"MediPlus" -An Android Application for Medical Support 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 "MediPlus" -An Android Application for Medical Support, submitted by **Kumar Madhurjha Dev**, ID No:161-15-7640 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfilment 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 25/1/2023.

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DECLARATION

I hereby declare that, this project has been done by us under the supervision of Mr. Narayan Ranjan Chakraborty, Assistant Professor, Department of CSE Daffodil International University. I 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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I would like to thank my entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of my parents.

ABSTRACT

Nowadays Bangladesh meets a lot of healthcare issues. So, i made an application about medicines "MediPlus"-An Android Application for Medical Support. Generally, we all know how painful to get proper Healthcare in an Emergency situation. By thinking about all stages of people i made this Application to get recover from this problem. And to make the longterm process as short as possible. Mainly here i keep a few buttons. The first one Medicine Book; where has been given all details about medicine. By consideration of the financial crisis in Bangladeshi people, i suggest high-quality medicines at the cheapest rate by qualified doctors. The second button about Disease Book where have every single disease detail and Its cure. In one word it's healthcare. To find the disease and desire medicines there's have search bar. Actually, it'll make our daily life ease. Naturally when we get sick sometimes our health conditions make us as weak as we can't able to go out or haven't any mental condition to go to a hospital for the consultant. And It's also a time-consuming process which makes us reluctant but we obliged because of cure. But this Application contains an easy way to cure. In this disease book, we can find the medicine name and the medicine-taking rules with the doctor's suggestion. We might forget about the era when our grandparents use many kinds of herbs, the root of trees for treatments. Here's also have a natural way option to get natural treatments. In other option, all about details of a doctor whom we met for research about the disease and get the medicine names, its treatment process and the rules of taking medicines. There's also have the admin details in the About Us option. Basically, this application bears all kinds of facilities. But though there are any queries users meet by using this Application they can contact directly and also give feedback.

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CHAPTER 1

Introduction

1.1 Introduction

There is a big problem in our country with visiting by a doctor. Because without a major problem we cannot visit a doctor. Mainly, we prefer to go to a pharmacy and talk about our problem than pharmacist advises us a medicine. Even we know that the pharmacist doesn't have any medical qualification/certification. The main reason we go to a pharmacist is because of

- Inferiority complex
- Doctor's fees problem
- Schedule problem
- Pandemic problems

According to these problems, i am building a solution. I build an application, that will give us medicine with the certified doctor's suggestion. Including respected disease's natural ways and also with a minimum price.

1.2 Motivation of work

In our country, we have a large population. In this largely populated country, we have many disease problems we face every day. Still, nowadays some people in our country take medicines by pharmacist suggestion. As a developing country, many people of our country cannot afford doctors visiting fees. So, they depend on the pharmacist. In our childhood, our parents would not take us to the doctor for some minor ailments. For those diseases, they give us some natural methods for getting well fast. From the above situations, I get my motivation to build/create our application.

1.3 Objectives

My main objective is to help people who have an Inferiority complex, Doctor's feesproblem, Schedule problem, and Pandemic problems, etc. I am trying to give those people an application that they can use anywhere to get their problems solved. From my application, they will get ailments in both medicine and natural ways with the certified doctor's suggestion.

1.4 Expected Outcomes

From my study, i can give assurance of this application will give the above people get solutions for their particular disease with a minimum price of medicine. In my application, we can also expect that in some disease people doesn't need to take medicine to get well if they follow natural solution.

1.5 Project Management and Finance

After completing my project/application i will upload it to the google play store. This way people can install it from play store and use it. when maximum people use our application, it will make me proud.

1.6 Report Layout

In my application, there is a home page. On the home page, we have 4 main buttons. The first button is called the "Search button". With this button, anyone who uses this app will search for their disease. If they click on the disease they will get 2 buttons "Medicine" and "Natural way". In those buttons, they can get medicine details and natural ways. The Second button is called the "Disease book". If they click it, they will get the list of all diseases. There is another button called "Reference". In this button, they will see the doctor's information who suggests medication and medicine names and natural ways. There is another button called "About Us". This button will show my member's information. There're also a menu bar on the home page. In the menu bar, I add a "Contact us" button, this button will show them our contact information. In the menu bar, we also have a feedback button, this button will go directly to our email. This way anyone can send us their feedback or suggestion to improve our application or face some problems by using my application.

CHAPTER 2

BACKGROUNDS

2.1 Terminologies

In our country health is an important prospect to improve. We face many health issues because of overpopulation. In this chapter, i will discuss project design. In this chapter, i will discuss what language, what tools i have used in my project. I have used JAVA ME for the android part, then I have used PHP's help for making an API, MYSQL Database, and i used Postman to check my URL data.

In this chapter, i will talk about related projects or work ideas that relate to my application idea. In this chapter, i will also talk about my project limitations. I will talk about how will make my application to users likable.

2.2 Related Works

In the early days of gathering project ideas, i stumble upon a lot of projects and research papers that are related to my idea. Some highlighted projects are "DIMS"(this a doctor app), Hospital Management System". There are also some ideas like "Animal Disease App", "Health care app" and some "Medicine app". All the projects i have mentioned some way or another they inspire us to make our project.

2.3 Comparative Analysis

In my project i have studied a lot of project ideas. My most ideas got from an application called "DIMS". This is a doctor's app. In this case, i want to make an app that anyone can use for their benefit. I also tried to add a new feature is call the natural way. This will help people to get natural health solutions. This application i make is low-cost-worthy medicine and medicine with doctor's suggestions.

2.4 Scopes of the Problems

In my project, i have faced many problems. The main problem i have faced is bugs, different

devices have different shapes, in the early days of my work i also faced a major problem that is my app size.

This problem i face because i have created a large number of classes of disease name. That's the reason our application size gets bigger. I have also faced problems "s like creating API and running it on the web, then the API joining in Android. I also have problems in database SQL queries to properly work.

2.5 Challenges

- Planned approach towards working: I first approach to planning how i am going to work on this project. I also get all the data information i am going to need to store our data. This way i can recover my data easily if some problem occurs.
- Accuracy: In my project I will try my best to get higher accurate data and result in i can get. I will try to eliminate all bugs we face.
- **Reliability:** In my project reliability is one of the most prioritized factors. My project users is trusting us to give them the proper solution. That way this application needs to be very reliable.
- No Redundancy: In my project, i have tried to have no redundancy.
- Immediate recovery of data: In my project, i have tried to work on the best tools also the best language. In my project, my all data are in a database. if my database is secure then my data will save and sound. So, if i have any problem recovering data i just need to check my database is all right. If my user requirements any data i can give them fast enough.
- **Immediate capacity of data:** In my database, i have maximum storage to store data. If i need more space to add more data i will get easier.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Business process modeling (or) process modeling, is the analytical illustration or placed surely an instance of an organization's enterprise procedures. Modeling procedures is an essential element for powerful enterprise manner management. Process modeling software program gives an analytical illustration of 'as-is' procedures in an organization and contrasts it with 'to-be procedures for making them greater efficient. The model of our application is given in fig 5.1 shows. [3]

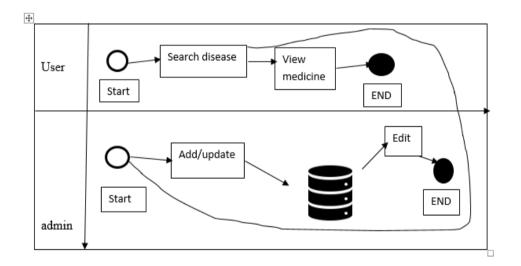


Figure 3.1: Business Processing Model

3.2 Requirement Collection and Analysis

In our country, health problems are faced regularly. In our case, many people have suffered from this problem. we're working on mainly these problems inferiority complex, doctor fees problem, pandemic, and problems. So,i need information about these problems they face. For information, I take a survey on these problems and related problems. The result of the survey will help a lot to improve my idea and project very much. In the following fig 4.1.1 shows, i have added some survey questions and results.

90%	How many people have in inferiority complex?		
60%	How many people have doctor fees problem?		
90%	□ Is this application will save time?		
30%	How many people have Scheduling problem?		
90%	How many people have, pandemic problem?		
60%	□ What they think the application will affect people?		

Figure 3.2: Requirements Collect by People

3.3 Use Case Modeling and Description

The Use Case Model is used to outline the middle factors and approaches that make up a device. The key factors are termed as "actors" and the approaches are called "use cases." The Use Case Model suggests which actors have interacted with every use case. This definition defines what a Use Case Model is generally made up of—actors and use cases. A Use Case Model has to seize the purposeful device components. It embosses the enterprise approaches with inside the device.

While you traverse your device, you may examine extensive device attributes which you version with inside the Use Case Model. Because Use Case Models are easy in nature, they may be freed from technical jargon, Use Case Models are an exceptional manner to storyboard flows with users. Use Case Models have some other essential role. Use Case Models outline the device necessities being modeled and assist write the situations later utilized in testing. The model of our application

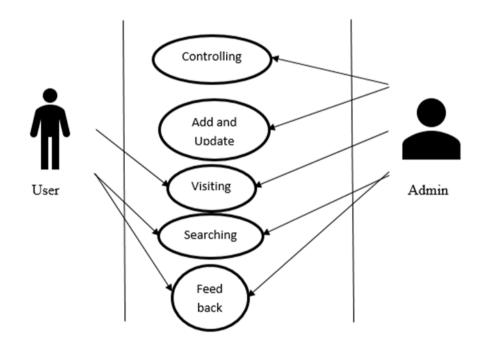


Figure 3.3: Use Case Model

Actors:

- User
- Admin

3.4 Logical Data Model

The logical datamodel is the subsequent layer down and is the only one I ammaximumworried about whilst designing the BI application. It enables me to recognize the info of the statistics,

however, it now no longer shows it's far implemented. The logical datamodel is the architect or designer's view of the statistics. This chapter covers use cases: Transactional or operation applicationsalong withcorporationuseful resource planning (ERP) systems. BI or analytical applicationsalong with DW, statistics marts, and OLAP cubes. The model of my application is given in fig 5.5 shows.

- Admin: Insert data, Update data, Edit design.
- For User: They can Search, they can view Medicine details.



Figure 3.4: Logical Data Model

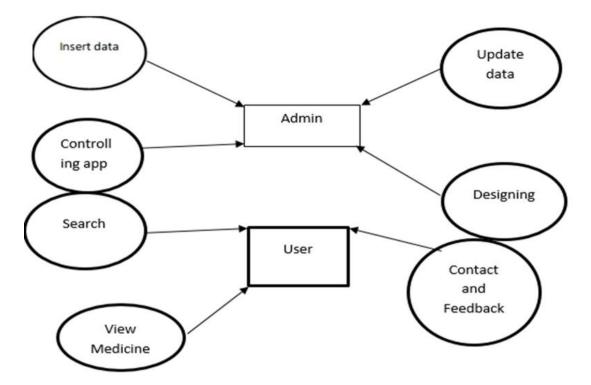


Figure 3.5: ERD Diagram

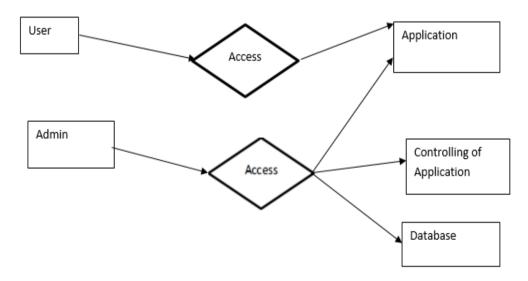


Figure 3.6: ERD diagram

3.5 Design Requirement

My application design is mainly how my buttons, them, pictures, list view will view. So, i have

tried to give the best design i can give it. I also add some functions that users can use our application without any complexity.

CHAPTER 4 Design Specification

4.1 Front-end Design

Front-end developers design the visual aspects of websites for users to interact with, including colors, layout, and fonts. In my project, i have used java ME in my application is for mobile phones/devices. Some screenshot of my front-end design of my project are given below:

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~	MediPlus
	Disease Book
	Fever
	Cold
	Cough
	Diarrhoea
	Anxiety
	Allergy
	Chickenpox
	Acne

Figure4.1: Disease Book



Figure 4.2: Search bar

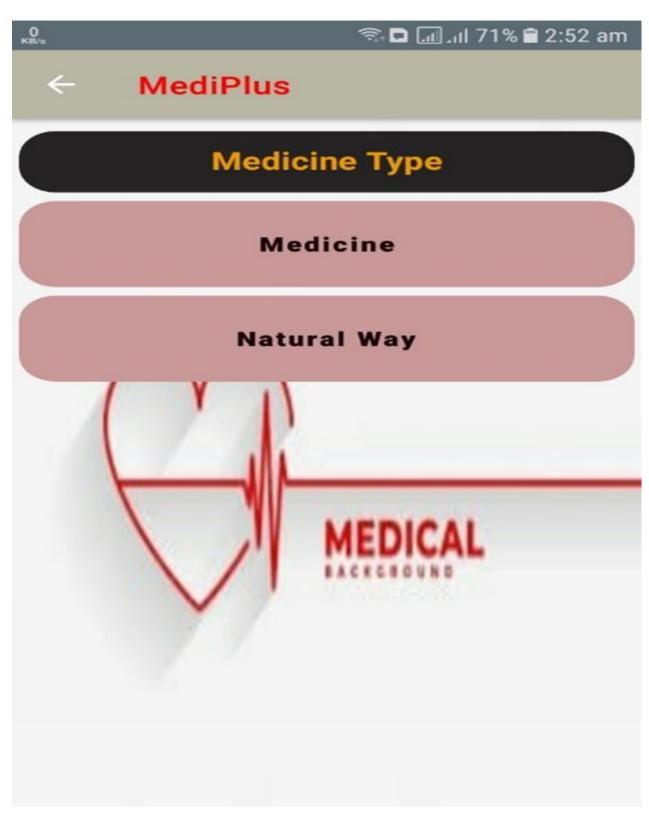


Figure4.3:Medicine Type

4.2 Back-end Design

Back-end developers create the invisible structure that helps websites function properly. It helps to run the app properly .Here is some sample screenshot of my back-end design.

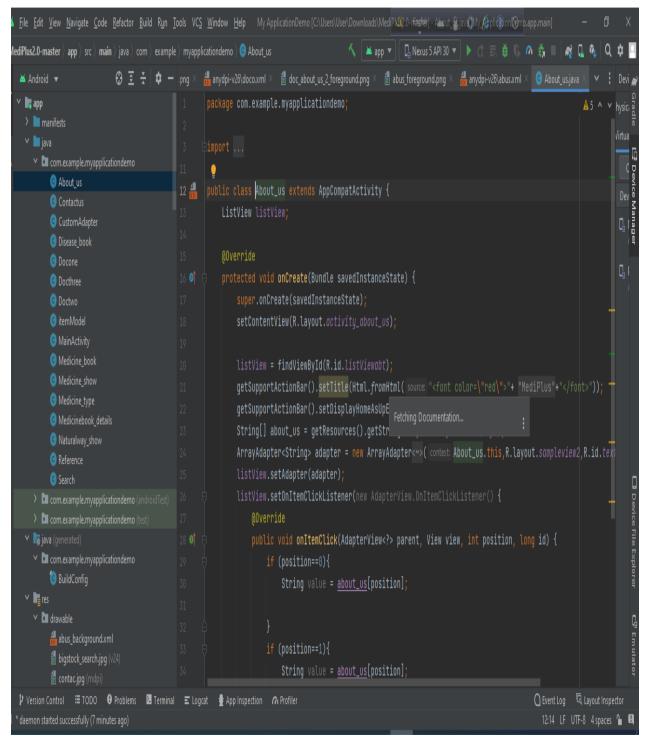


Figure4.4: About Us

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Figure4.5: Contact Us

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Figure 4.6: Custom Adapter

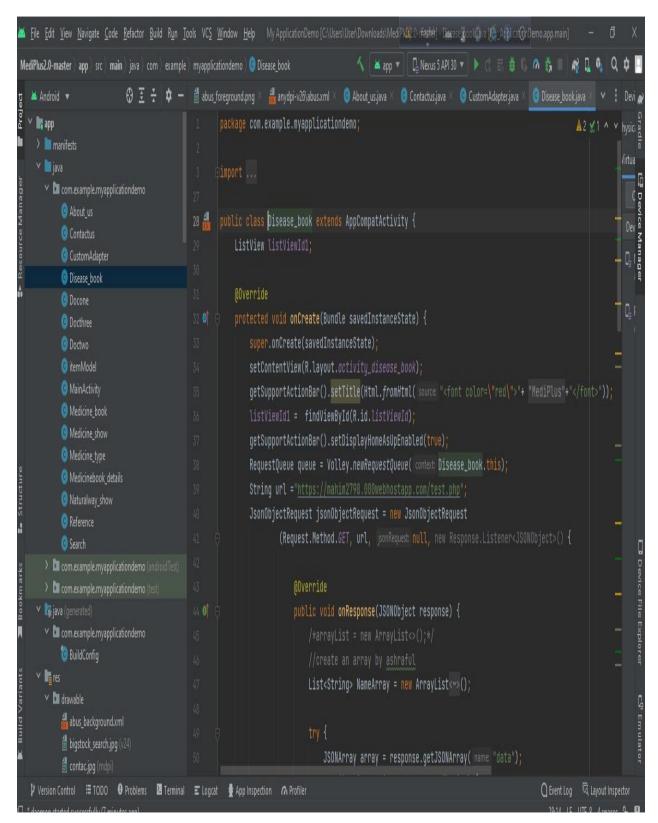


Figure 4.7: Disease Code

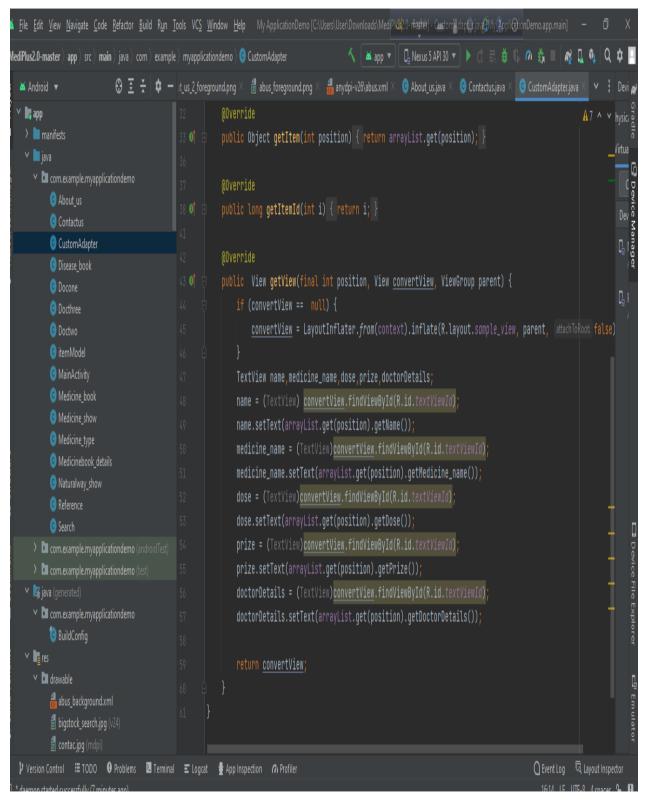


Figure 4.8: Disease Book Code

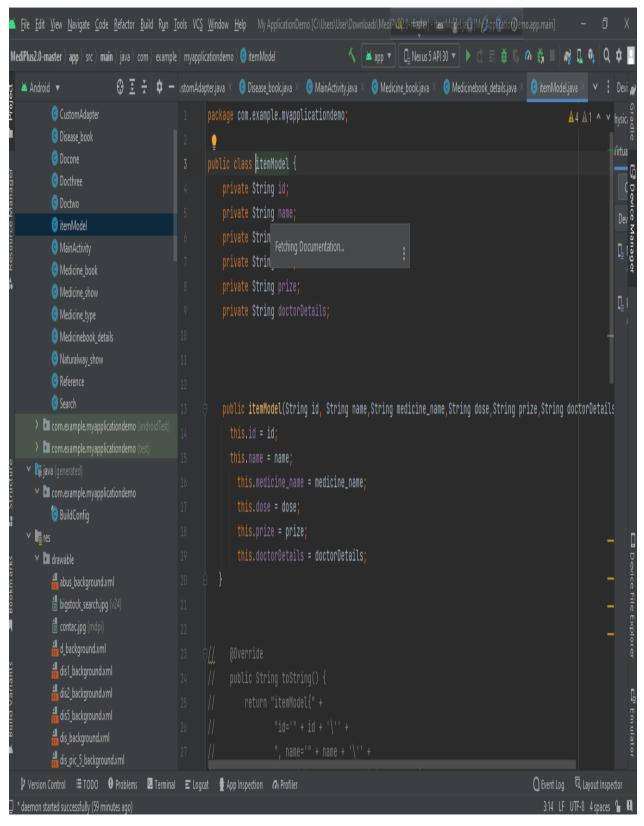


Figure 4.9: Item Model Code

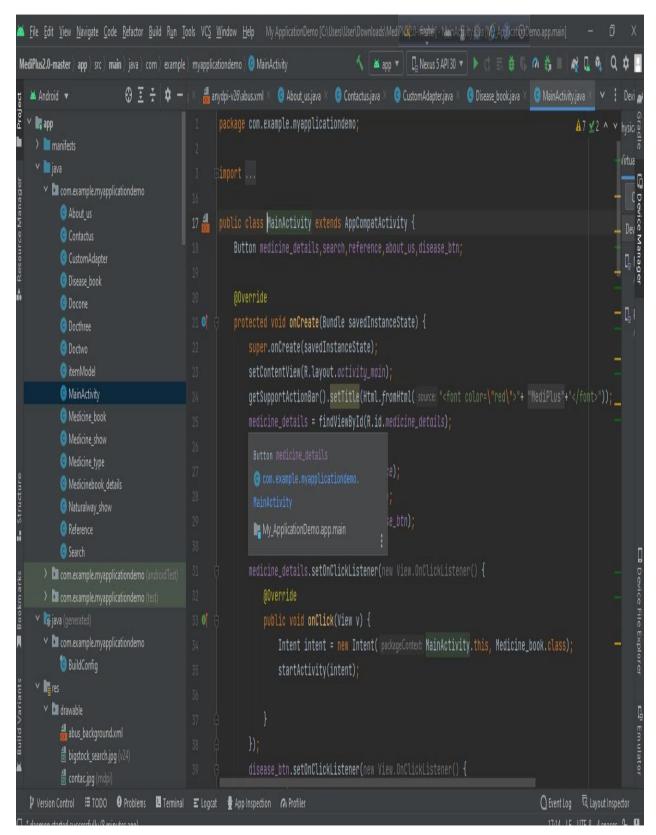


Figure 4.10: Main Activity Code

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Figure 4.11: Medi Book Details Code

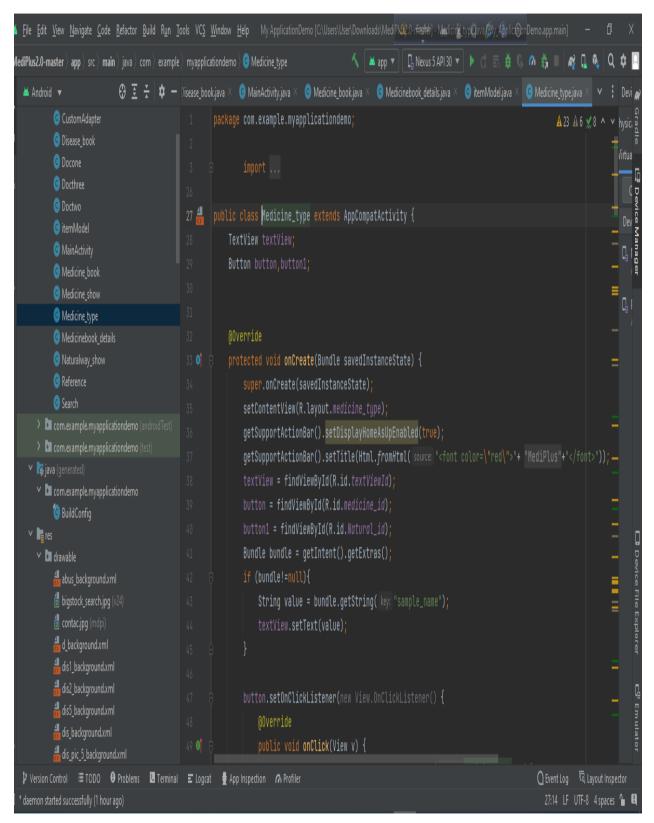


Figure 4.12: Medicine Type Code

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Com.example.myapplicationdemo (test) K java (generated)		<pre>String url ="https://mahim2798.000webhostapp.com/medicine_show.php"; JsonObjectRequest jsonObjectRequest = new JsonObjectRequest</pre>	-	ice File Ex
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 I drawable abus_background.xml bigstock_search.jpg (v24) contac.jpg (mdpi) 	46 47 01 ए 48 49	<pre>@Override public void onResponse(JSONObject response) { /*arrayList = new ArrayList<>();*/ //create an array by ashraful</pre>		E ^{gi} Emulator
Version Control If TODO O Problems Problems Terminal daemon started successfully (13 minutes ago)	Ξ Logcat		दि Layout Inspector UTF-8 4 spaces ी वि	

Figure4.13: Medicine Book Code

4.3 Interaction Design and User Experience (UX)

Interaction Design is the design of interactive products and services in which a designer's focus goes beyond the item in development to include the way users will interact with it. Thus, close scrutiny of users' needs, limitations and contexts. And User Experience refers to the feeling users experience when using a product, application, system, or service. It is a broad term that can cover anything from how well the user can navigate the product, how easy it is to use, how relevant the content displayed is etc. Here I try to make my application user friendly. Here is some screenshot of my interaction design and user experience:

Home page

In this page i have 5 main buttons called Disease Book, Medicine Book, Search button, Reference button, About us button. I, also have a menu bar. The following fig shows home page.



Figure4.14: Home Page

Menu bar

In menu bar you will see 3 buttons. The buttons are Home button, contact us button, feedback button. The following fig shows menu bar.



Figure4.15: Menu Bar

Contact Us page

In this page you will see contact information. The following fig shows contact us.

КВ/в	🗟 🗖 💷 2:5	1 am
←	MediPlus	
	Contact Us	
ļ	Call:+8801760384800 +8801938931519 mail:mediplus2k21@gmail.con	2
-		

Figure4.16: Contact Us

Feedback

If anyone click on feedback button they can give their feedback of our application. The following fig shows feedback.

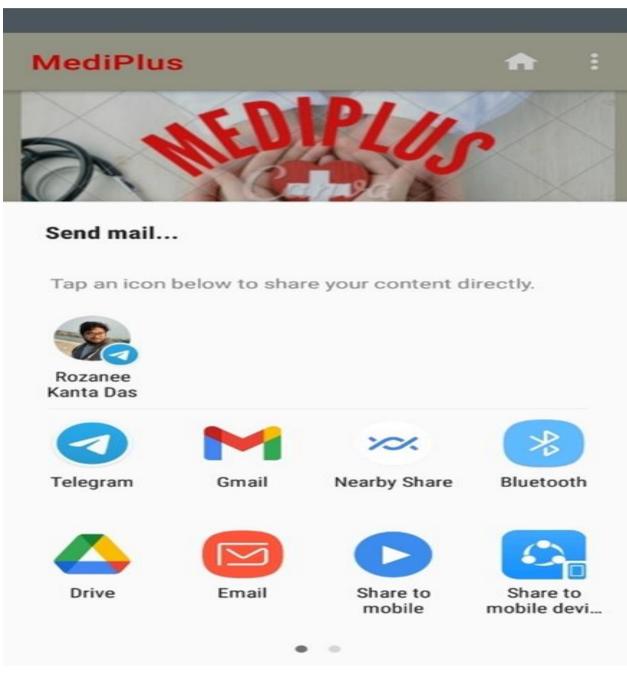


Figure 4.17: Feedback

Medicine Book page

In this all the medicines are here. The following fig shows medicine book page.

0 кв/я	🗟 🗖 வி.பி 71% 🛢 2:52 am
÷	MediPlus
	Medicine Book
	[TAB]Napa(500gm)
	[TAB]Fexo
	[TAB]Fexo
	[TAB]Cipro(250mg)
	[TAB]Frenxit(500mg)
	[SUPP]Napa Suppository
	[TAB]Doxiva 200(200mg)
	ORSaline-N



Medicine Details page

In this page the medicine details will show. The following 6.6.7 fig shows medicine details page.

0 КВ/я	🗟 🗖 வி.பி 71% 🛢 5:00 am
~	MediPlus
	Medicine Details
	1 tablet(1-1-1)daily for 7 days
	Unit Prize:0.80 BDT
Per	rscribed by Dr.Md. Moyminul Islam(for more details->)
	MEDICAL

Figure 4.19: Medicine Details

Medicine page

In this page medicine will show. The following fig shows medicine page.

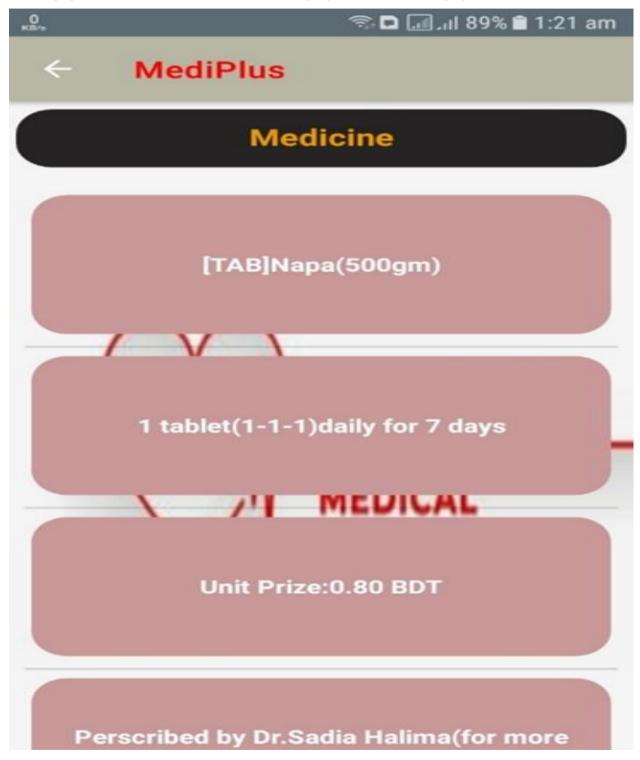


Figure4.20: Medicine

Natural Way page

In this page natural ways will show. In this page medicine will show. The following fig shows Natural way page.

о книз	89% 🗎 1:21 am
← MediPlus	
Natural Ways	
Give yourself a sponge bath with water	lukewarm
Perscribed by Dr. Tahmina Sultar details->)	na(for more
VI MEDICA	L
Stay in bed and rest & Keep h	
Perscribed by Dr. Tahmina Sultar	na(for more

Figure 4.21: Natural Way

Doctor Details page

In this page doctor details will show.

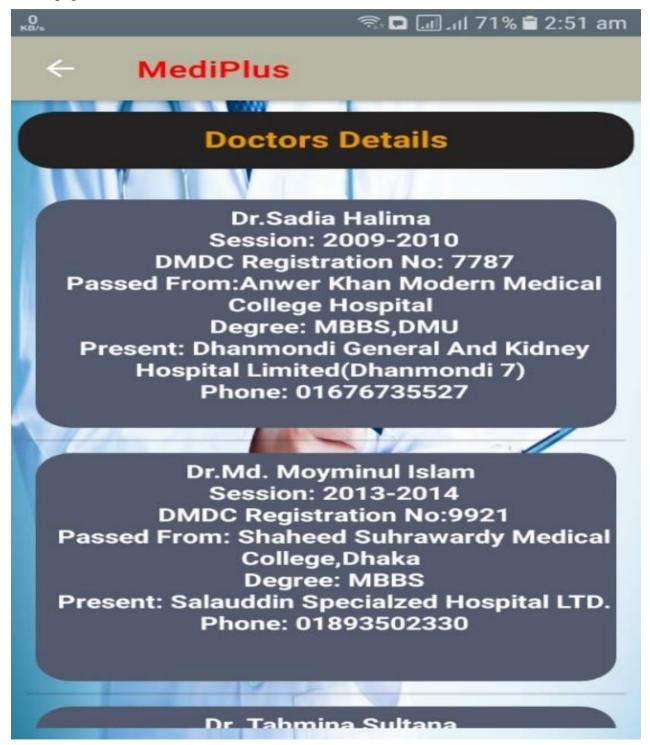


Figure 4.22: Doctors Details

About us page

In this our member's info will show.



Figure4.23: About Us

4.4 Implementation Requirements

The technology used as follows

- Programming Language: HTML, Java, PHP
- Database: MySQL

Chapter 5

Implementation and Testing

5.1 Implementation of Database

It is one of themostpopular database managementsystemsoriginallyreleasedwayback in 1995. SQL is the center of MySQL. And 'My' with 'SQL' is there because it's the name of its cofounder Michael Wideners' daughter. It is an open-source relational database managementsystem. which is used for adding, removing, and modifying information in the database. Standard SQL commands, such as ADD, DROP, INSERT, and UPDATE can be used with MySQL. MySQL is a free to be had database system. MySQL may be used for a variety of applications, however is mostcommonlydiscovered on Web servers. A website that makes use of MySQL might also additionallyinclude Web pages that accessdata from a database. These pages are oftencalled "dynamic," which means the content materialof eachpage is generated from a database as thepage loads. Websites that use dynamic Web pages are oftencalled database-driven websites. The reasons I use MySQL are given below:

- 1. MySQLone of the most popular database management systems.
- 2. MySQL store Data in Tables. Tables further store data in Rows and Columns.
- 3. MySQL is a freely available Database System.
- 4. MySQL can run Multiple platforms such as Linus, Windows and Unix.
- 5. MYSQL is highly scalable database system.
- 6. MySQL Security:

Whenever a database is created, the very subsequent step is to identify and formulate a securitypolicyearlier than giving access to the database users. It is taken into consideration to be incredibly rated within side thearea of datasafety. That's the reason, it is being depended onvia way of means of the world's mostpopularwebapplications like Facebook, Instagram, Joomla, Twitter, etc. It offersvarious safeguards that stand via way of means of the database and save you from breaching.

7. MySQLEncryption: Encryption is a data securing processthru which touchyfactsmay be encoded and the handiestauthorizedcustomers can decode the same. It gives the provision of encrypting datathru Public Key Cryptography.

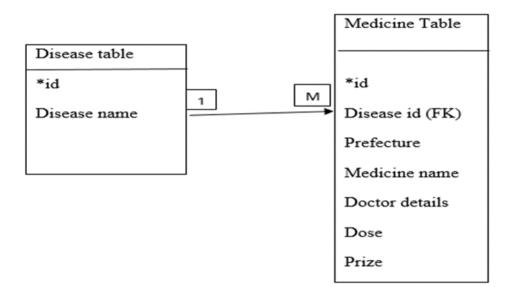


Figure 5.1: Relational Database Design

5.2 Implementation of Front-end Design

The Java ME stands for Java Micro Edition. It is an improvement and deployment platform of transportable code for embedded and mobile phones(sensors, gateways, mobile phones, printers, TV set- top boxes). It is primarily based totally on object- oriented Java. The Java ME has a strong person interface, tremendous security, integrated network protocols, and a guide for applications that may be downloaded dynamically. Applications which can be advanced on Java ME are transportable and may run and also can leverage the of local competencies the device.

In my project, i have used java ME. My application is for mobile phones/devices that's why i used java ME. First, i have created a project in the android studio. In this project, i have created a java and XML file named "Main Activity" and "Activity main" for "Home Page". In the XML part, i have created five buttons called Search, Disease Book, Medicine Book, Reference, and

About Us. Now in the java part, i have given every button intent to go to their pages. I also added a menu bar on the home page. In the menu bar, i have added three buttons called Home, Feedback, and Contact us. All three buttons have their pages. The in-home button will go to our website, Feedback will go to email, and contact us will show contact details. In the java part, i have given the path to where the menu bar buttons will go. Now for the Search button, I have created an XML and java page named "Search" "search activity". In the XML file, i have created a search view, a listview. In the java page, i have given the filter to search view. That will search the data i need. In listview, i add a click listener. In click listener, I have used volley. Volley is an HTTP library that makes networking for Android apps less difficult and maximum importantly, faster. Volley is to be bad on GitHub. Volley gives the subsequent benefit, Automatic scheduling of network requests. Volley will help me to get the rest API that I created to add in listview. The API is to show all the names from the disease table. With help of volley, i add an intent to take the clicked data/name like "Fever" to the next page. Now on the next page is "Medicine Type". In this, i have an XML and java page called "Medicine type" and "medicine type activity". In the XML part, I have created a text view for the title and also created two buttons named Medicine and natural way. In the java part, i use volley again for those two buttons. This time the URL i need is if i click medicine then all the medicine will show "Fever". Then if i click Natural way the button will show all the natural ways of "Fever". At last, i give this two-button intent. That means the data will show on the next page that is 'Medicine/natural ways Detail. On this page the XML part i have created a text view for the title and created a list view. In the java part, i have accepted the data given by Medicine type in listview. That means the medicine and also natural ways will show on our activity page. I also use intent for the medicine and natural ways in listview for whom the doctor suggested. Now the "Reference" page. In this page XML part, I have created a text view for the title and, i have created a listview. In the java part, i have set all information of doctors who i console for this project. The next page is "Daisies Book". On this page, i have created a title and a list view in XML. In java, i have set data of search pages all disease names with help of volley. That means here anyone can get all the diseases that are inserted in the database. They don't have to search for it.

The next page is "Medicine Book". On this page, i have created a title and a list view in XML. In java, i have set data of search pages for all disease medicines with help of volley. That means

here anyone can get all the only medicines that are inserted in the database. They also can search for it. The next page is "About us". In this page XML part, i have created a text view for the title and, i have created a listview. In the java part, i have set all information of our members who i have worked with and collected data for this project. In Home page i have a home button its directly connected to our application website.

5.3 Testing Implementation

I tested my application very closely and safely, First, I run the project and try to use it on different phones or devices. This way i can see that how our application responds and works. I also test my database data insertion. if I add new data, I check if data came to my application safely. I also give the app to some users to test my application in the proper way like they will get help from this app. Their review was, they find the medicine at a minimum price and get help from the natural way. In this, I assure that the data i collected from doctors is pure.

5.4 Test Results and Reports

My application text result is good., But i need more features and design in our application. That I will work on in the future.

CHAPTER 6

IMPACT ON SOCIETY, ENVIRONMENT AND SUSTAINABILITY

6.1 Impact on society

This Application will have a lot of impact on society. This application is for society. In society, many people believe that they don't need to go to visit a doctor for a minor disease. They go to a pharmacist for medicine who doesn't have a medical certificate. So, In society, this application can change their thought because our application will give them certificated doctors suggest medicine and natural ways. It will take some but if i promote it well it can affect society.

6.2 Impact on Environment

My project will impact the environment. This application is very smooth easy to understand and also it will help people. In my application, anyone can search for their disease and get medicine and natural ways. In my application, i don't have any native features that will put a negative impact on the environment.

6.3 Ethical Aspects

In my project development i need some ethical aspects to follow. The aspect is:

- I need to always think about what i taking for data collection this data needs to be correct and justified. Because This application is about people's health are on it.
- This data i am taking this need to be doctor suggested only.
- My whole database needs to be checked properly because it will show in the application.

6.4 Sustainability Plan

My application and data need to be sustainable. Mainly the data needs to be perfect and well justified then my application will be more sustainable. I need my project can be updated in the future and give good support to people. I plan to give more data and if anyone wants to work on it there open to it.

CHAPTER 7

CONCLUSION AND FUTURESCOPE

7.1 Discussion and Conclusion

In conclusion, i can say that my country is a developing country. I face many problems every day. There is a major problem i face in medical sites. There few reasons are if we have a disease we have cannot go to the doctor for some minor disease because doctor fees are too costly. There are also lots of problems we face. we go to a pharmacist for medicines. So, my goal is to make this application for those people who don't go to the doctors for minor diseases and go to the pharmacist. This application will help them to get proper Doctor suggested medicine plus natural way of disease.

7.2 Scope for Further Development

In the future, i want to update our application. Now i am using the Java ME version that means I develop this application for mobile but in the future, i want to develop or change it to the IONIC(IOS) version and also build it in the flutter.I want to make an automation system using online other API, using cross-language like a flutter, IONIC i can also develop it for web, desktop, IOS. In this way, i can make this project develop in 4 different applications (mobile or Android, IOS, desktop, web).

In this project my development areas are

1. In my project i transfer data from one page to another (2nd page) to call some data on the 2nd page. When i call from the 2nd page, i need two values. One value will come from the 1st page, the 2nd value we will get from the 2nd page, and when i call the 2nd page all data needs to be on that page only. When getting the 1st value, i am getting a name that is not unique but a unique id. So, if i can make only id to come from page one that will be my development.

2. In my project i can add a feature like "History Button" that will show the result of searching.

3. In my project i can add a search button like where I am searching daisies, i can also search only medicines.

4. In my project i can also make this app visually pleasing.

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