

ANDROID APPLICATION FOR MEDICINE BASED SMART E-COMMERCE SITE

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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 “**Android Application For Medicine Based Smart E-Commerce Site**”, submitted by Md. Arifuzzaman Shoab, Ashraful Islam, Md. Fahim ID No: 161-15-7104,161-15-7309,161-15-6733 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 08-10-2020.

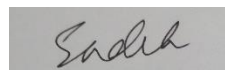
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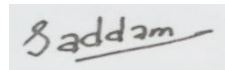
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DECLARATION

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

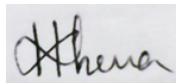
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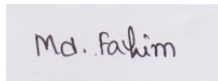
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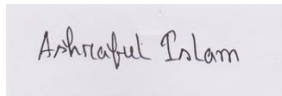
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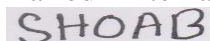
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ABSTRACT

In our paper we implement an android based mobile application for online medicine shopping. Our main aim is to facilitate online medicine purchase by verifying the prescription given by the doctor through scanning it and then make the order of the medicine in list. Then the user will select their required medicine by selecting from the list and after this they can do confirm of all these selected medicines. Our system mainly includes mobile application interfaces, database, pharmacist interface, web service provider through a general process to provide service through android mobile phone. In simply when a user wants to purchase medicine through online, he/she has to open an account through log in with password. And for this they have to get registered. After all this, the user can upload the prescription or can do scanning their prescription that is given by authorized doctors and the prescription will be stored in database. In the search box, the user will search the medicine name and when the medicine is available in the pharmacy then the user will add the medicine in the cart list. If the required medicines are not available then our apps will try to give equivalent suggestion of medicine. Then the apps will do compare with the listed medicine given by the user and their listed medicine. After all this, medicines get approved and place for order. Our proposed mobile app is user friendly and easy to use it in their necessities.

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CHAPTER 1

Introduction

1.1 Introduction

Our world is becoming digitalized day by day with the invention of new advancement of technology. People in this era are more familiar with mobile applications with the help of android phones. These days there are huge number of smart phone users in the world. These huge number of applications make our daily life easy and more comfortable. So to keep pace with this modern age, we try to make an app through which people can get their necessary medicines by sitting at home. People can use this app by sitting at home and can order medicines at any time. There are many people like aged people who can't go out home. For that kind of people our apps will play a great role to help them. Most of the time, patients feel lazy to go to the medicine shop when they need medicines. These create a good problem to them to get recover in time if they don't purchase the medicines from the shop on time. It is important to take right medicine at proper time. So we introduce an Android based application for this kind of patient as well as for the general patients. This application will help them to take proper medicines at proper time through scanning their prescription and making the list of medicines. Automatically from the selected medicines, patient can do order and purchase the medicines. It will save time and cost of the user.

By using our applications, user can do search his/her nearby medicine shop to order the medicines. They can order the medicines through scanning the prescription on emergency without any hassle. Delivery boy of the medicine shop will deliver the medicines to their house. We use neural network based machine learning algorithm to identify the medicine from hand written prescription in the step of scanning. It is one of the challenging task to recognize human handwriting through scanning because handwriting differ from person to person. That's why it is difficult to teach computer to learn that. At the same time, this is also an emerging research topics, which showing light of success rapidly. So, to keep our project smart, we decided to add this feature in our application. We apply deep learning algorithm to recognize handwriting

1.2 Motivation

Once i went to one of my relative house after a long time. There was my uncle who was old and sick so he needed to carry up some medicines regularly. On of a sudden, his medicine was finished but my uncle forgot to bring that medicine at day time. At late night he needed this medicine but as it was late at night so it became hard to bring his medicine from the shop. He suffered all the night. After this problem, I think for a long time if I can make an application by which this kind of people will get help and can get rid of this problem easily by sitting at home. It is a very easy to get medicine orderly by scanning the prescription that is provided by the doctors. So from this accident, my thought came to build an application like this through which general people as well as old aged people can order their medicines easily by scanning their prescription in our app and get it at any time in their necessities. These things motivated me to build this application and try to make the work easier to the user.

1.3 Objectives

Our main objective is to develop this project to make consumers and providers work easier and user friendly. Our application will try to make people aware of their health and can look after their health easily by availing medicine 24/7 hours. The features of our apps will make his/her work easier. The user can easily get through our android application and will be benefitted. Our apps will give the address of the nearby location of the medicine shop to choose to order their required necessary medicines from that shop. The user will give input of the medicines and can also input normal medicines for daily purposes. Our apps will try to show best result of the searched item based on Data mining decision analysis. Using our apps, people can easily get their required medicines sitting at home by scanning the prescription and will make a good communication with the nearest medicine shops.

1.4 Expected Outcome

When a patient wants to order medicine through our app, firstly they have to log in if they have account from the previous. If they don't have any, they have to register by giving username and the password. After all this, he / she can search the medicine or scan the prescription. Then list of medicine will come to the dashboard. He/she will select how much and which medicine will be needed according to his/her needs.

There are some expected outcomes that are written below:

- Easy way to find the required medicines
- The system will have the data those who will do register among the users.
- Easy way to get home delivery of the medicines.
- Scanning the prescription of the user and make a list of the medicines.
- 24hours service will be provided to the user.
- Based on the user input, it will show the nearest medicine shop to do order.
- Give options of medicines similar to the user's wan
- User can use the data that he/she makes entry after at any time.

1.5 Report Layout

Our total project is written based on six chapters. Summarization of our layout is described below:

In chapter 1, we shortly give an introduction of our apps named Online Medicine Shop, data analysis as well as our motivation from where we are inspired. We discuss our main objectives and the expected outcome that we can get from our project work. In chapter 2, we try to discuss about the background study of our project which is covered with its related work of our data

analysis and we discuss the problems and the challenges of our work. In chapter 3, we mainly try to highlight the requirements that we need to work for our project and for our software tools. In chapter 4, we show our design specification about our proposed expect by different flow chart and with the design of back end and front end with a little discussion. In chapter 5, we implement and test our project how our apps do work. In chapter 6, it's the conclusion part, limitation and our possible future development of our project are discussed.

CHAPTER 2

Background Study

2.1 Introduction

E-commerce applications are nevertheless a popular and necessary software for the modern society for all time. Although, all types of e-commerce sites are mostly available now-a-days, but use of artificial intelligence in this sectors is a need of time now. To keep pace with the world, app is a new method to provide services through scanning the prescription of the user and do search of the medicine from the data saved in the applications. After register and log in into the system, the user can easily search their medicines and can also do order how many product they need by giving some data inputs through scanning the prescription that is prescribed by the doctors. Our application will help the user to find the nearest medicine shop to order his/her medicines in short period of time. Aged old people and busy people those who are always busy in their work, mostly they will be helpful by using our app through saving their important time.

2.2 Related Work

When we start to work on this android application, we have gone through online and do search if there is any fully similar application like our application. After going through this, we have found that there are some similar features as like ours android application but not a complete one like our application. People may found same apps in online but that will not be similar to our application. We try to make some differences from other applications. Any kind of people can use our apps in their necessities.

There are some apps which have relatively some features like our site. Short description of similar types of app is given below.

2.2.1 Netpharma

This is an app through which people can get their medicine home delivered. In this app, there is very little similarity with our app. In their app, they used to take a photo of the prescription through uploading the photo of the prescription manually they create medicine list confirm over phone. For their application they needs a huge human resource to handle the total application but in our app we work to scan the whole prescription and make a order of list of the medicines.

2.2.2 Medplus medicine and grocery

This is also an online based app which works through selecting the medicines from the dashboard. Here people will do search the product and do order as much they need. So there are so many problems that arise in this app because there are many medicines which are injurious to health and do a good harm to the health. Here no security is provided to order desired medicines. In our app, we have given an option to do scan of the doctor's prescription that is provided legally to the patients.

2.2.3 Pharmacy BD

In their app, they make a little thing for the user. They make so many shortcut in their app. One or two features matches with our app. We have so many different features that make us different from this app.

2.2.4 DIMS

Drug Information Management System is the full form of DIMS. They have much similar with our app. But basically this is for the doctors, not for the normal people. Also this is not mainly an e-commerce site. But we try to make some different from their app. We make an easy way to search nearby medicine shop so that the user can get the medicines as early as possible.

2.3 Comparative studies

We go through some other applications in android apps through play store. It is found that, no one is self-contained. Moreover, still there is no popular e-commerce site or application in the field of medicine. So we found that little part are similar with the existing apps are in market. Our developing apps are different from any other apps in the market available. Those apps which are available in the market, they have different features from each other but we try to make our app all in all so that the user can be easily satisfied through using our app and can be friendly with our app. We saw that some have options to choose the medicines and do order how much they want. And we have also seen that some apps made an option to upload the prescription photo. We mainly in our work do a combination of all this work together. We make a scanning process that will scan the prescription does it legal or not. And then list of medicine will be displayed that are written in the prescription. If some medicines name are not available in our data, our app will try to make relevant medicine of that missing medicine and a short note will be given under that medicine which the app will prefer. For handwriting detection, we use Neural Network.

We do our work simpler and user friendly app for an admin as well as for the user too. Our main objective is to serve general people and do best for them. We want to try to ensure a better health by having medicines in time through using app and ordering medicines.

2.4 Scope of the problem

It is fully a complete new app which will bring admin and user site by site by its features. We use Neural Network for handwriting detection which is a new way in this kind of application.

2.4.1 An App for both User and Admin

We designed this app with a purpose of scanning the prescription and making the list of the medicines and give the user nearest destination to get the medicines. So it is very important to make User Interface easier and efficient for both user and admin.

2.4.2 Time saving

In our app, we try to save time of the user. Because if a user like aged people want to buy some medicines for himself / herself, he/she has to go and search for medicine shop first then go to them. So in our app, searching nearest medicine shop procedure save their valuable time and also their relief from the difficulty they face at the time of going to the shop.

2.4.3 Helping hand

Our app will do like helping hand to the user. It will reduce pain for the aged old people and will be great helpful to the job holder people as well as for the busy people those who remain busy with their work. In this field, our app will work like helping hand to them.

2.4.4 Precaution

For anything in this world, we need precaution which is benefit for anyone. There are many ways to take precaution for anything in this modern world. Precaution is needed for anything to do work effectively. Our app will help the patient who needs regular medicine at any time. So it's a precaution for them.

2.5 Challenges

The app we made are not same with other one. To make anything in this modern technological world, there will be some challenges in the work. When we went to make this app, following challenges arises which are shortly described below

2.5.1 Requirement

Our scanning process needs to be realistic. There should be a lot of data to scan word from an image. So we need to a huge dataset with different names of medicines by which we can easily find out the required solution for the user. So we need to see many algorithms to run our app effectively.

2.5.2 Distribution of time

It is the most and foremost important part which we have to maintain particularly. It is a very difficult part to maintain properly. So we try to divide our work in different part according to the time remain and started to do our work. So it is a very important to distribute the time into part according to the work.

2.5.3 Lack of Communication

It is a very important for any work to have good communication between each other. Having a good communication between each other in the group then it becomes easy to complete the task easily and on time. But due to problem between us, we face this problem a lot due to lack of communication between our team members. It was also a good challenge for us and we overcome it and complete our whole work.

2.5.4 Proper skills for the project

For every single project, there must require a good quality full skills people to keep the project on a good position. A leader from a group should have much skill about the work as well as other group members also should gather skills about the project they want to do.

2.5.5 Hand writing detection

It is the biggest challenge in our project. We do a work which will scan the paper for example Image and will convert into word through recognizing each word by word. We all together work hard to make it possible and perfect in our app.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Business Process Modeling represents the main value of any project. Here is our Business Process Modeling is given below

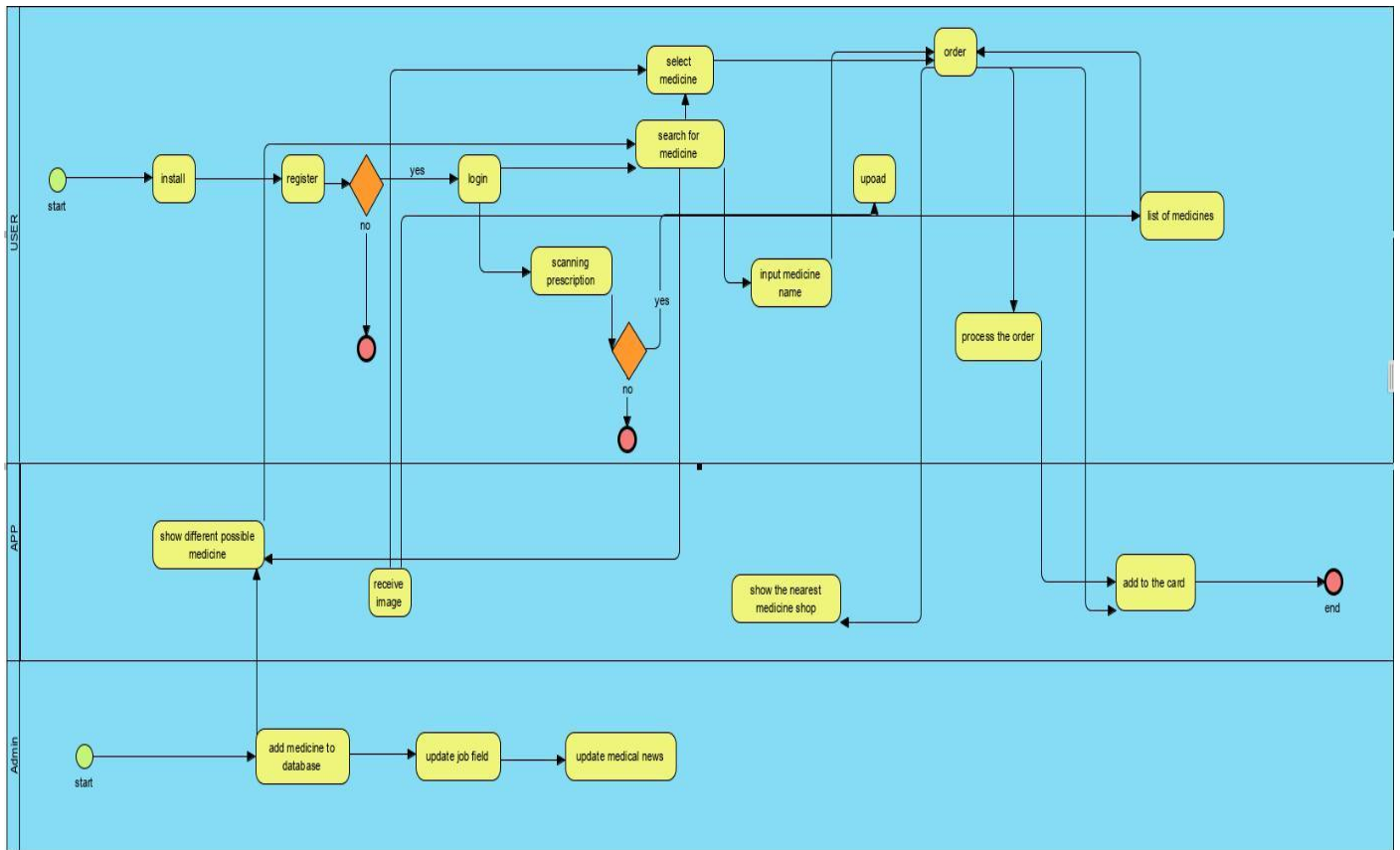


Figure 3.1.1: Business Process Modeling

3.2 Requirement collection and analysis

To work through our app we need so many collections and analysis. These are very needed to do work. So here are some requirements that we give important and that are given below

- Different medicine names.
- Relevant medicines.
- User id.
- To keep up to date with medicine.
- To make the process easy to the user.
- Nearby medicine shop.
- Job information.
- User environmental friendly.
- Listing the prescribed medicine.

3.2.1 Hardware and Software require for the System

In this advanced digital world, to make any apps or any applications we need to use software as well as hardware. So for our work, we also need to use some software and hardware that will make our work easier.

The software and hardware that we require for our work are given below

- An android phone
- Android Studio
- Weka

We will make a regular update of the medicine database and nearby possible medicine shops.

3.2.2 Analysis

When we get our idea about this project and decide to work about this project idea, we ourselves feel confidence to develop this site completely. We decided to complete our work in a new way so that we can make a good change from other related apps like our app. We go through different related apps and try to observe how they like to complete their work in software side. So we decided to do our backend using Weka and Java and for frontend we likely use XML.

We choose Java because it is a server side scripting language through which we can develop an online application and will be easily helpful to develop our backend. It is famous for the work like backend design so we decided to use java in our word development.

3.3 Use Case Model and Description

For any project work, there needs a Use Case Model through which people can easily get knowledge about our work in a simple look. The Use Case Model that we use in our project that is given below.

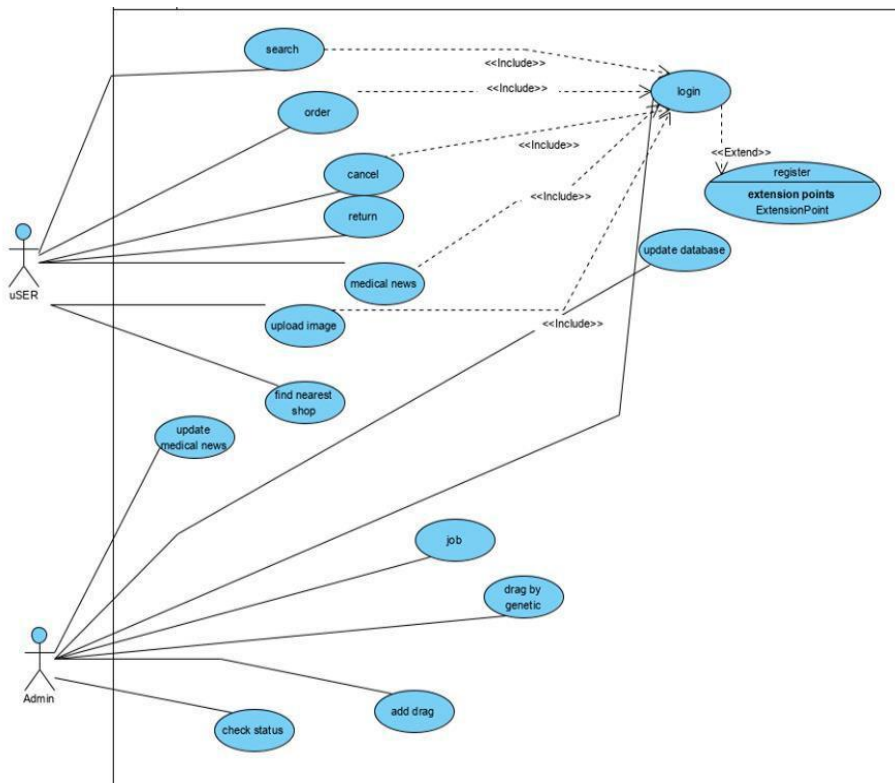


Figure 3.3.1: Use Case Model

Brief description: The admin do update of the database and medical news as well as if there any available jobs are open for everything, admin tries to keep it update.

Actor: Admin

Actor: User

Main flow:

- Our work start when user log in and do search for the medicines.
- Our Use Case started to work when the user uploads or scan the prescription of the medicine and look for the medicine.
- The user can order the medicine and can also cancel the order.
- The user will give their location as input and will help to search nearby medicine shops.
- The admin will update the medical news and database.
- The admin will check the status.

Feedback:

Brief description: The user can easily get their desired medicines according to their needs.

Actor: User

Actor: Admin

Steps:

- The user can get their medicine by sitting at home or any workplaces.
- The user will give positive or negative review of the app after using it in their needs.

Data Analysis

Brief Description: Admin will provide a dataset where name of all medicines will be provided as default. User can also give input in the dataset. **Actor:** Admin

Actor: User

Steps:

- The dataset that is provided by the admin will help the user to find their medicine and will be helpful by doing order of their required medicines.
- The user can input through using the search option and doing add name of medicine in the list.

Add name of the medicine

Brief description: Admin can add new medicine in the database.

Actor: Admin

Steps:

- Admin will add the name of new medicine which are available in the market.

Delete medicine

Brief description: Admin can delete the medicine and can do update of the medicine list.

Actor: Admin

Steps:

By deleting the previous back dated medicine, Admin can easily do update of the whole database.

3.4 Logical data model

It is a process which is used to define and analysis the requirement that is needed to support the business processes within the scope of corresponding information systems in the organizations. Here in the Entity Relationship model which is a logical model it includes the entity, attributes, table and relationships

There are three main components of an Entity relationship Diagram. They are entities which are objects, relationship between those entities and cardinality, it defines that relationship in terms of numbers.



Figure 3.4.1: Logical Data Model (E-R Diagram)

CHAPTER 4

Design Specification

4.1 Front End Design

For user interface design, we have to work through for our front end design. This is called user interface. For designing user interface we need XML file which is mainly designing part of our project. We did our work with the help of android studio. This app is user based and that's why we were concern about our user. So we made it easier as their wishes. We tried to make our front end design simple and easy to the user so that they can easily understand. XML for design and java for the implementation of XML file and it will be visible when a user will open it through android phone.

4.1.1 XML

Full form of XML is Extensible Markup Language. It is a language which is a set of rules for encoding documents in such a format which is human readable as well machine readable. We use XML 1.0 specification for our project work. The main goal of our XML is to work in simple way and usable across through the internet. It is mainly a textual format data which is strong support via Unicode for different human languages. We mainly focus on documents which is used for the representation of arbitrary data structures such as those are used in web services. There are several types of schema system which exist in the definition of XML based languages while different programmers developed different types of Application programming interfaces to do the process of XML data [1].

4.1.2 SDK

SDK defines for Software Development Kit which is mainly a collection of software development tools which is combination in one installable package. It is mainly a combination of hardware platform and operating system combination. For developing a platform specific app, some SDK are required to develop this such app. There are so many common tools that include debugging facilities and other utilities which is mainly represented in an integrated development

environment (IDE). SDK includes sample software and some technical notes along the other software development kits [2].

4.1.3 Java

Java is popular programming language. Which is object oriented programming language. It is mainly class based, object oriented and designed to have such few implementation dependencies which are as possible. For writing the back end code, we have to use java [3].

4.1.4 SQLite

SQLite database which we used in our android studio, it's a database where we can store data by creating corresponding table in the form of row and column. By using query, we can add, delete and update the data in the row and column of the SQLite database. We need a class name database helper.db for storing the whole data.

4.1.5 Python

It is mainly an interpreted, high level, general purpose programming language. We use this platform for data mining. For machine learning, we have to work through python. It is the best way to work for machine learning that is for a long data, we feel easy to work through python.

4.2 Work Flow

Here is the flowchart of our work how simply it works [4].

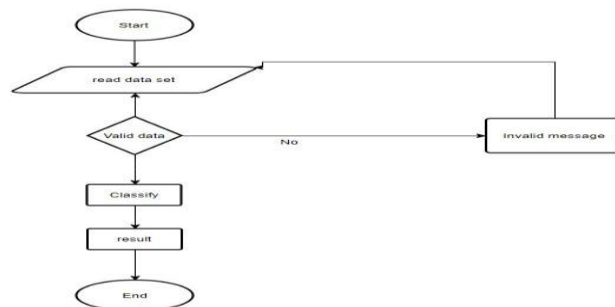


Figure 4.2.2: Prescription card view

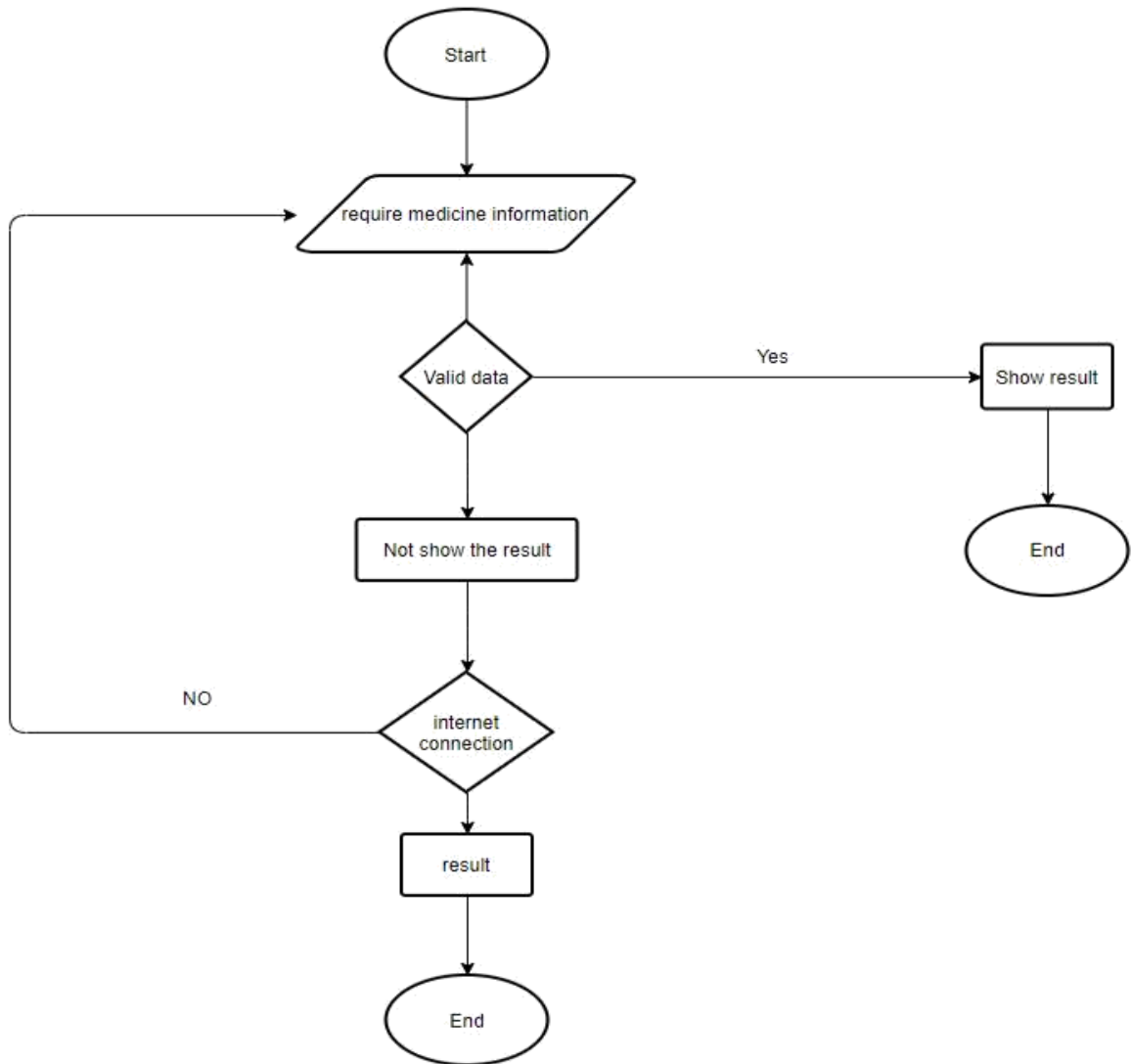


Figure 4.2.3 Order for Medicine

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

For our site, we mainly use SQLite to implement the database. It mainly handles the data management that is needed to store, retrieve data.

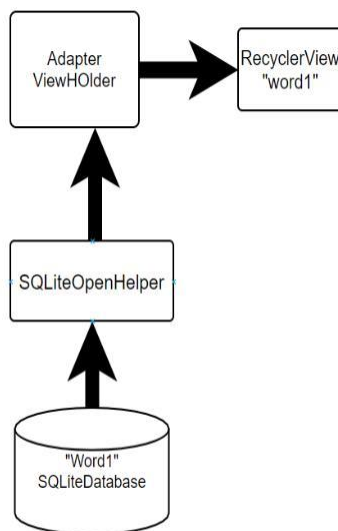


Figure 5.1.1: Database processing system

From the above chat, it will give about how database frame works for any kind of operation about the database.

From the above given figure we can see that how we mainly try to store the user information in each time they are creating their account. Above all, whenever we generate a token, it is saved in the generating token database we make in.

5.2 Implementation of Front end design

Following are given the front end design of our project. These are as follows:

5.2.1 Login page

Here is our login page. From here you can login in our app. You can give your username and password and login from here. If you are not registered then you register from here. Here is register button. If you click on register it will go for registration page. where you can register by using your name and , password.

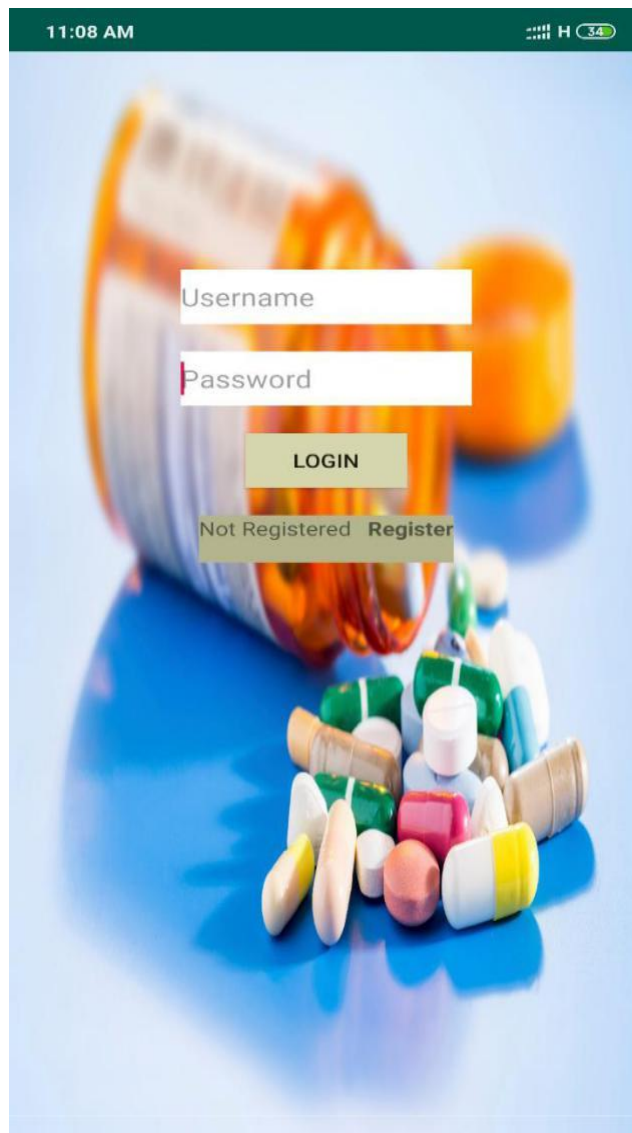


Figure: 5.2.1 Login page

5.2.2 Registration page

Here is our registration page. If you are not registered then you can register from here. By giving your username , password and confirm password you can register from here .Then you can go for our app.



Figure : 5.2.2 Registration Page

5.2.3 Dashboard :

Here is our dashboard. You can search drag from here. Drug by indication, visiting card, medical news, visiting card, add drug , buy drug, home delivery facilities, job circular are here.

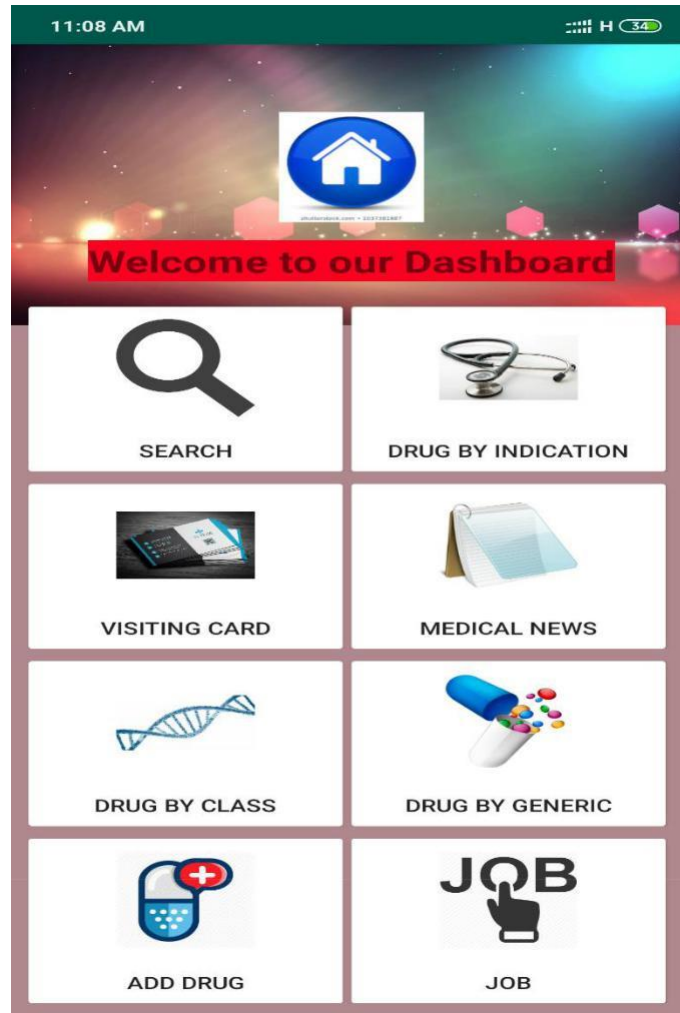


Figure: 5.2.3 Dashboard

5.2.4 Drug by Indication :

Here you can find drug by indication. You can see the symptoms corresponding the drug name.

You can find out the drug also. And can know the drug description .



Figure: 5.2.4 Drug by Indication

5.2.5 Visiting Card

From here you can find our visiting card. Details about our office. Office location etc.

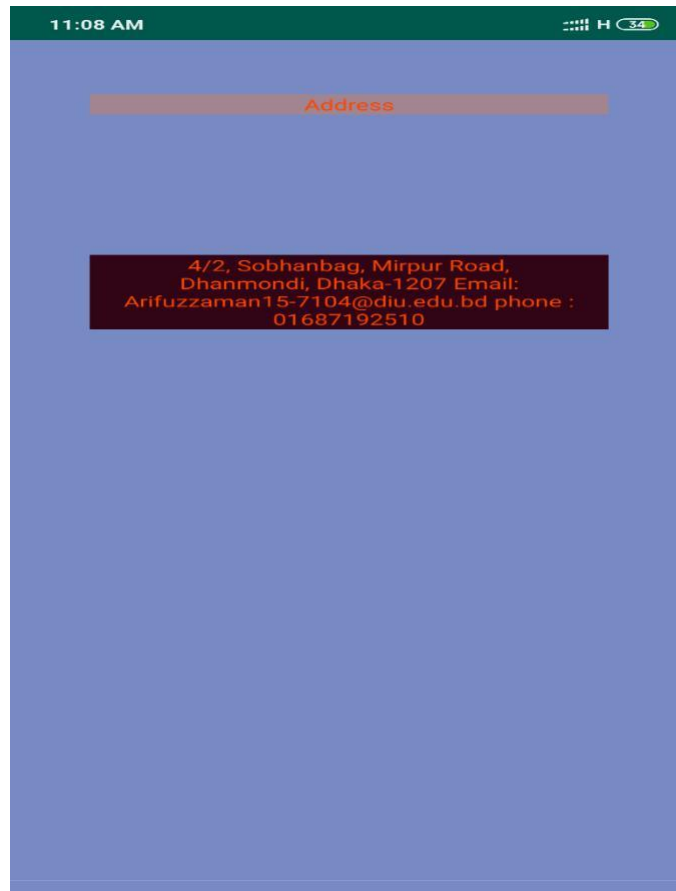


Figure: 5.2.5 Visiting card

5.2.6 Add Drug :

You can add more drug here for our suggestion. Or which is not available in our database . So we will try to make it visible in next from our database. Here is the way to add how much amount of medicine and we can search any kind of medicine easily.

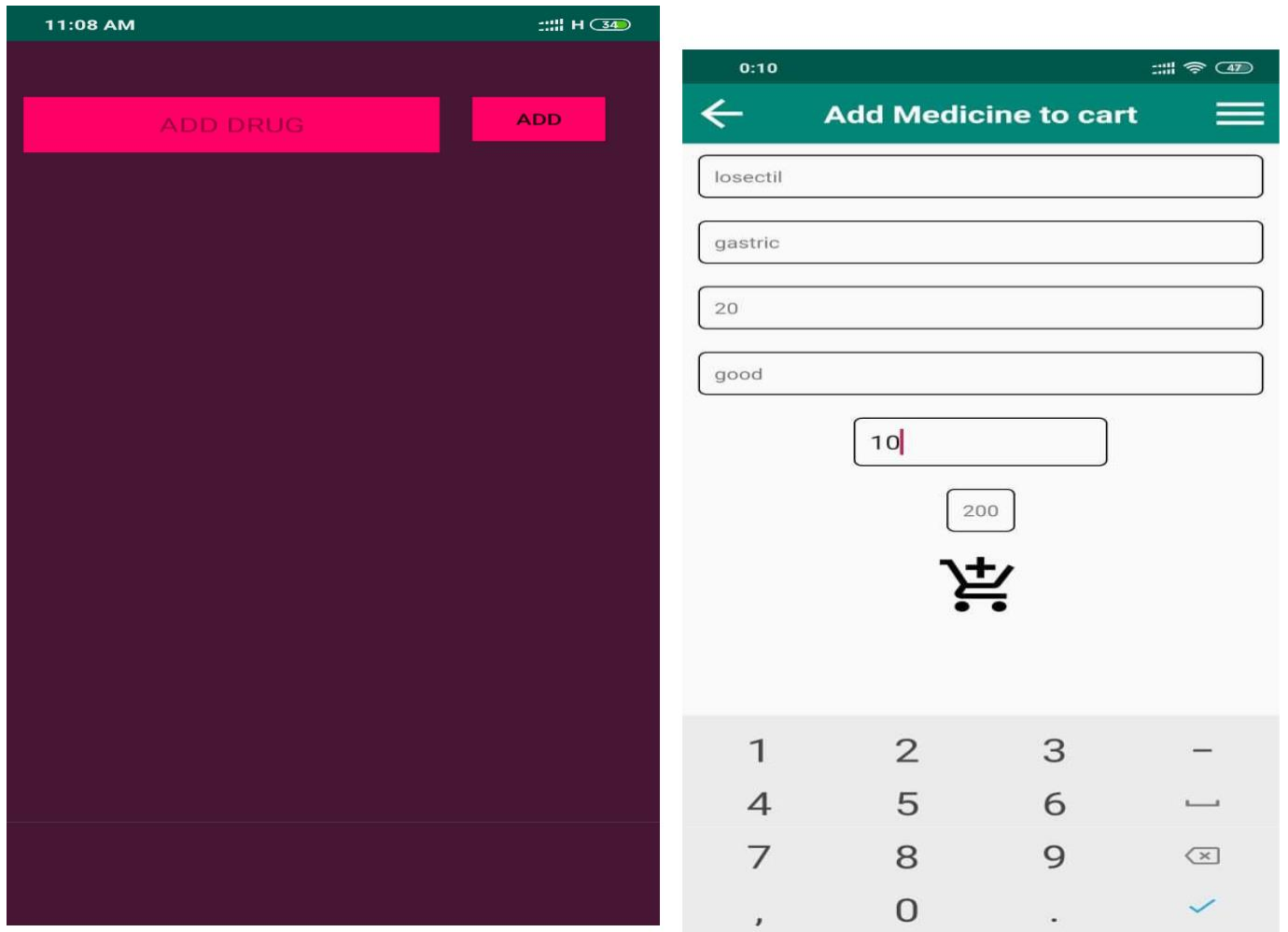


Figure: 5.2.6 Add Drug

SEARCH MEDICINE ACCORDING TO DISEASES:

With the help of this application, we can easily find medicines according to the diseases.

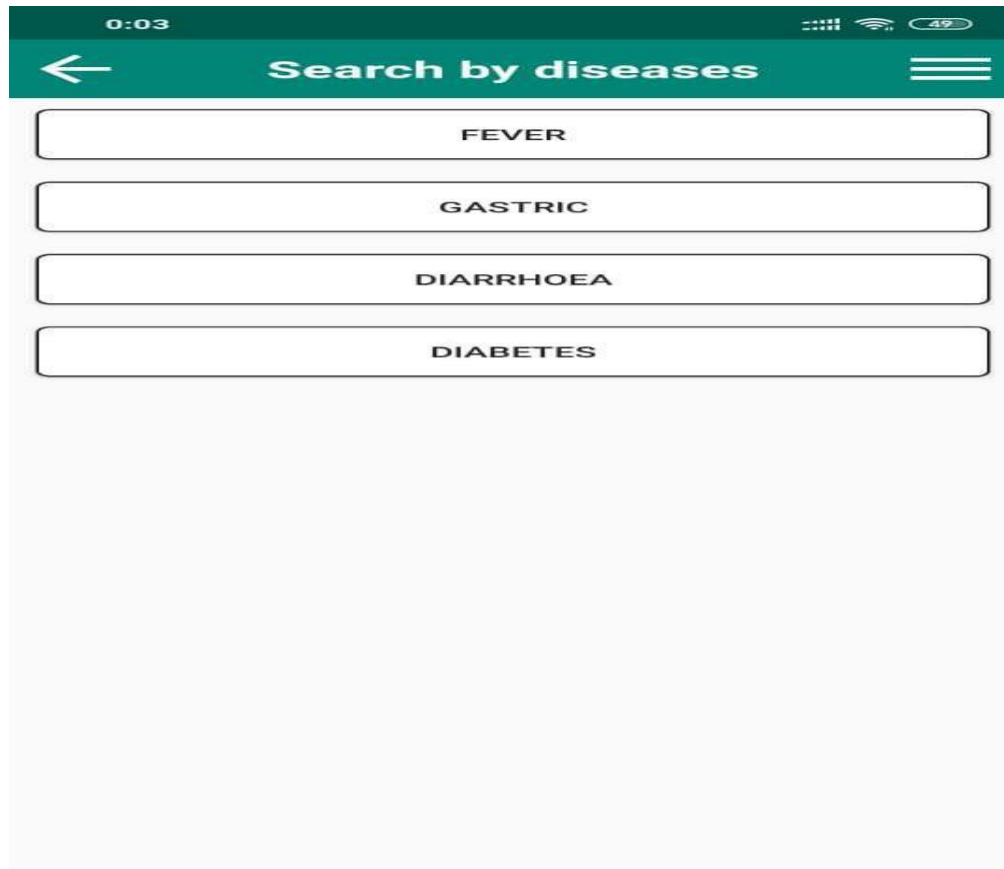


Figure 5.2.7 Search medicine according to diseases

MEDICINE LIST:

The user can easily see list of order they have done in the medicine chart option.

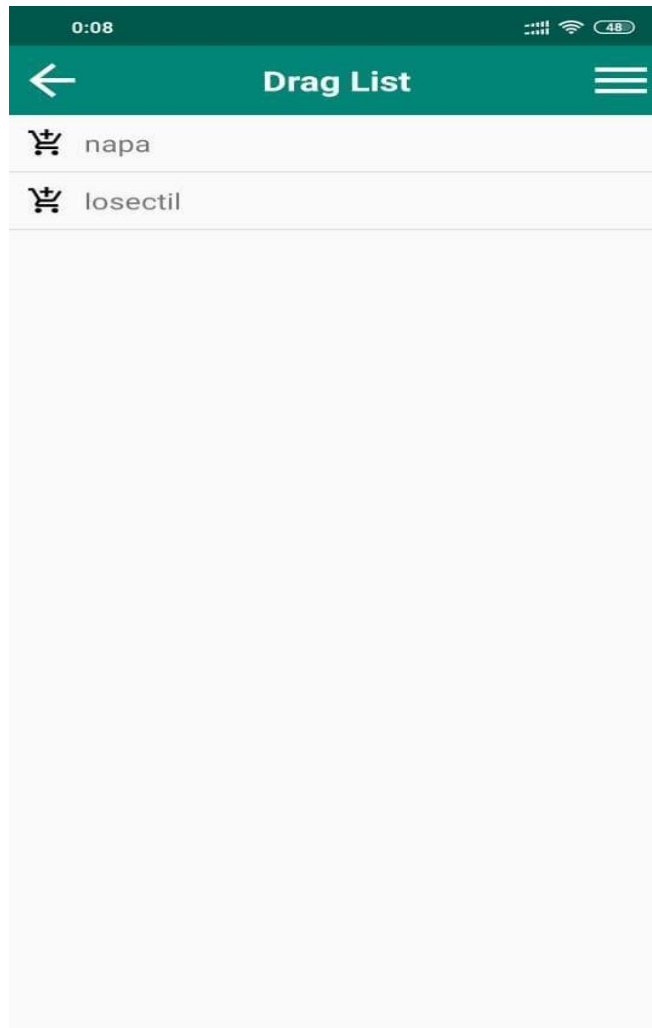


Figure 5.2.8 Medicine list

JOB CIRCULATION:

There are many opportunities to get job in different medicine companies so general user also can update their Curriculum Vitae in this application.

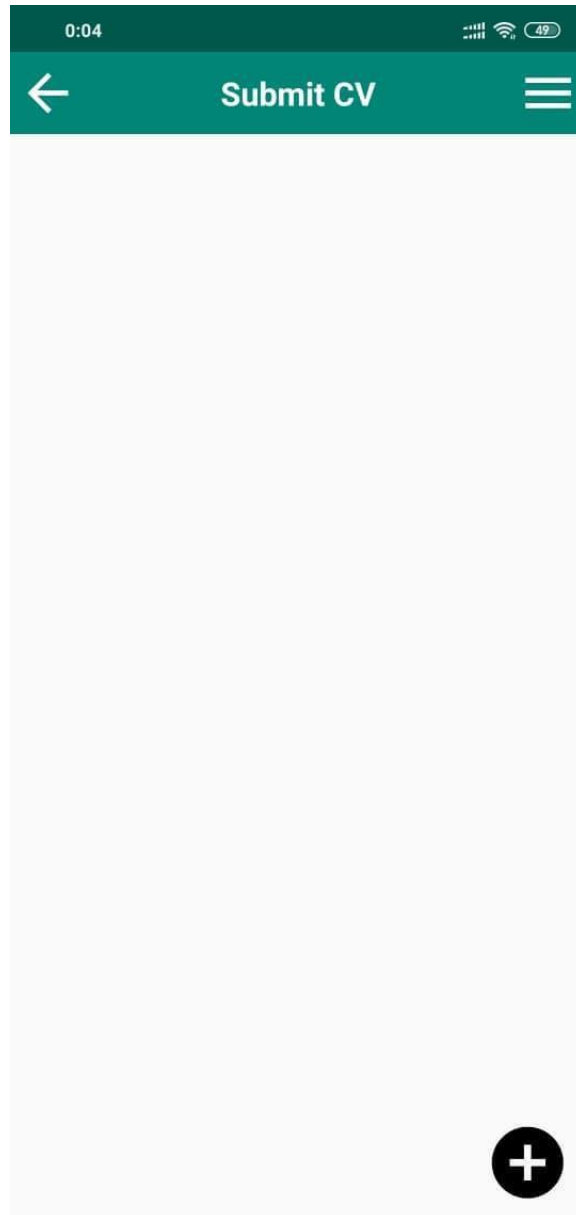


Figure 5.2.9 Update CV

CHAPTER 6

Conclusion

6.1 Conclusion

As final year project, we are very happy to do such type of work. It mainly helped us to make such confidence to work for some big project and in something different field of human welfare. The main goal of this project is to improve medical sites, to reduce human suffering, to save time for different kind of people and easy access to internet and to make a good communication with the medicine shop.

For this kind of work, there must need a good team work to complete such type of project. There were many new things which we had to know from the very first thing and we gather that knowledge easily through working in a team. Because a team work is very effective, efficient and productive for any kind of work.

For every project, there must have some limitations. We too have some such limitation that we have already discussed. Above all, our app have some good features like the user can easily do order of the medicine by sitting at home or from office. It saves valuable time. Mainly we started our project by thinking of aged old people those who cannot go outside at any time when they need their medicine. We try to release their pain from such work.

6.2 Future work

- Our main focus is to contribute this project for the general people of Bangladesh. So we are expecting that government will help in this field so that we can easily reach to each of the people of Bangladesh.
- As we made our project on the basis of Bangladesh. In future, we want to make such work with it so that our app can be used as internationally.
- Add new features.
- Add options for doctor communicating with the patient and give medicine to the patients according to their diseases.

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