met. Some planning advances are essential need. A few stages require a careful examination of the essential needs. It will be expected to bring out the fulfillment of the client. The requirements are all as per the user satisfactions.

Resources Used to Develop and Improve the System

The development or improvement process of a project should be done step by step. After improving a portion, we have to improve or develop another portion of it and sometimes we did parallel work. That is how the development and improvement process go on. After doing all this, collecting and implementing the resources are the most crucial part.

For creating this project, the resources we needed are given below –

1. Android Studio
2. Java
3. Firebase
4. A windows PC
5. An android mobile phone

Use Case Modeling and Description

Use case refers to all the potential uses that an app an have for a user. In software engineering, use case is all about a string of actions that a user can perform step by step. The use case is usually a mix of various separate systems to achieve a reach a certain goal. This app has two types of users; owners and their renters/tenants. So, the application has to be optimized for these two types of users.

Let's discuss about our users. If you are a renter then you have to do registration from the database and then you can log into the app. After login, you can see your profile and rate property owner's and also you can add properties to favorites. On the other hand, if you are an owner, you also have to register from the database and then login. After successfully logging in, you can add your property list and contact with the renters. You can also see your ratings given by renters. The use case model of this project is shown below

Patients

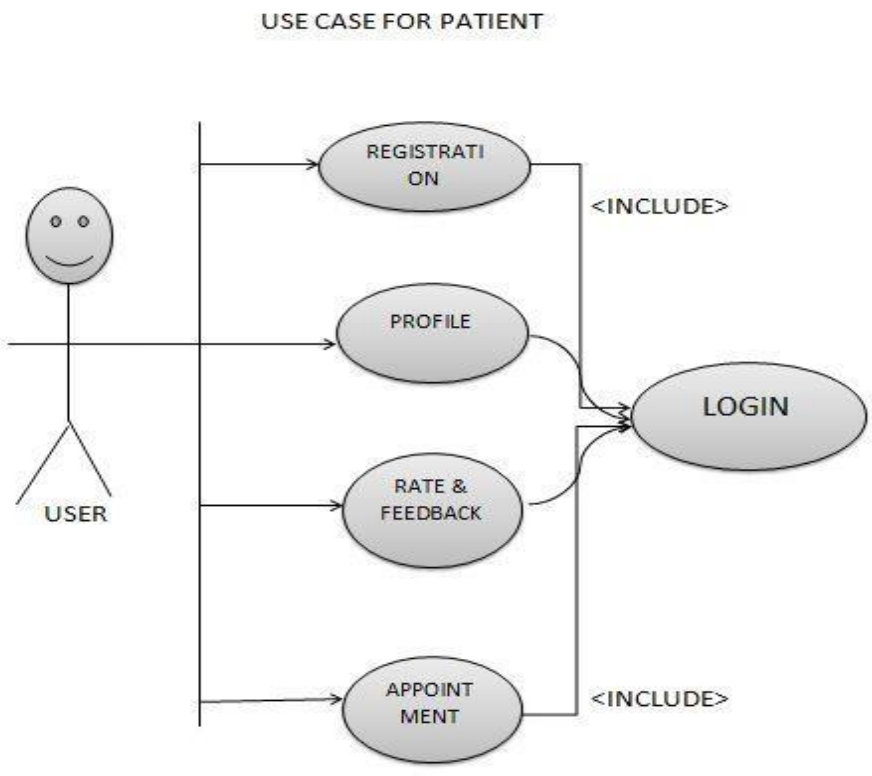


Fig: 3.2 Use Case for user

Data Flow Diagram / Logical Data Model

In this diagram user uses this app which has some user-friendly features. In this app all information store in database.

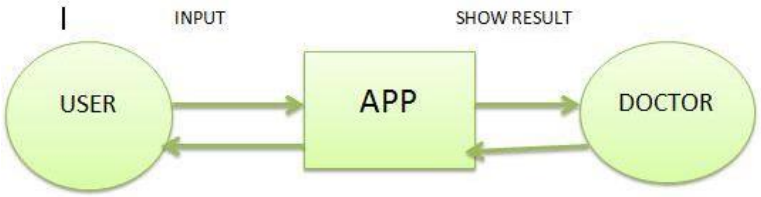


Fig: 3.3.1 Data Flow Diagram (Level 0)

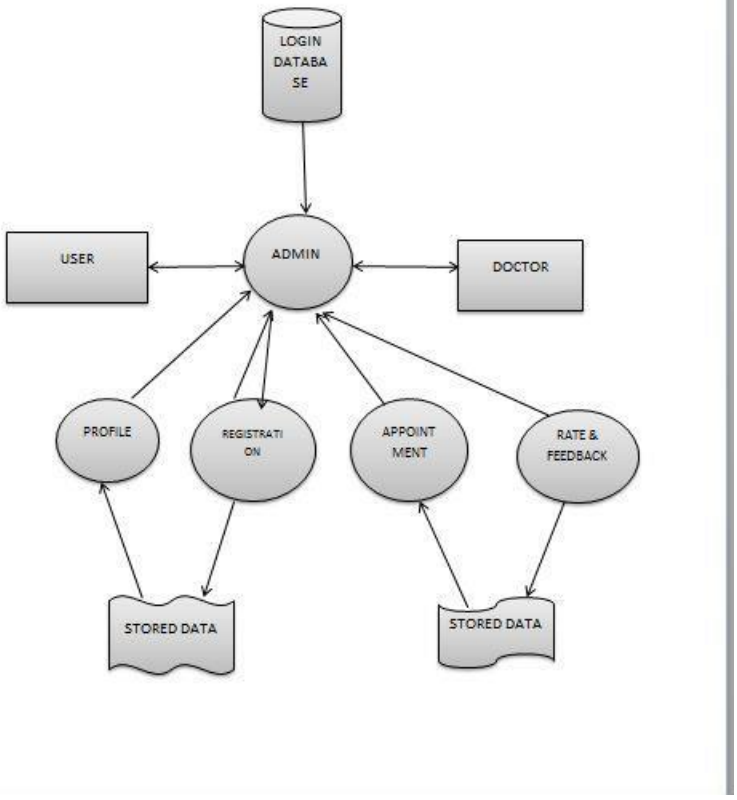


Fig: 3.3.2 Data Flow Diagram (level 1)

ER-Diagram

ER diagram is a model that reveals the interactions between the users and the software functionalities. It is a data model that shows us how an owner and a renter/seller will utilize the applications functionality. Connecting to an e-mail, setting up a password, creating a username etc. are all elements of this data model. between user and software. It is a data model. The following diagram fig 3.5 describes this model in the context of our app.

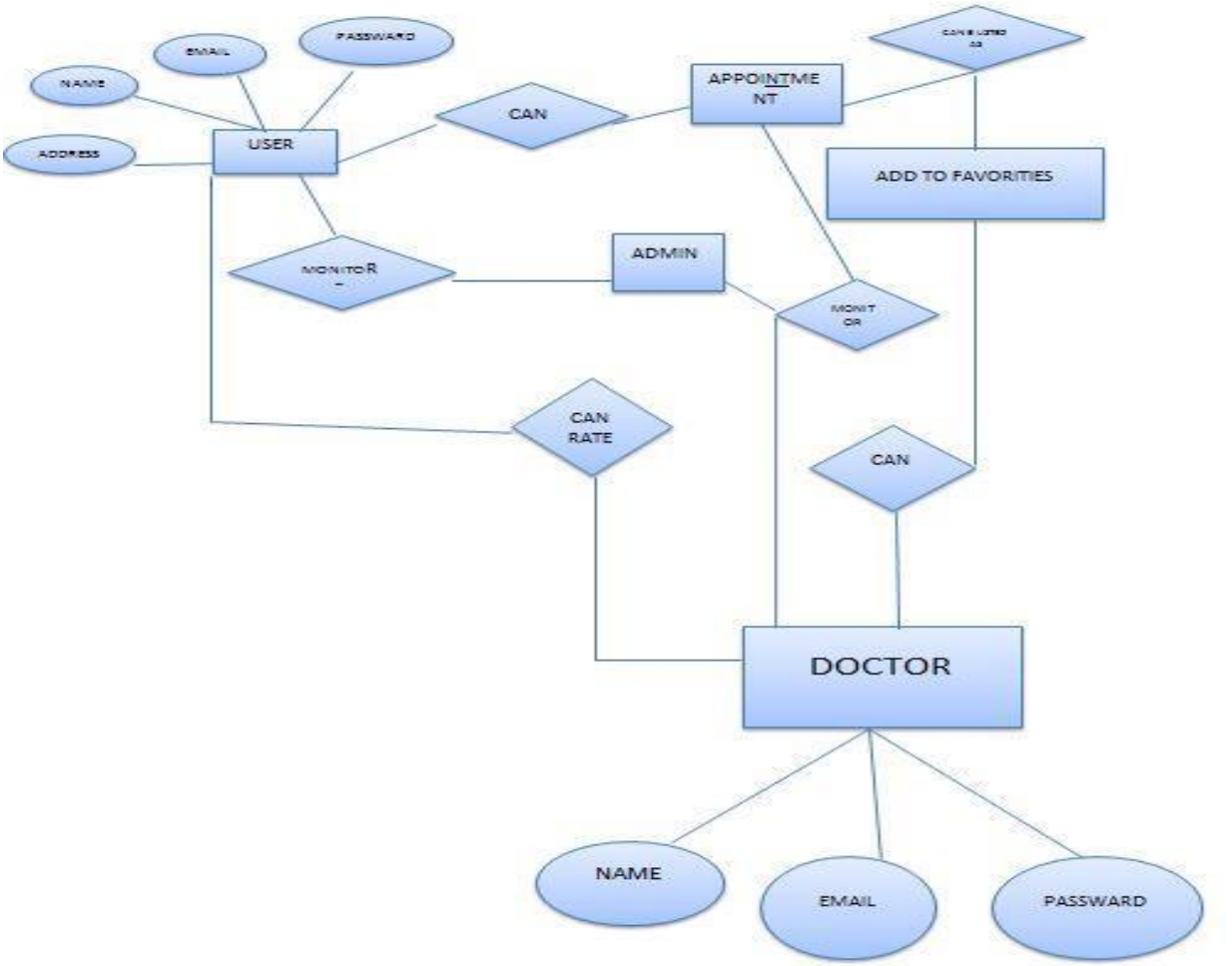


Fig: 3.4 ER Diagram.

Design Requirements

Design requirement for user:

1. Admin Panel
2. User Register Panel
3. Add User Panel
4. Add to Favorites Page
5. Rate & Feedback Page
6. Web Management

CHAPTER-04

DESIGN SPECIFICATION

In this chapter, we will discuss about the front-end-design, back-end-design, and the interaction design and implementation requirement of this app. To create the entire app, we used a single programming language. We used Android Studio for front-end-design and Java for backend design. We also added a firebase database for the authentication and as an admin panel.

Front-End Design

Front-end is a very important part in any application as it is the only part of the app which is visually accessible to the user and can see the options and design. When the user interacts with the front-end, the processing is done in the back-end and afterwards front-end and back-end provide the information to the database. One is interconnected with others.

Front-End Design for Admin

Only Admin can see and will be able to control total management system from a website/Apps and create user (from database), set up locations and send notifications to users and many other things. Since Admin can see all the things, they can see what doctors see and also they can see what user can see. So thegiven figure will also be for admin.

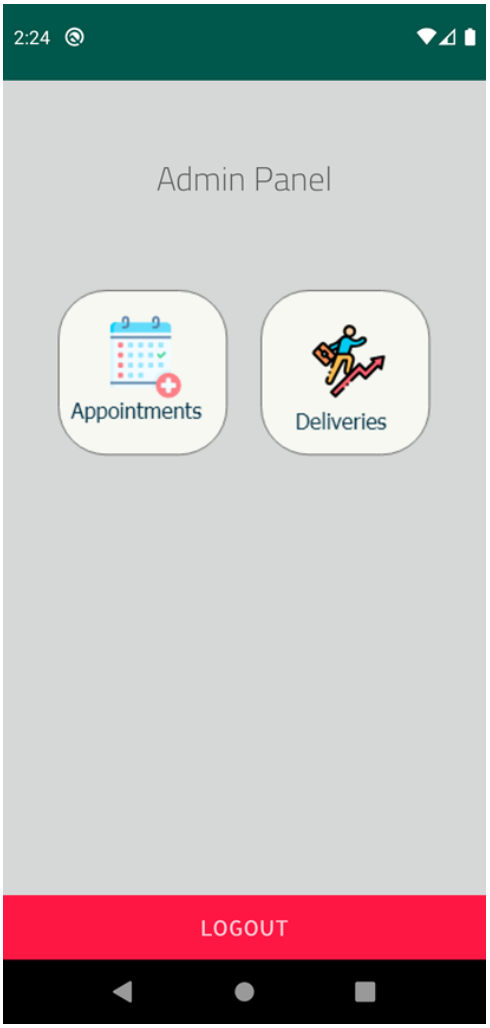


Fig: 4.1.1 Admin Panel

Admin can see live appointments and deliveries and can monitor all the other works. Only they can control total management system from a website/Apps and create user (from database)

Front-End Design for User and Doctor:

Fig:4.1.2 Splash Screen

When people install this app from play store or other store they can see this ‘Splash Screen’ both user or doctor.

After seeing the splash screen, login page will automatically appear if anyone has already an account will login or if anyone is new here will create and account with sign up page.

The user will be able to create and manage the accounts of appointment, order of medicine through the register panel.

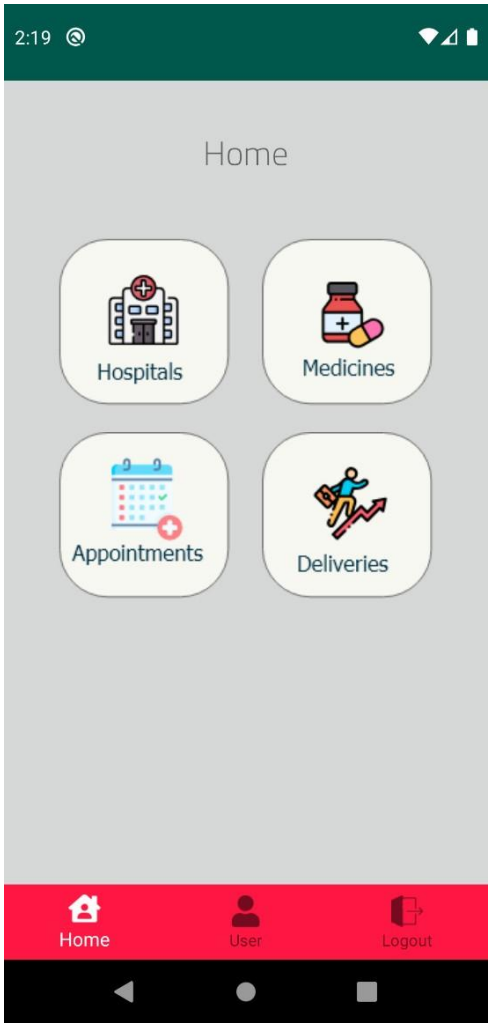


Fig: Home Page

After creating account users will see this home page and can do their work according their needs. There are options like hospitals; they can order medicine by uploading prescriptions or by choosing lists. They can see their listings in both appointments and deliveries.

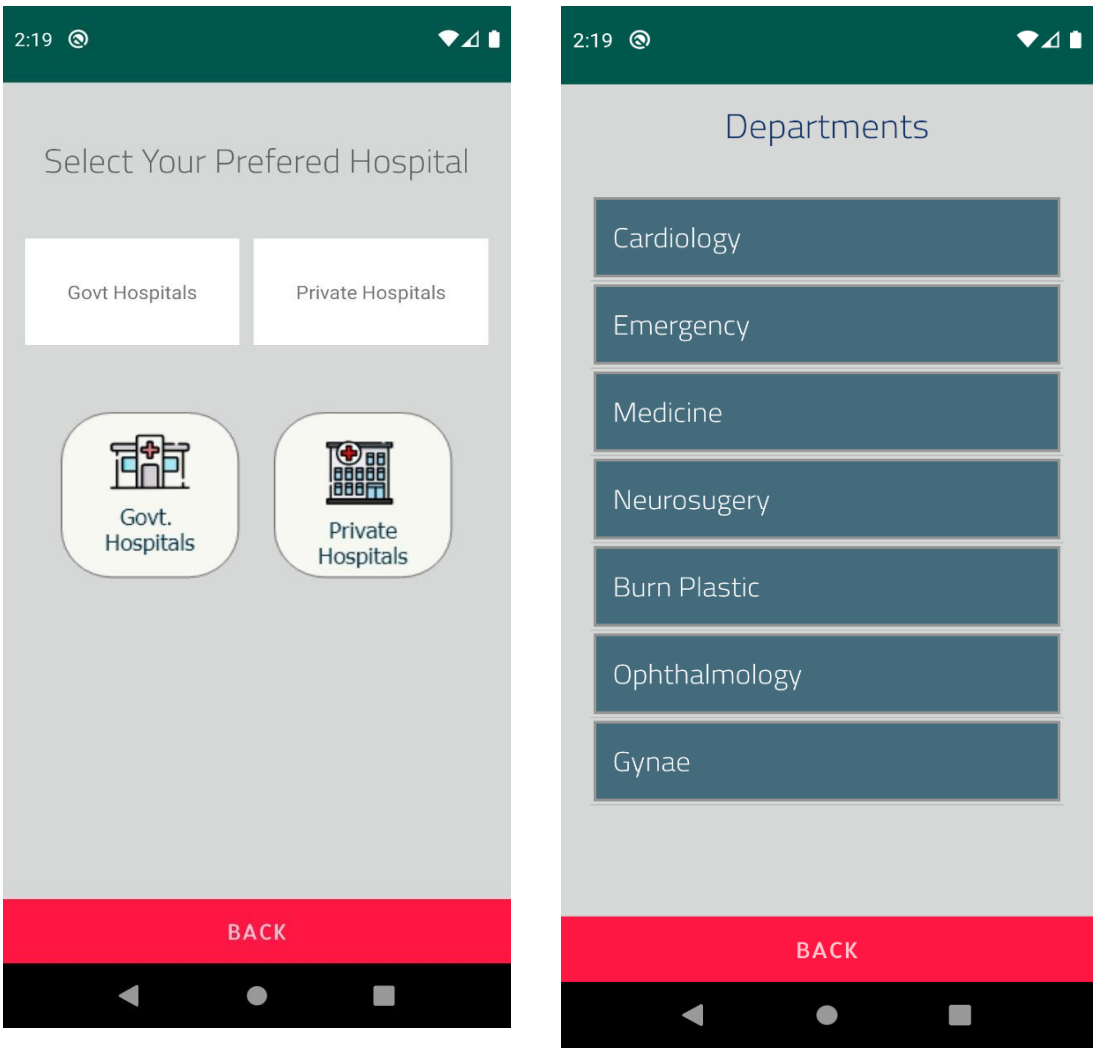


Fig:4.1.3 Hospital and Department selection

There are both options such as Govt. Hospital and Private Hospitals and under those users can choose Departments accordingly.

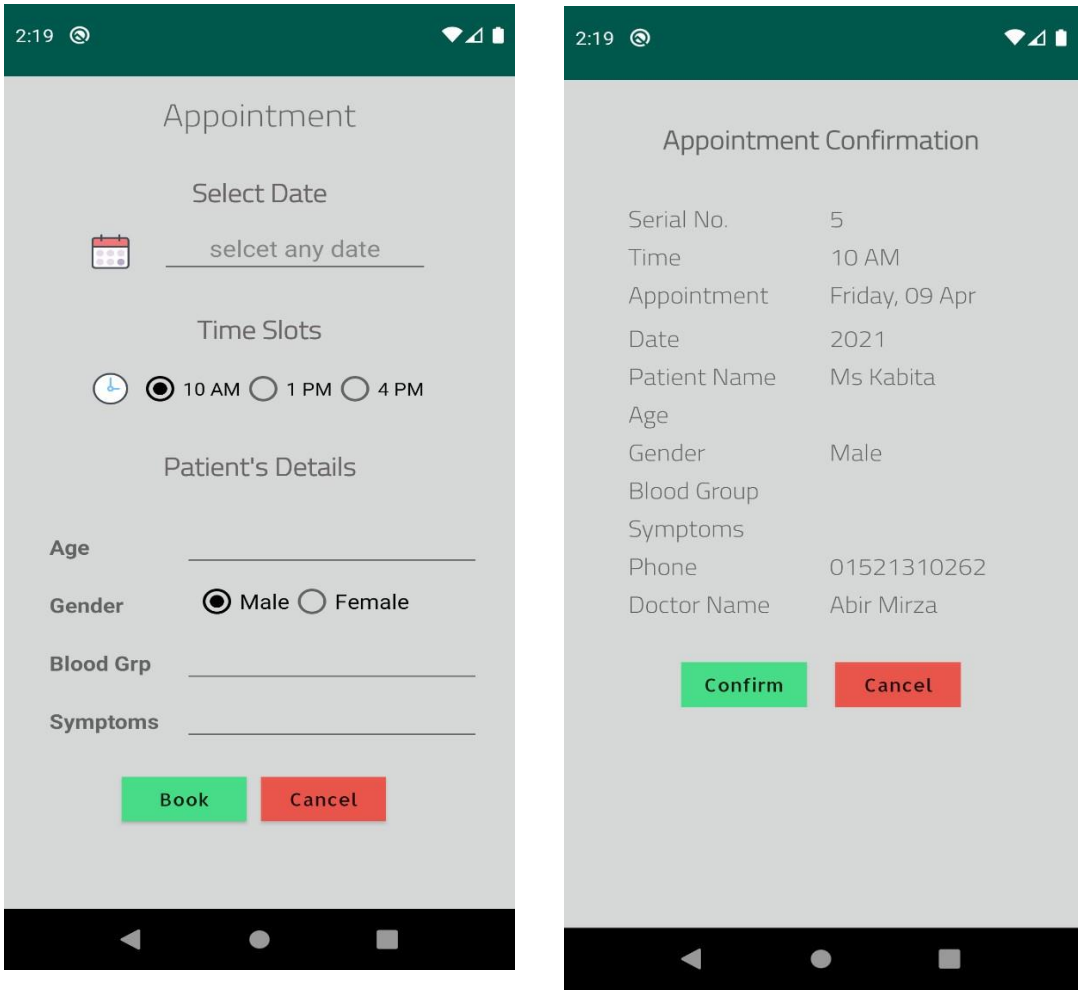


Fig:4.1.4 Appointment Confirmation

User can confirm their appointment by choosing their targeted department Doctor and select their time schedule and will get a confirmation page about overview.

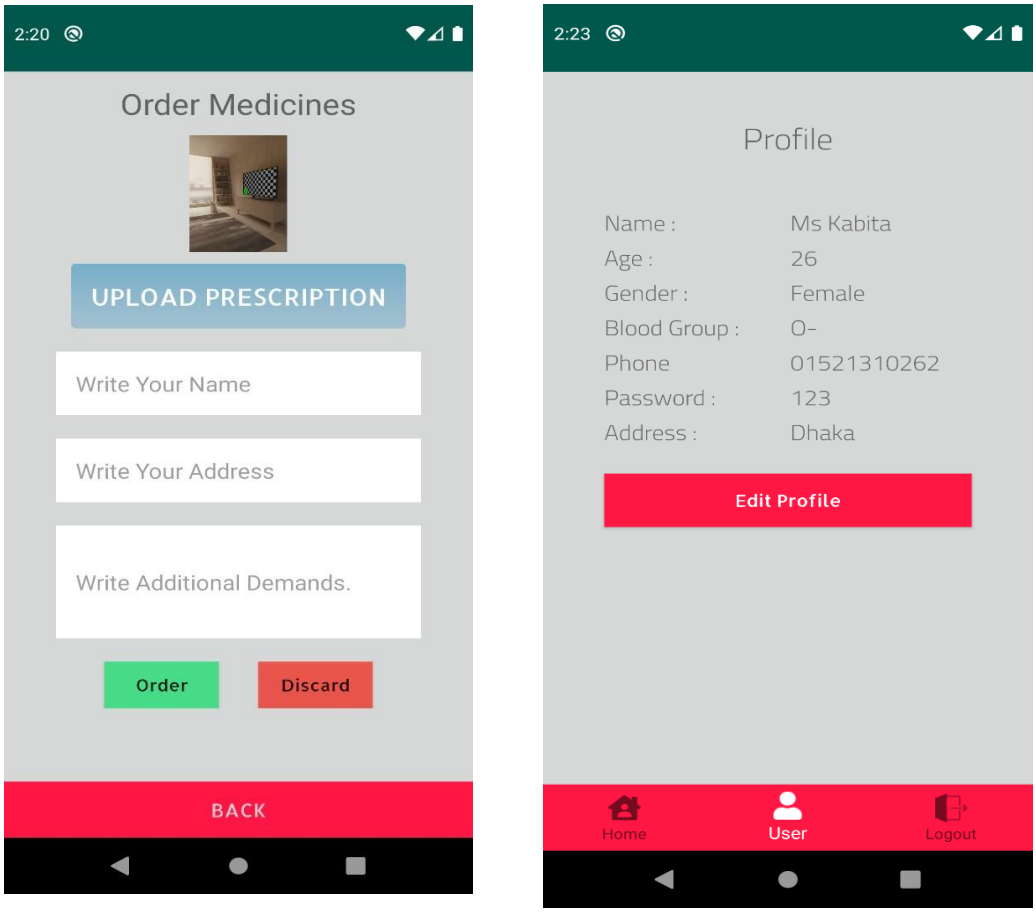


Fig:4.1.5 Prescription upload and profile update

User can upload their prescription by taking picture of it and demand some additional medicine. Also they can update their profile.

Back-End Design

The back-end is certainly not accessible to the users but accessible for developer or admin panel. It is where the users produce input which is then processed by the back-end part of the application. After that, the application will show the results of the processing in the form of output and user can see it. This is why, the back-end is considered to be the mind of an app. In our application, the back-end is accessible only by admin and the developer. We implemented the back-end by using Android Studio and Java Programming.

Interaction Design and UX

Interaction design is a control that watches the interaction between a framework and its client. It refers to an expressive communication and collaborative relationship between user and the interface of the application. It is a systematic structure that simply connects with the people and provides them a wonderful experience of using that application.

User Experience (UX) refers to how much an app is user friendly. User experience defines how much development and improvement an application need. Based on UX, developers measure how users will be benefited by using this app and that's the main purpose of this development. For UX, we tried to give the best experience to our users. We kept our framework very basic and simpler for better understanding for the users.

Implementation Requirements

First, we developed the front-end, back-end and database relationship of this app. We need an IDE and a programming language as well as a markup language for styling and lastly, we need a database. This app is an android application. So, it can be accessed by an android mobile.

CHAPTER-05

IMPLEMENTATION AND TESTING

Implementation of Database

Here we show database implementation. We used firebase for database management. Here shows the database dashboard that has an overview of our app. A user has to register on the database to have an account, then login to the app.

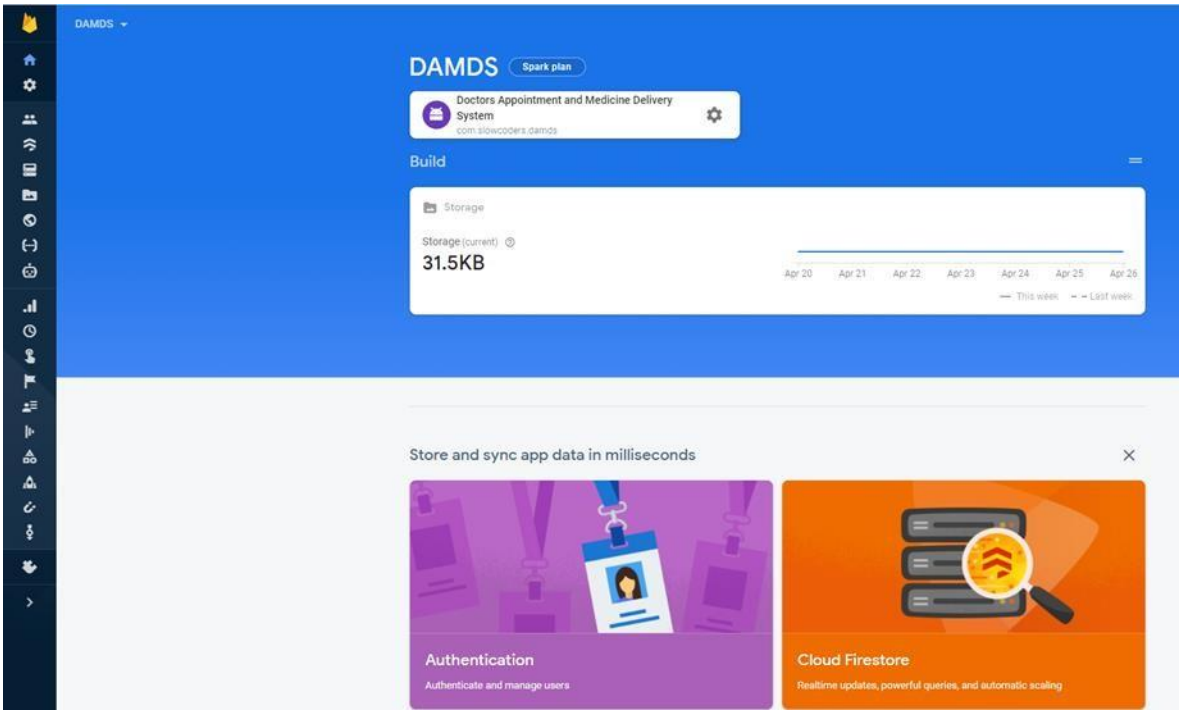


Fig: 5.1 Database Dashboards

Implementation and Interaction

In this section, we have showed the implementation of the first page to joining the app. This is the logging page where user can login by putting their phone numbers and verify their login with a code sent to the number. This is an example of the front-end design done on Android Studio.

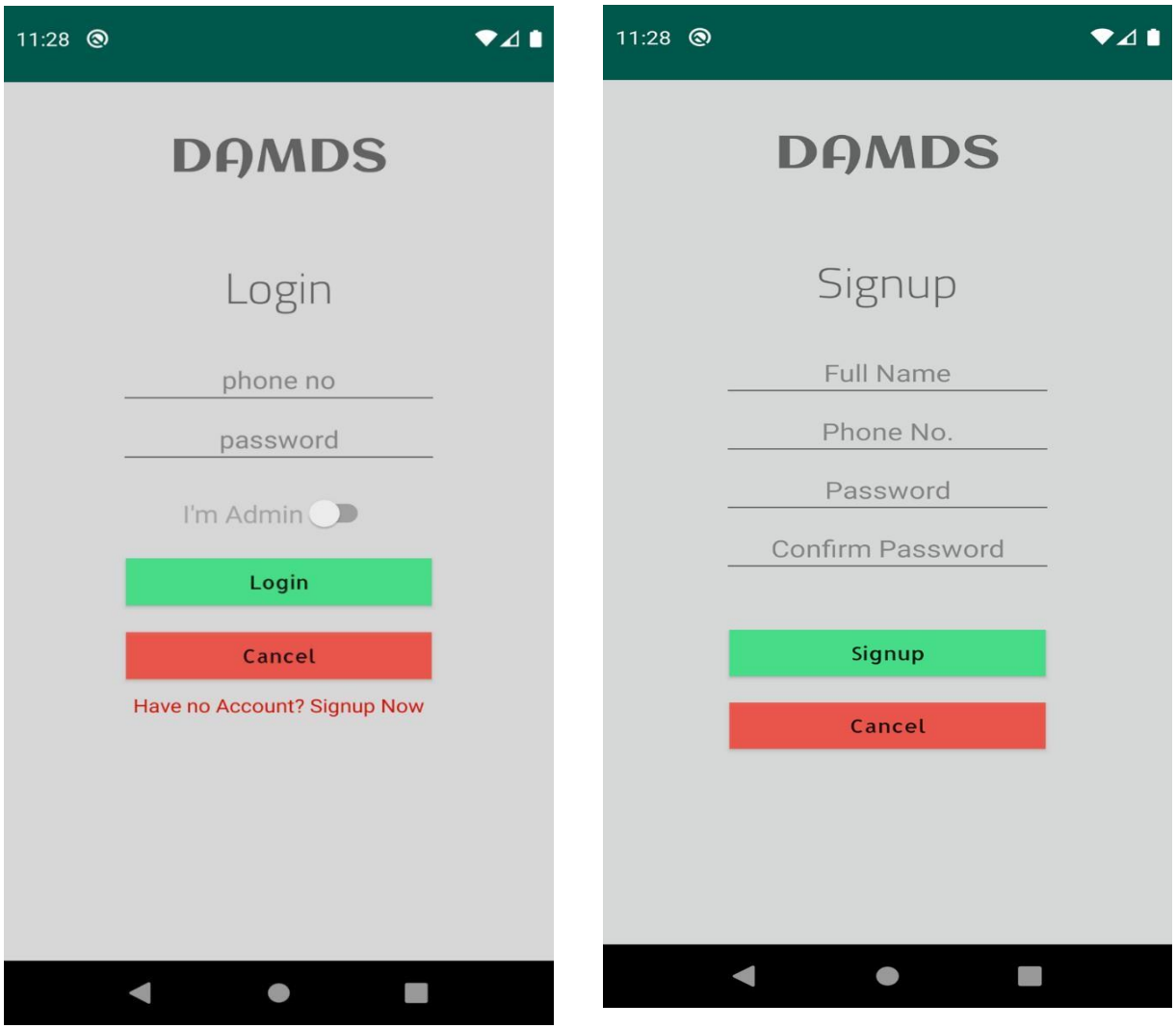


Fig: 5.2 Testing Data

Requirements for Implementation

As the implementation of our project we need some essential requirements. Without those things we cannot run our utilization as we want to run for achieving our target. The implementation process will start after fill those requirements which we mentioned below.

- Android Mobile for all people
- Install the application in all people

If it is implemented, then all people will be able to use very easily. As a result, people will also be interested in apps.

Testing Implementation

This is the process that can consider as in where an application tester or it can be the builder of that application will be able to check many cases for the completion of the application and specification. But maybe there have the limitation in the application at the initial stage or in next.

Testing Result and Report

Test case	Test input	Expected outcome	Obtained outcome	Passed/ Failed	Testing Period
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	02-02-2021
Install	Installed by invalid mobile	Re-enter warning for failure	Installed denied	Failed	02-02-2021
Install	Installed with empty field	Re-enter warning for failure	Installed denied	Failed	02-02-2021
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	03-02-2021
Install	Installed by invalid mobile	Re-enter warning for failure	Installed denied	Failed	03-03-2021
Install	Installed with virus	Successfully Installed	Installed denied	Passed	08-03-2021
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	09-03-2021
Install	Installed by valid mobile	Successfully Installed	Successfully Installed	Passed	15-03-2021

Fig: 5.3 Testing Table

CHAPTER-06

Impact on Society, Ethical Aspects, Sustainability

Impact on Society

The purpose of our app is to streamline the process of Doctors appointment and medicine delivery. As a result, more people will be able to easily take Doctor's appointment and order to medicine.

Ethical Aspects

This will hopefully help people who busy in take to the doctor's appointment and order to medicine. With our app, they will be able to appointment any department doctors in any hospital and order necessary medicine more easily in stay home.

Sustainability Plan

This app is also one that is easy to maintain. As such, the operational costs are low, the number of employees required is low and the sustainability is very good.

CHAPTER-07

Conclusion and Future Scope

Discussion and Conclusion

We have put a considerable amount of effort to complete this android app. starting from the registration page to the logout page and every feature in between; everything has been added to this app. There are two types of users in this app; the admin/doctors/doctors assistant and the patient. The patient uploads details of their medicine in order description and all the admin can see if they order this. The app also maintains doctor's appointment time and serial. This project is especially made for every busy people who can't go hospital for little time.

Scope for Further Developments

An android app has nearly limitless potential for growth and change. As our app is an android app, we plan to make add changes in the future that will make it even better. We will also make some changes to the UI to make it more optimized and fix bugs to make the app run more efficiently on devices. The updates of this app will keep coming. We have plans to adding more facilities to this application. This system has a lot of future scope to make it more users friendly.

APPENDIX

8.1 Appendix: Project Reflection

In our daily life we face a lot of problems. Disease is one of most common issues for a person's life. If anybody is ill and wants to visit a doctor for checkup, he or she needs to visit the hospital and waits until the doctor is available. When people get affected by illness they need to visit a doctor for checkup but they have to visit their chambers or hospital or call over phone to get appointment. It is a lengthy process and wasting people's time. Sometimes people do visit doctor's chamber for health check but the doctor is not available some various reason. It's the only way to get to know when people just visited their places.

From spring -2020 semesters we started our journey to make an Android application "Doctor's appointment and medicine delivery". And we spent a lot of time to make this application. At last we are able to reach our goal. This system is time saving, also lifesaving and error free compared to the traditional system. This also is very useful for every aspect of peoples. This will attract users with its attractive, easy, simple and user-friendly.

REFERENCES

[1]. P. Mortensen, “OkHttp on Android” [online] available: https://stackoverflow.com, 12 January, 2019.

[2]. Y. Shulin and H. Jieping, “Research and implementation of Web Services in Android network communication framework Volley", 11th International Conference on Service Systems and Service Management (ICSSSM), pages 1-3, 5 July, 2020.

[3]. M. A. Mokar, S. O. Fageeri and S. E. Fattoh, "Using Firebase Cloud Messaging to Control Mobile Applications", 2019 International Conference on Computer, Control, Electrical, and Electronics Engineering (ICCCEEE), pages 1-5, 5 July, 2020.

[4]. N. Chatterjee, S. Chakraborty, A. Decosta, A. Nath, “Real-time Communication Application Based on Android Using Google Firebase”, IJARCSMS, pages6, 5 July, 2020.

[5]. Shafaq Malik, Nargis Bibi, Sehrish Khan, Razia Sultana, Sadaf Abdul Rauf, “Mr. Doc: A Doctor Appointment Application System,” International Journal of Computer Science and Information Security, pages 452-460, 16 December, 2016.

[6]. BDTask, “Sebaghar”, [online] available: https://sebaghar.com, 16 March, 2020.

[7]. Business process modeling <<https://kissflow.com/bpm/business-process-modeling.

AN ANDROID BASED APPLICATION "DOCTOR'S APPOINTMENT & MEDICINE DELIVERY"

ORIGINALITY REPORT

8%	%	%	8%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Daffodil International University Student Paper	4%
2	Submitted to Middle East College of Information Technology Student Paper	1%
3	Submitted to KUMARAGURU COLLEGE OF TECHNOLOGY Student Paper	1%
4	Submitted to University of Bradford Student Paper	1%
5	Submitted to University of Nottingham Student Paper	1%
6	Submitted to Charotar University of Science And Technology Student Paper	<1%
7	Submitted to Griffith College Dublin Student Paper	<1%