

DOCTOR APPOINTMENT SYSTEM: MEDICATE

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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

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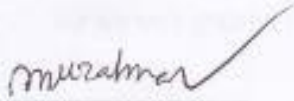
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DECLARATION

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

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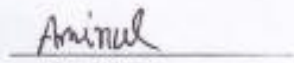
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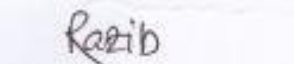
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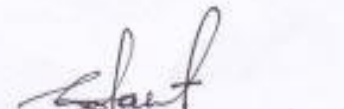
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ABSTRACT

As technology is growing rapidly, most of the manual systems are being replaced and becoming automated. In this context, we are going to create an easy, faster and smooth appointment system between doctor and patient.

Though Bangladesh is a developing country, a number of internet users are in here. So, through internet if people want to get connected to their desired doctors there is a nexus will be needed. For that purpose, we have planned to build a website to get an appointment. This will help common people to get instant support without wasting time and effort even they will get this service from home and abroad.

By using this system people can easily get to know about the timing of doctor's counselling period and make their meeting whenever they want. Proper categorized list will make people more comfort to browse their expected doctors.

TABLE OF CONTENT

CONTENT	PAGE
Board of Examiners	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
List of Figures	vii
List of Tables	viii
CHAPTER	
CHAPTER 1: INTRODUCTION	1-4
1.1 Introduction	1
1.2 Motivation	1
1.3 Objectives	2
1.4 Expected Outcome	3
1.5 Report Layout	4
CHAPTER 2: BACKGROUND	5-7
2.1 Introduction	5
2.2 Related Works	5
2.3 Comparative Studies	6
2.4 Scope of the Problem	6
2.5 Challenges	7
CHAPTER 3: REQUIREMENT SPECIFICATION	8-17
3.1 Business Process Modeling	8
3.2 Requirement Collection and Analysis	8
3.3 Use Case Modeling and Description	10
3.4 Activity Diagram	13
3.5 E-R Diagram	16
3.6 Design Requirement	16

CHAPTER 4: DESIGN SPECIFICATION	17-18
4.1 Front-end Design	17
4.2 Back-end Design	17
4.3 Interaction Design and UX	17
4.4 Implementation and Requirements	18
CHAPTER 5: IMPLEMENTING AND TESTING	19-27
5.1 Implementation of Database	19
5.2 Implementation of Front-end Design	20
5.3 Implementation of Interactions	26
5.4 Testing Implementation	26
5.5 Test Results and Reports	27
CHAPTER 6: REQUIREMENT SPECIFICATION	28
6.1 Discussion and Conclusion	28
6.2 Scope for Further Developments	28
APPENDIX	29-30
Appendix A: Project Reflection	29
Appendix B: Related Diagrams	29-30
REFERENCES	31

LIST OF FIGURES

FIGURES	PAGE NO
Figure 3.1: Business Process Modeling of Medicate	8
Figure 3.2: Use Case Modeling of Medicate	10
Figure 3.3: Activity Diagram of Patient from Medicate	13
Figure 3.4: Activity Diagram of Doctor from Medicate	14
Figure 3.5: Activity Diagram of Admin from Medicate	15
Figure 3.6: E-R Diagram of Medicate	16
Figure 4.1: UX	17
Figure 5.1: Database Implementation	19
Figure 5.2: Homepage of “Medicate”	20
Figure 5.3: Registration page of “Medicate”	21
Figure 5.4: Login page of “Medicate”	21
Figure 5.5: Patient Dashboard of “Medicate”	22
Figure 5.6: Search Doctor	22
Figure 5.7: Doctor Appointment Submission	23
Figure 5.8: Pending Request	23
Figure 5.9: Approved and Cancellation by Patient	23
Figure 5.10: Patient Profile	24
Figure 5.11: Doctor getting Request	24
Figure 5.12: Approval and Cancellation by Doctor	25
Figure 5.13: Ambulance Service	25
Figure 5.14: Search Blood Donor	26

LIST OF TABLES

TABLE	PAGE
Table 1: Registration and Login Test case	27
Table 2: Input User Information Test case	27

CHAPTER 1

INTRODUCTION

1.1 Introduction

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. The patient also waits in a queue while getting appointment. If the doctor cancels the appointment for some emergency reasons then the patient is not able to know about the cancelation of the appointment unless or until he or she visits the hospital. So, it's necessary to get a consultation with Doctors whenever we got affected with various diseases. As the internet is now available for everyone therefore anyone can use the online appointment system to overcome such problems and inconvenience for the patients.

Vision of this project is to create doctor patient handling management system that will help patients to book doctor appointment and fulfil their prospects. In this system doctors are allowed to manage their booking slots in online, patients can make their appointment to book empty slots too. This is the system of reservation for counselling by patients name. This system manages different kinds of doctors at a time and patients can choose their expected one for booking. The system also remains of the blood donor module which is allowed for blood donation registration as well as finding blood group for future use.

1.2 Motivation

As a patient we face many difficulties when we want to get an appointment for a doctor in their chambers or places. When people get affected by illness they need to visit a doctor for checkup but they have to visit their chambers or hospital 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. It harasses people a lot. Besides people need an ambulance service to carry on patient to hospitals. Merely, people need to visit hospitals or clinics to hire ambulance, it is a time consuming process. Our motivation is, if we have an option to get this appointment very

easy that can be more precious for us. Then we have planned to implement a Web-based doctor appointment system.

1.3 Objectives

Helping people to search for doctors and get appointment is our main objectives. User can search doctors which can make sure to find specific doctor an easy task. A platform where doctors can check patient previous medical history for better checkup.

To build a system with perfection, requirement collection is a must. The study will gives a clearer idea of people's need and the system that we are planning to build as well as how much we are going to cover. The document will also describe all the interactions between patients, doctors and admin. By above document anyone will be able to understand the project at a glance. In this project.

A doctor can

- Get appointment request
- Access to this request
- Check previous medical history
- Able to get patient profile
- Give appointment

And Patient can

- View doctors list
- Easily take doctor appointment
- See when his/her expected doctor available
- Able to see categorized doctors department
- Purchase medicine
- Hire ambulances
- Get blood from donors

1.4 Expected Outcome

There is an online scheduling system is commonly referred a Web-based pattern that allows individuals to conveniently and securely book people appointments and reservations online through any web connected devices such as computer, laptop, smart phone, tablets etc. Once a date and time are selected the system will give booking confirmation and recorded documents for next requirement.

The flexibility of our system enables it to be utilized for a variety of different services and activities for a patient and doctor, such as,

Time saving

Staff spends much time on the phone booking and can't maintain appointment properly so booking through online by individuals save time as they no longer have to commit a part of their busy schedule to calling their medical, healthcare or wellness provider. As an example, typically phone booking system spends an average of four minute for booking hundred patients. Where our system is will take less time.

Monetary saving

In Doctor's chambers the staffs are always ready to take money for giving appointment to patients. It is an unethical way to get the faster appointment. In our system people will able to see the whole slots of any doctor so he/she can make an easy appointment for them whenever they need without paying extra money to the staffs.

Sustain tranquility

If people gets ill and wants to visit a doctor for checkup, he or she needs to visit the chambers and waits until the doctor is available. The patient also waits in a queue while getting appointment. So there is a mess environment is possible. If the doctor cancels the appointment for some emergency reasons then the patients are try to make uproar in that places. In this system, no need to wait for a while in queue and as patient will be able to see when doctors are available so that people will easily avoid the massing situation.

1.5 Report Layout

We developed the Web-based system which name is “**Medicate**”. We tried to make sure the project have completed in time. We have designed our workflow follows by above:

In chapter 2, brief discussion on related works that are already implemented. And we made comparison with other. We have figured out the problem of current system and tried to solve. What kind of Challenges we have faced for completing this project also discussed on this chapter.

In chapter 3 named Requirement Specification where we focused about business process modeling, requirement collection and analysis, use case modeling and descriptions, logical data model, design requirements.

On chapter 4 named Design Specification we have tried to show the front-end design, back-end design and Interaction design and UX. As well as we listed the component that we used to build the system.

In chapter 5 named Implementation and testing where we discuss about the Implementation of Database, Implementation of Front-end Design, Testing Implementation, Test Result and Reports.

On chapter 6 we have discussed about the present condition and future scope of our project. Also we have tried to cover the whole things what we have done in our project is referred as conclusion.

CHAPTER 2

BACKGROUND

2.1 Introduction

For developing a system we need to cover some initial study. It helps to investigate a system's background information. Also it helps to find the fault of this system so that necessary steps can be taken here to improve the project by adding and updating new features.

Our main goal of this project to get the appointment within a less time and without getting any trouble of any patient. We developed this projects for common people when they need to consultation of any doctors by getting their appointment within a short time by booking in online and get checkup at their desired time. Besides some blood donors profile is included there to get any purpose of donating also ambulance service is there for hiring and hospitalized immediately.

On the other hand, user can purchase their required medicine at a time from this system. So they won't be tensed about the purchasing of any medicine whenever they need. If people get those all solution at a time by a web it will be very helpful for them. So, people will now get interested to use internet and get all medical solution in a web-based system.

2.2 Related works

There are some related system is available right now but not a large number and no one is totally similar. Many of the system has some limitations. From the study of this similar project we got interested to develop our system. Some of the related systems of our project are mentioned below.

We have explored many websites which are related to medical health consciousness, first our attention caught in 'Doctorola.com'. In their system user need to search for doctor or hospital from different location and get them for booking appointment. There is no user login option and personal profile so users are totally detached from getting extra facilities in future purpose.

Another project is 'Doctorsbd.com'. This site provides only doctors list. Users can only able to know their service location from here.

2.3 Comparative Studies

Our modern age of technology is greatly dependent on internet. An online system is also known as a Web-based system. As the world is going so faster so there is always a desire to communicate faster and effectively. There are no such things that comes out without any limitations but we focused to overcome the best we could do. Our main focus was to determine the features for the patients. They are the large community of this system and they deserve to get the most out of this system. By using this system both doctors and patients become beneficial.

A lot of patient's daily visit to healthcare clinic or hospital and facing problem regarding have no knowledge about doctor specialty, wait for a long time to get doctor appointment and patients have no about doctor fee. There are several way to booking an appointment. A person can either go to the hospital directly for consultation or make an appointment from home through internet by Web-based system. To solve this problem we have developed an appointment system which improve the patient's satisfaction like patient can get reliable and timely access. So that we wish to offer such a system which will help them a lot. Our system will provides best result and save their valuable time too.

2.4 Scope of the Problem

As we said, patients face some difficulties to appointment with doctors. Our present system isn't as the requirement is going. So, we can recapitulate some problem here;

- Using different numbers of platform may not be enough for every patients to appointment with a doctor.
- There is some manual system to appointment, but this is fully online based.
- The people are not fully trusted on online system so that they will not get proper benefit from this system.

According to these problem, our system offers solutions that will help patients. User can easily access the system anytime and anywhere. This system is very simple and user friendly; Few of them are:

For Patients, help

- There is huge collection of doctor information
- Anyone can get blood on time.
- Smart way of appointment
- Medicine purchase system
- Find ambulance based on area
- Find doctor based on rating or area
- Reduce the appointment delay
- Can upload prescription for future
- Reduce cost

For Doctors, helps

- No need any assistant for appointment
- Easily access to history of medication of a patient.
- Can know acceptability by rating of patient

2.5 Challenges

Every work has some challenges. So, we have to face small number of challenges too.

1. As it's a Web-based system, so people need to appointments and reservations online through any web connected devices such as computer, laptop, smart phone, tablets etc. then the system will not help them.
2. If a doctor doesn't check the notification for confirmation which is booking by patient then the main motto of this system will be failed.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

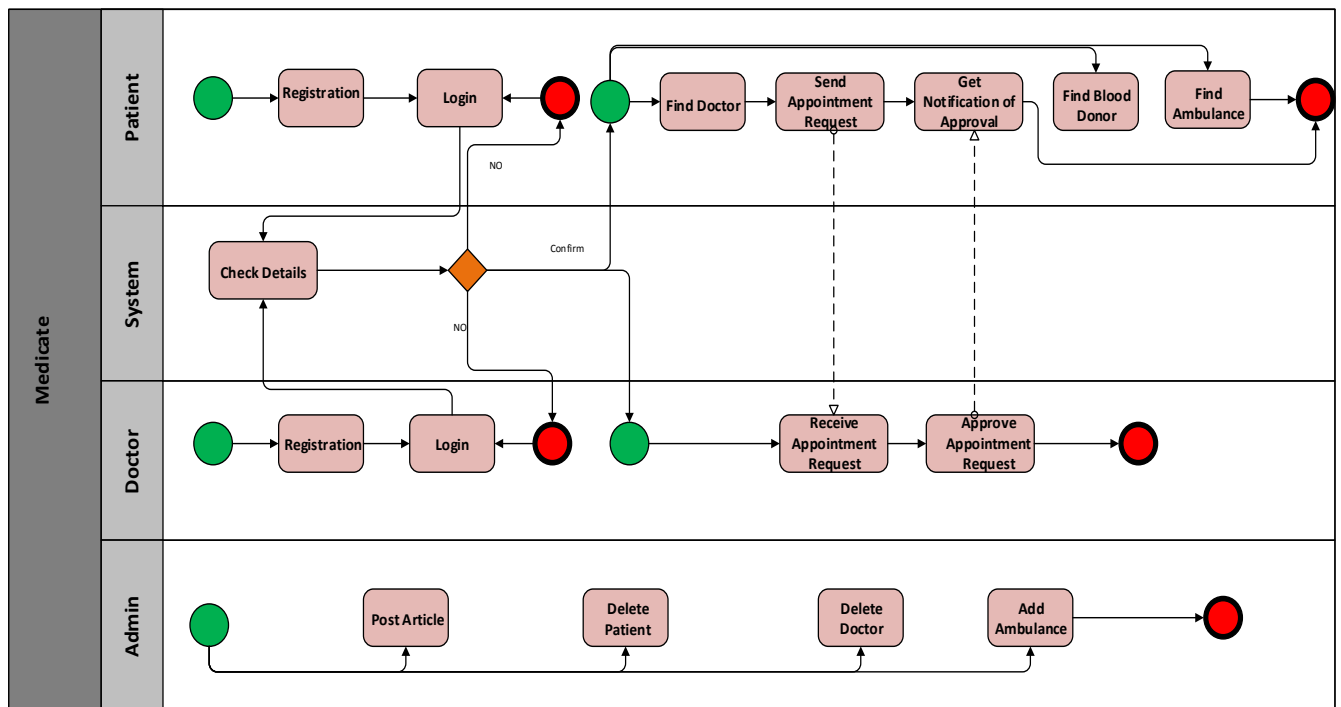


Figure 3.1: Business Process Modeling of Medicate

3.2 Requirement Collection and Analysis

Requirement collection and analysis is very crucial part of any project. Without analysis, collecting data or a good planning, a project will never complete properly. When we are developing on a project, a delivery time of the project has already given. That's why project work must be planned and executed to the deliver time.

Our project is an online Web-based doctor appointment system. Analysis and requirement collection was our big challenge, when we start thinking about this project. After start analysis we figure out some significant features that boost our project.

Hardware and Software Requirement for our system:

Whenever you install a software or a hardware for your computer, you should first make ensure that your computer supports the system requirements. We need a internet connection based system hardware's such as computers, laptops, tablets, smart phones and so on.

We have used some software tools and platform for development is describe below:

- HTML
- CSS
- Bootstrap
- PHP
- Laravel framework
- Phpstorm 2019.1

3.3 Use Case Modeling and Description

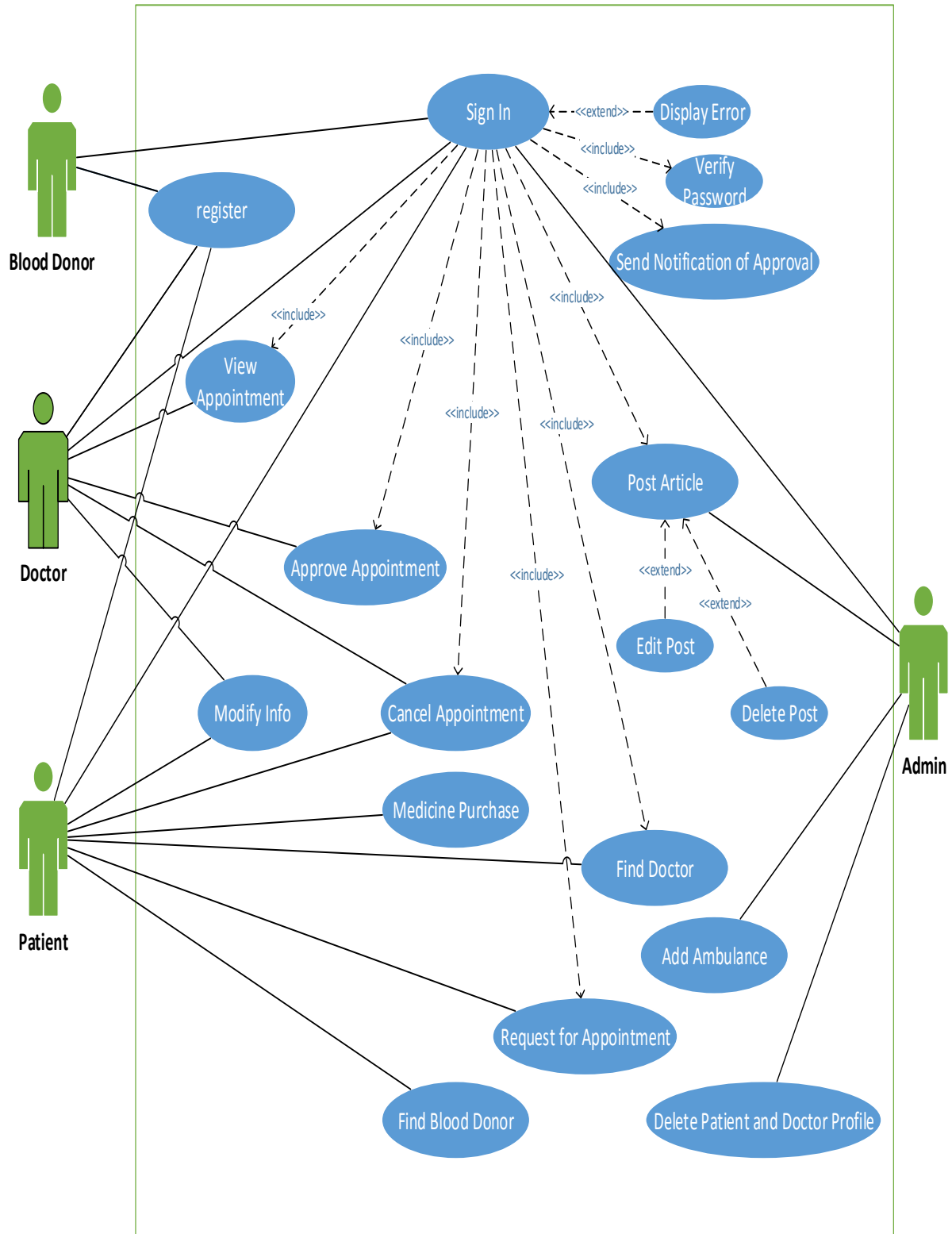


Figure 3.2: Use Case Modeling of Medicate

Use case 1: Login

Primary Actor: Blood Donor, Doctor, User

Precondition: Must have to complete registration

Main Success Scenario:

1. Actor puts email id in the email section
2. Actor puts password in the password section
3. Actor presses the login button

Exception Scenario:

1. Password is wrong
2. Password is empty

Use case 2: Find Doctor

Primary Actor: User

Precondition: Actor has must logged in

Main Success Scenario:

1. Actor search doctor
2. Actor views doctor

Exception Scenario:

1. Doctors list can't be empty

Use case 3: Make appointment

Primary Actor: User

Precondition: Actor has must logged in

Main Success Scenario:

1. Actor views appointment
2. Actor selects appointment
3. Actor books appointment

Exception Scenario:

1. Appointment can't be empty

Use case 4: Approval appointment

Primary Actor: Doctor

Precondition: Actor has must logged in

Main Success Scenario:

1. Actor views request
2. Actor makes approval
3. Actor cancels approval

Exception Scenario:

1. Approval request can't be empty

Use case 5: Find Blood Donor

Primary Actor: Doctor, User, System

Precondition: Actor has must logged in

Main Success Scenario:

1. Actors search donor
2. Actors view donor list

Exception Scenario:

1. User have to find them

Use case 6: Post Articles

Primary Actor: System

Precondition: Actor has must logged in

Main Success Scenario:

1. Actor can edit post
2. Actor delete post

Exception Scenario:

1. Post can't be empty

3.4 Activity Diagram

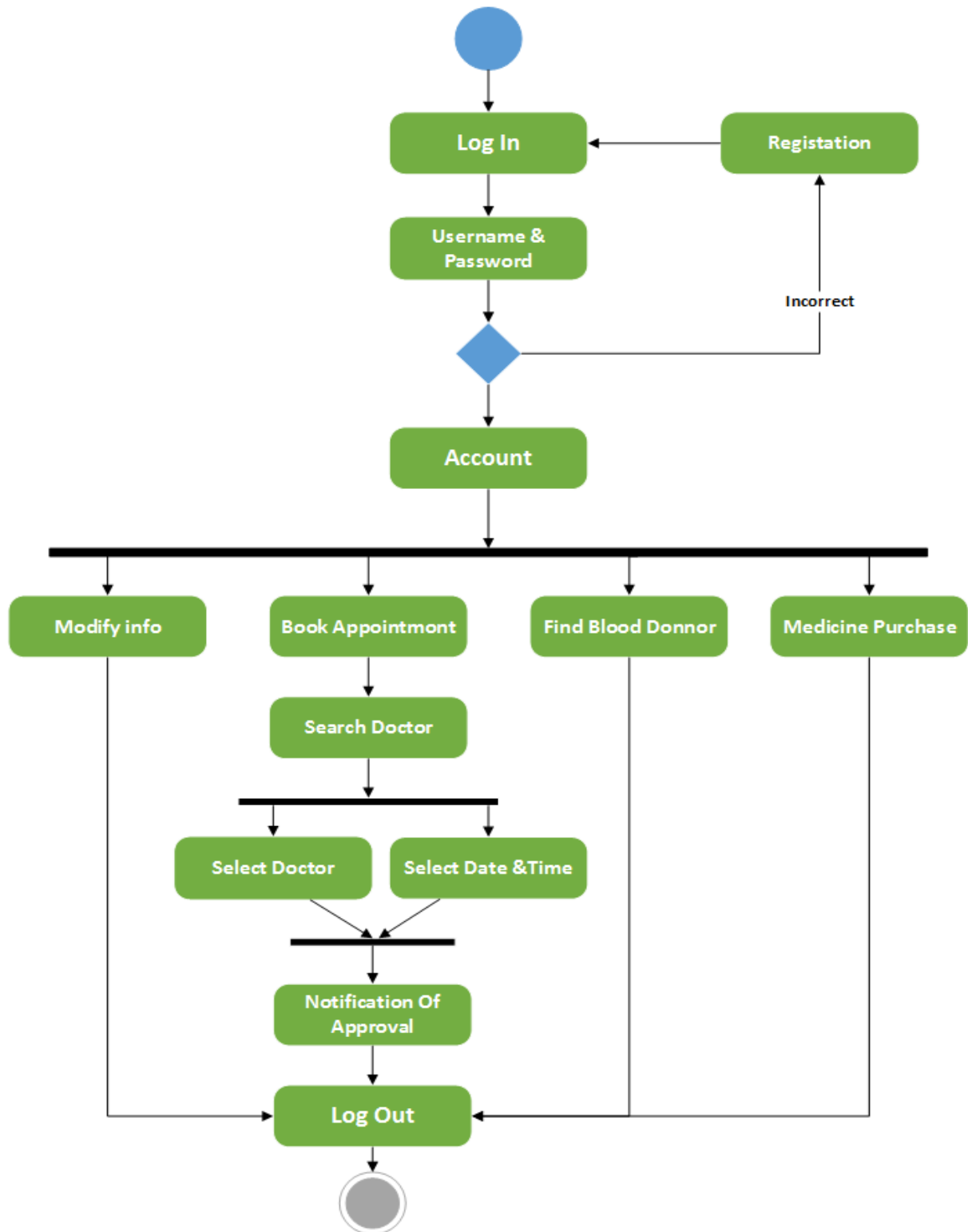


Figure 3.3: Activity Diagram of Patient from Medicate

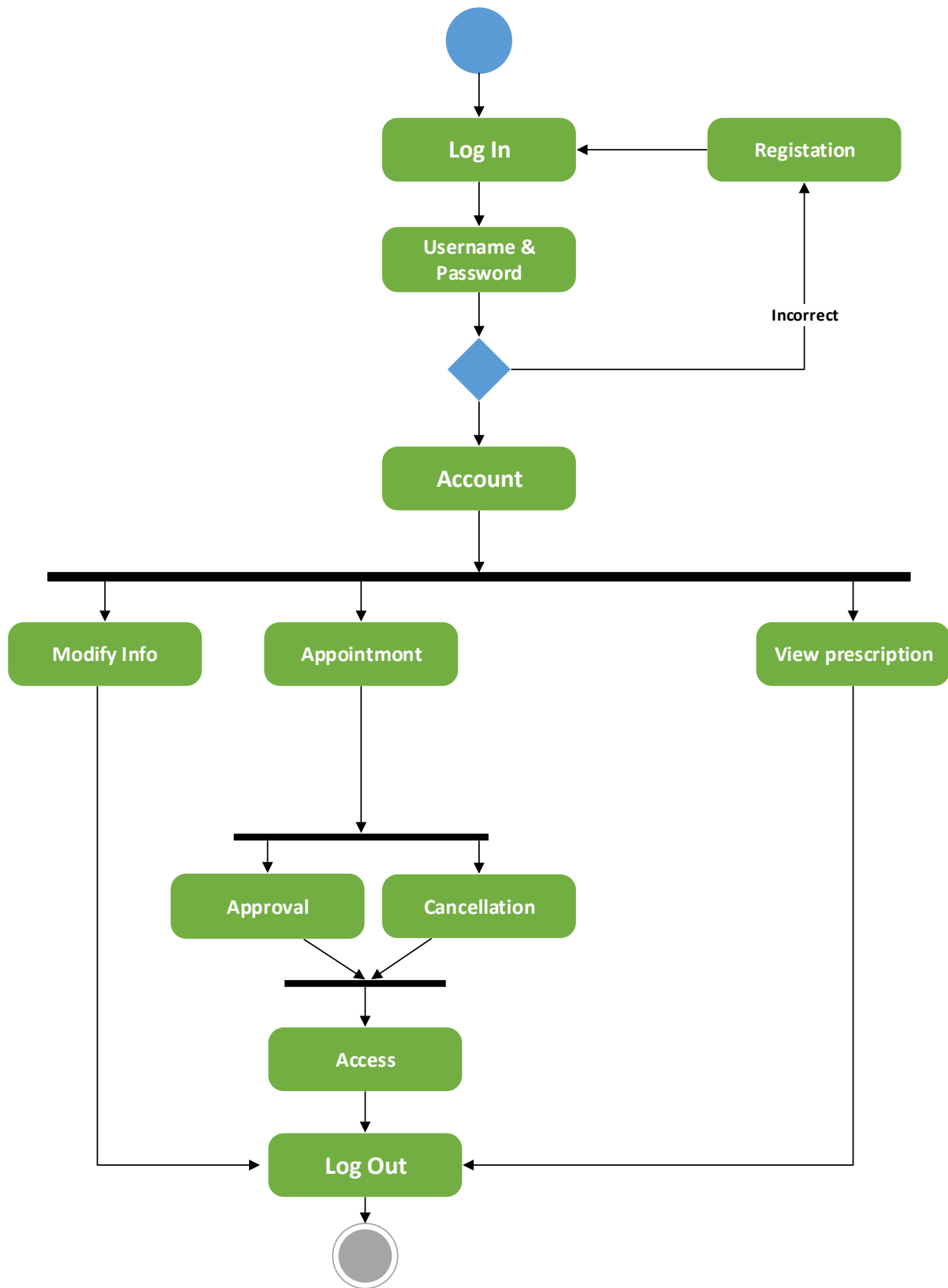


Figure 3.4: Activity Diagram of Doctor from Medicate

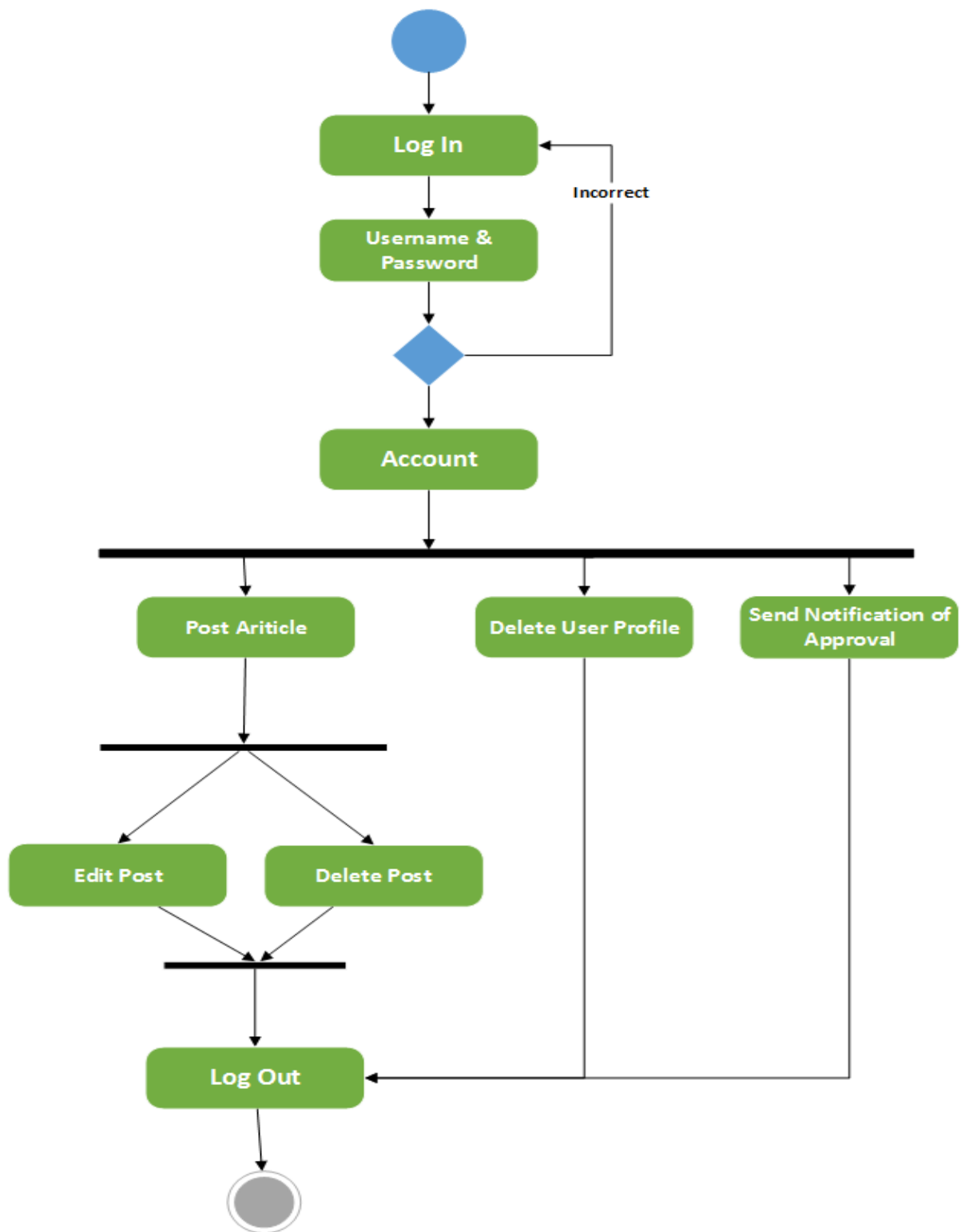


Figure 3.5: Activity Diagram of Admin from Medicate

3.5 E-R Diagram

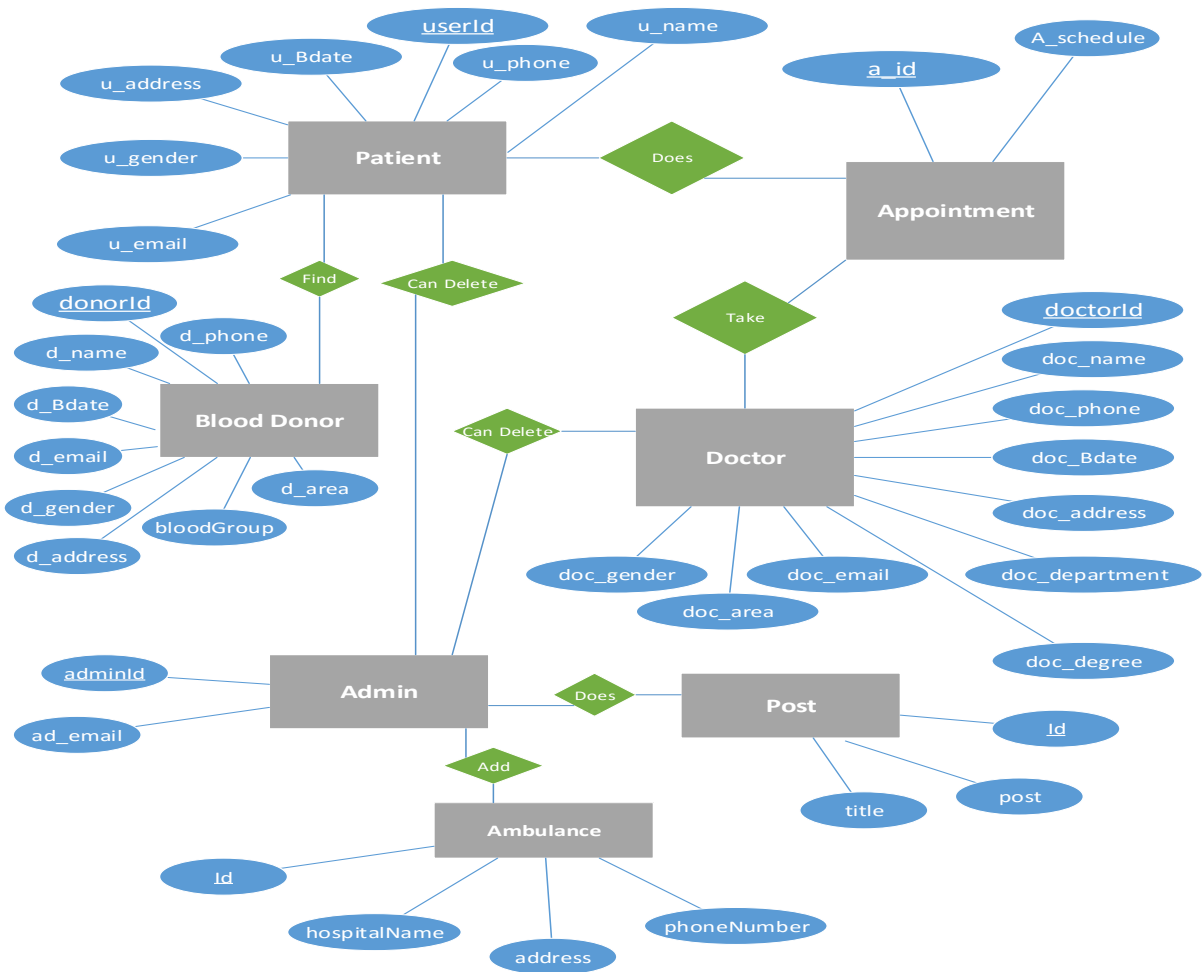


Figure 3.6: E-R Diagram of Medicate

3.6 Design Requirements

When we design a software or a system, we consider some requirements to make the project efficient. We have tried to build a user friendly web application. Our system user interface is very simple that everyone can use it without facing any problem. For better knowing, we have drawn business process model, use case diagram, activity diagram and logical data model. We have used to MySQL for designing our database. For front end design we have used HTML,CSS. We have used OOP, Laravel framework and PHP for back end design.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

The front end normally designed by two parts. The web design and front end web development. We use HTML, CSS and JavaScript for our front end design. These include things like fonts, drop-down menus, contact forms etc. In this section we include some home page front end design.

4.2 Back End Design

The backend normally designed by three parts. A server, an application and a database. User input the data that needed the application stores it in a databases that was create on a server. We basically used Laravel framework, phpstorm 2019.1 etc.

4.3 Interaction and Design and UX

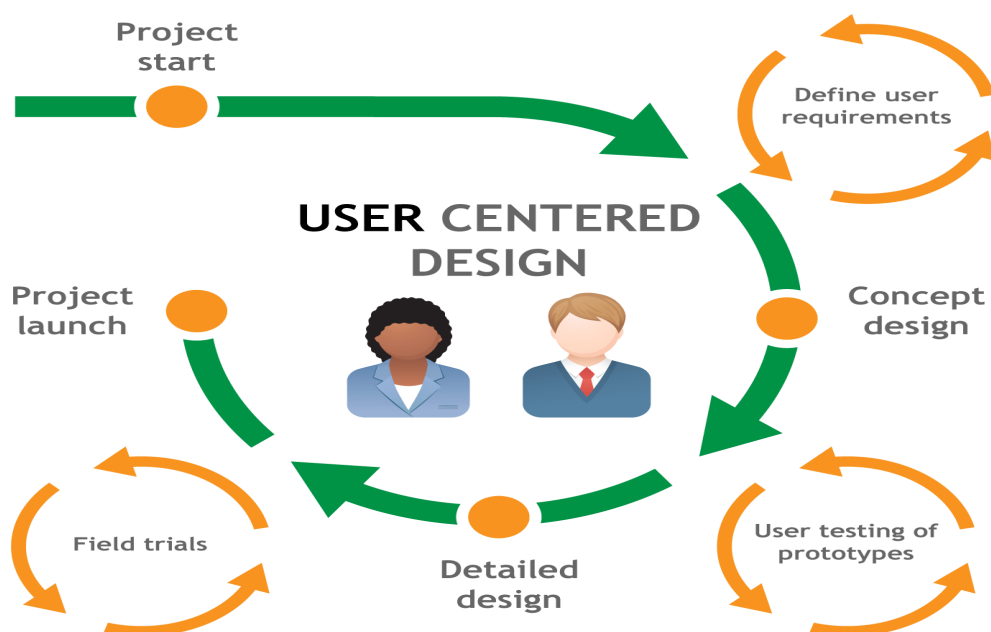


Figure 4.1: UX

4.4 Implementation Requirements

The main task of this part is to ensure or make all the things easier, useful and user friendly. The implementation Requirement was given us a very good idea. The list of implementation requirement is given below:

- Easier to create
- Easier to interact
- User-friendly
- delightful
- Dynamic pages
- Easier to manage

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

We have used “MySQL” for designing our database. MySQL is an open source relational database management system. It runs as a server and allows multiple users to manage and create numerous databases. It is a central component in the LAMP stack of open source web application software that is used to create websites. LAMP stands for Linux, Apache, MySQL, and PHP.

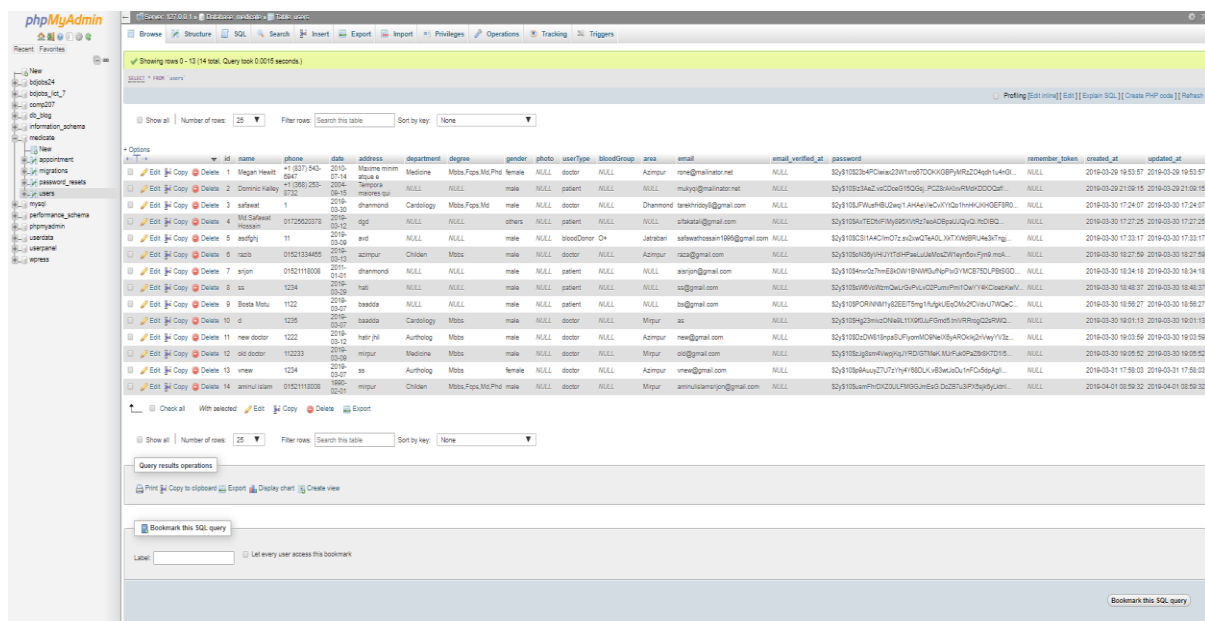


Figure 5.1: Database Implementation

5.2 Implementation of Front-end Design

This is the Home page of “Medicate”. A user needs to be log in to get access in the wed site as well as for using.

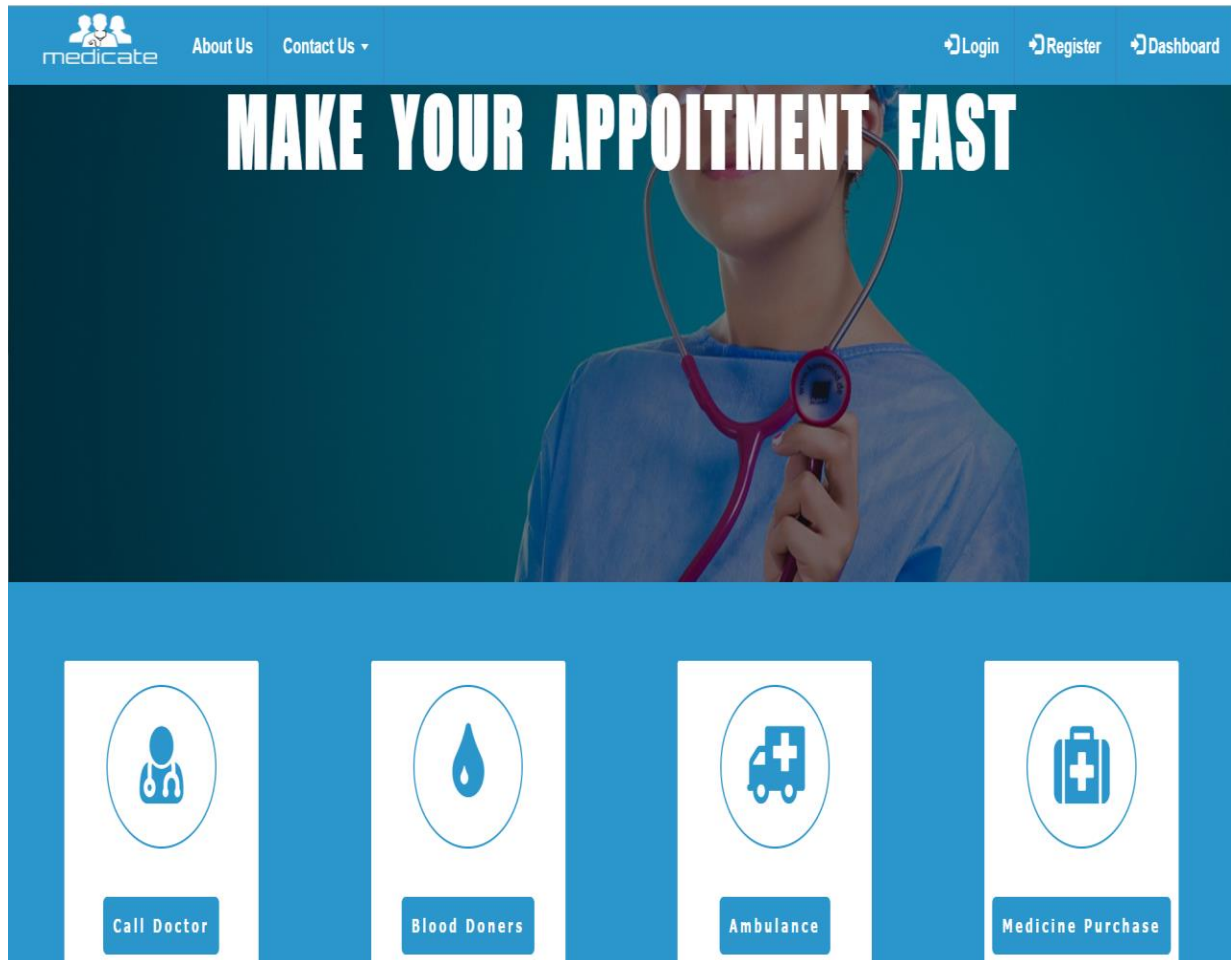


Figure 5.2: Homepage of “Medicate”.

This is the registration page of “Medicate”. Doctor, patient and blood donor have to registration for access and using.

The screenshot shows the 'Doctor Signup' page. At the top, there is a blue navigation bar with the 'medicate' logo, 'About Us', and 'Contact Us' links on the left, and 'Login', 'Register', and 'Dashboard' links on the right. Below the navigation bar, there are three tabs: 'Doctor Registration' (selected), 'Patient Registration', and 'Donor Registration'. The main content area is titled 'Doctor Signup' and contains the following form fields: 'FullName', 'Email', 'PhoneNumber', 'Password', 'Confirm Password', 'mmiddyyyy', 'Address', 'Department' (dropdown), 'Degree' (dropdown), and 'Select Area' (dropdown). There is also a radio button for 'Female/Male/Other'. A red 'Submit' button is located at the bottom of the form.

Figure 5.3: Registration page of “Medicate”.

This is the login page of “Medicate”. To login user have to enter valid email and password .If user forget password then here is an option to recover password.

The screenshot shows the 'Login' page. At the top, there is a blue navigation bar with the 'medicate' logo, 'About Us', and 'Contact Us' links on the left, and 'Login', 'Register', and 'Dashboard' links on the right. The main content area is titled 'Login' and contains the following form fields: 'Email' (with the value 'sm@gmail.com') and 'Password' (with the value '..'). There is a 'Remember Me' checkbox. A red 'Login' button and a red 'Forgot Your Password?' button are located at the bottom of the form.

Figure 5.4: Login page of “Medicate”

This is the patient dashboard of “Medicate”. Here patient can find doctor, view appointment, find blood donor and also find ambulances.

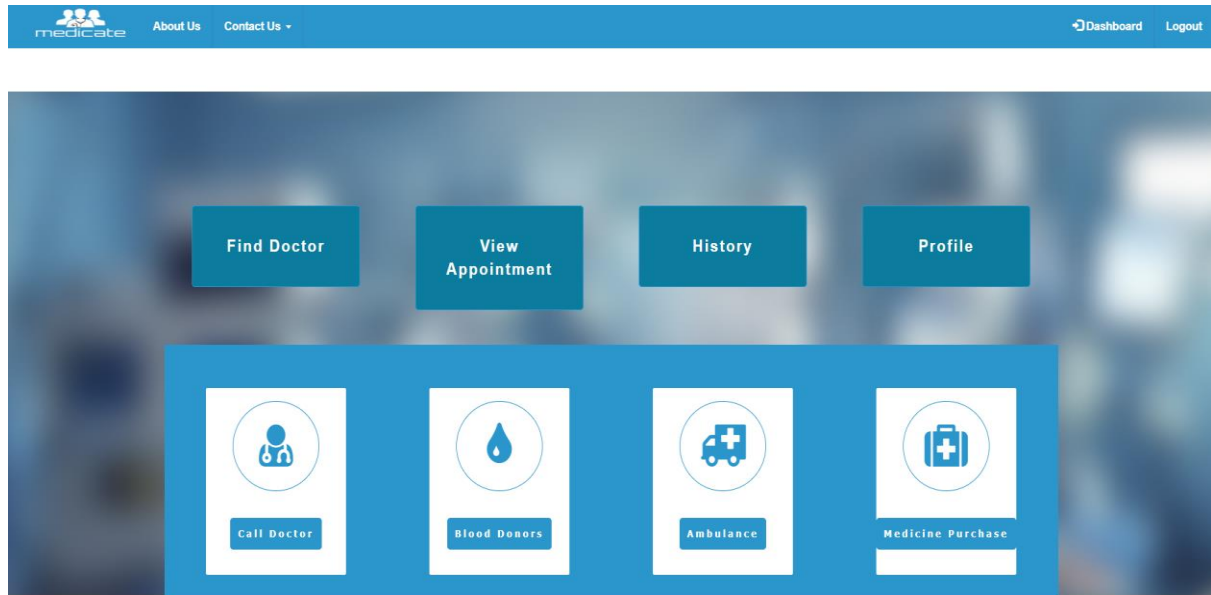


Figure 5.5: Patient Dashboard of “Medicate”.

This is the doctor search option for patient. Patient can search doctor by area, name and department.

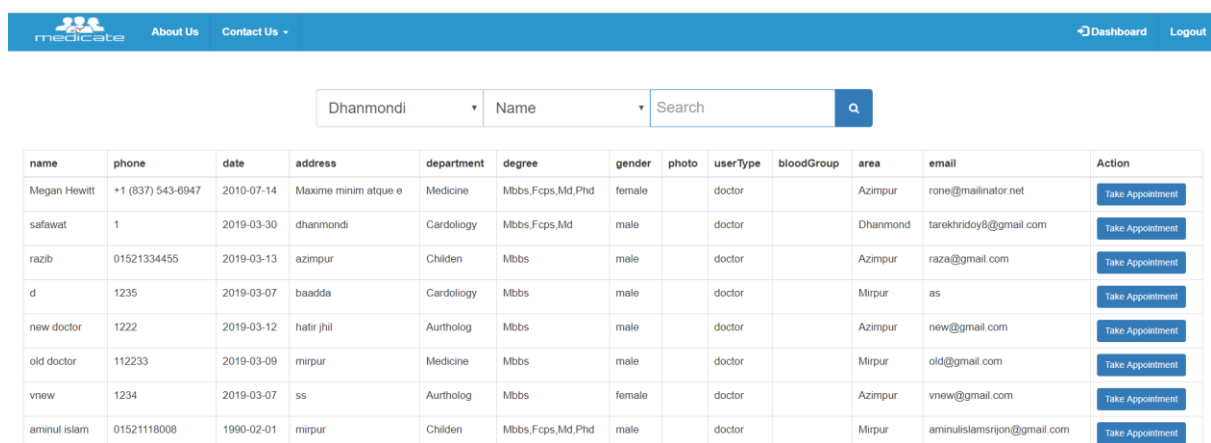


Figure 5.6: Search Doctor

Here, Patient can select the time schedule for their appointment.

ake_appointment

name: aminul islam
 phone: 01521118008
 department: Childen
 gender: male
 area: Mirpur
 email: aminulislamsrijon@gmail.com

Select Schedule ▼ Submit

Figure 5.7: Doctor Appointment Submission

Patient can see their appointment pending if doctor approved or not.

name	phone	Schedule	Action
sm	1234	12-1PM	Pending Request
sm	1234	9-10AM	Pending Request

Figure 5.8: Pending Request

After Doctor approved pending request patient can see the approval and cancel their approval at any emergency cases.

name	phone	Schedule	Action
sm	1234	12-1PM	Approved Appointment Cancel
sm	1234	9-10AM	Approved Appointment Cancel

Figure 5.9: Approved and Cancellation by Patient

This is Patient profile. Patients can edit their information.

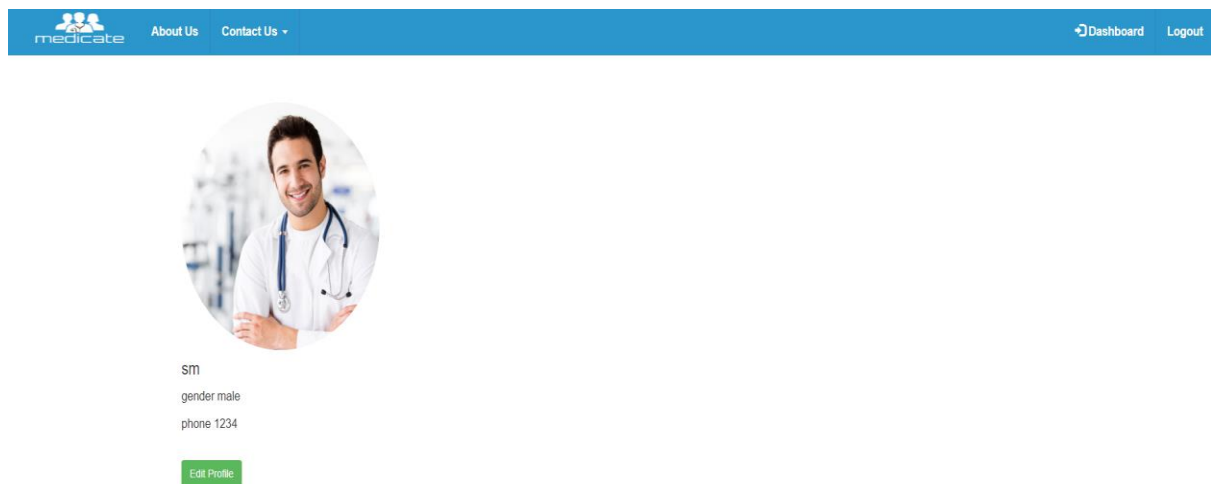


Figure 5.10: Patient Profile

Doctors can find here the approving requests from patients

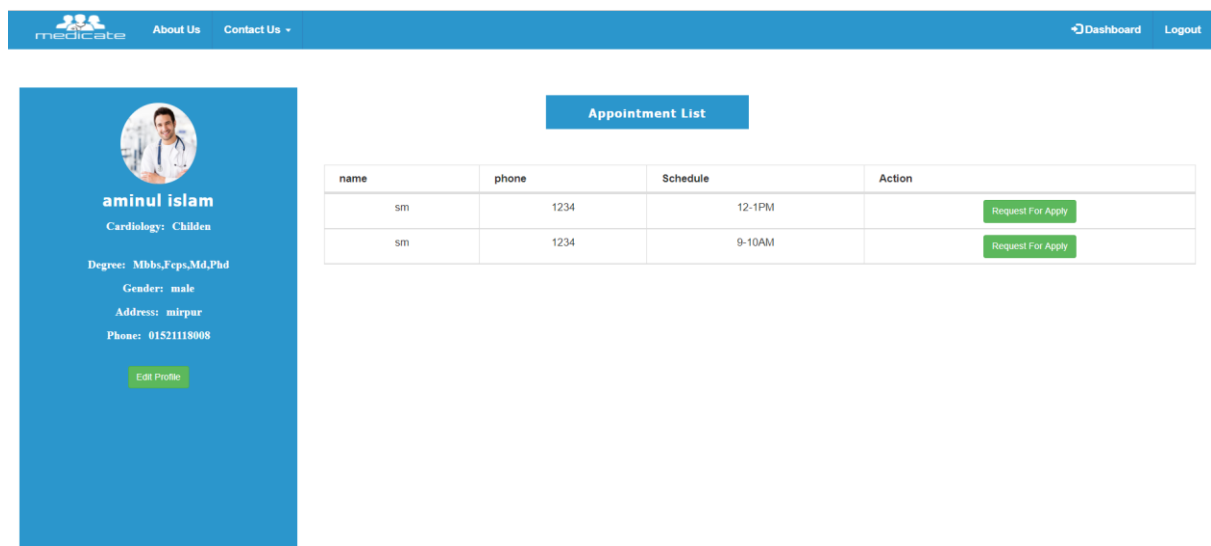


Figure 5.11: Doctor getting Request

After Doctor approved pending request then cancel the approval at any emergency cases.

The screenshot shows a doctor's profile on the left and an appointment list on the right. The profile for Dr. Aminul Islam includes his name, specialization (Cardiology: Children), degree (Mbb, Fcp, Md, Phd), gender (male), address (mirpur), and phone number (01521118008). The appointment list table contains two entries, both with 'Approved' status and 'Appointment Cancel' buttons.

name	phone	Schedule	Action
sm	1234	12-1PM	Approved Appointment Cancel
sm	1234	9-10AM	Approved Appointment Cancel

Figure 5.12: Approval and Cancellation by Doctor

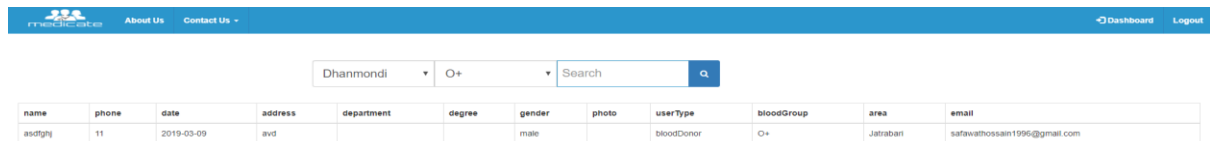
This is the ambulance search option for patient. Patient can search ambulances by area.

The screenshot displays an 'Ambulance on Emergency' search page. It features a grid of ambulance icons, each linked to a specific hospital with its name, location, and contact number.

Hospital Name	Location	Contact
Appollo	Gulsan	+880173253738
Bangladesh Medical Hospital	Dhanmondi	+880173268838
Square Hospital	Panthopath	+8801783738
lab Aid	Kolabagan	+880177253738
Green Life Medical	Badda	+880173253738
Eye Hospital	Dhanmondi	+880173268838
Japan Bangladesh	Jigatola	+8801783738
United Hospital	Gulsan	+880177253738

Figure 5.13: Ambulance Service

Patient can search Blood Donor for their need.



The screenshot shows a web application interface for searching blood donors. At the top, there is a blue header with navigation links: "About Us" and "Contact Us". On the right side of the header, there are links for "Dashboard" and "Logout". Below the header, there is a search bar with two dropdown menus: "Dhanmondi" and "O+", followed by a "Search" button. Below the search bar, there is a table with the following data:

name	phone	date	address	department	degree	gender	photo	userType	bloodGroup	area	email
asdtgh	11	2019-03-09	avd			male		bloodDonor	O+	Jatrabari	safawatossain1996@gmail.com

Figure 5.14: Search Blood Donor

5.3 Implementation of Interactions

Interactions are the common thing in today's system. It is a key to make a system dynamic and attractive to user. And it is very necessary to make a system interactive. Like we said before we tried to build a user friendly and an interactive platform. It should be done such a way that attracts the user.

5.4 Testing Implementation

The purpose of this test to evaluate our system's compliance with the specified requirement. We tried to make this system secured. Every single data that a user input on our system must pass the test.

5.5 Test Result and Reports

Table 1: Registration and Login Test Case

Sl No	Test case	Input	Expected outcome	Actual output	Result
1	Email check	Input without @	Invalid email	Invalid email. Must have @	Passed
2	Valid phone number	Input numeric value	correct	Correct	Passed
3	Invalid phone number	Input character	Incorrect	Numeric value required	Passed
4	Special character	Input special character	Special character not allowed	Not allowed	Passed

Table 2: Input User Information Test Case

Sl No	Test case	Input	Expected outcome	Actual output	Result
1	Display the webpage	Tested on us browser, chrome	Display successful	Display successful	Passed
2	User name	Wrong	Login failed	Login failed	Passed
3	Blank or Incorrect pass	Wrong password	Login failed	Login failed	Passed
4	Username	Input character	Special character not allowed	Letter and whitespace allowed	Passed

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Doctor and patient appointment system is a very exciting topic to work. After going through the work, we faced many challenging tasks. Day by day healthcare system become an important part of our society. So we have decided to build this system.

We researched so many system that showed us the direction how to develop our system. We interact with the people that what type of problem they facing. They were very happy to take this system as it is give them some relief in modern age.

Despite everything we achieved, we faced many challenges to finish this project. After all it's an online web-based system so in real life both doctor and patient need to follow the using rules otherwise its goal will be failed.

6.2 Scope of Further Development

Online system is always a changeable system. It develops day by day, getting better and better to easier for peoples. This could be a revolutionary web application that may help bonding between doctor and patient. We believe we can make this system more advanced in future. Advance features and User interface will be updated in future. Our system is already user friendly but we will try to make this system more user friendly in future.

APPENDIX

Appendix A: 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 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. It harass people a lot. Besides people need an ambulance service to carry on patient to hospitals. Merely, people need to visit hospitals or clinics to hire ambulance, it is a time consuming process. Day by day healthcare system become an important part of our society. So we have decided to build this system.

Appendix B: Related Diagrams

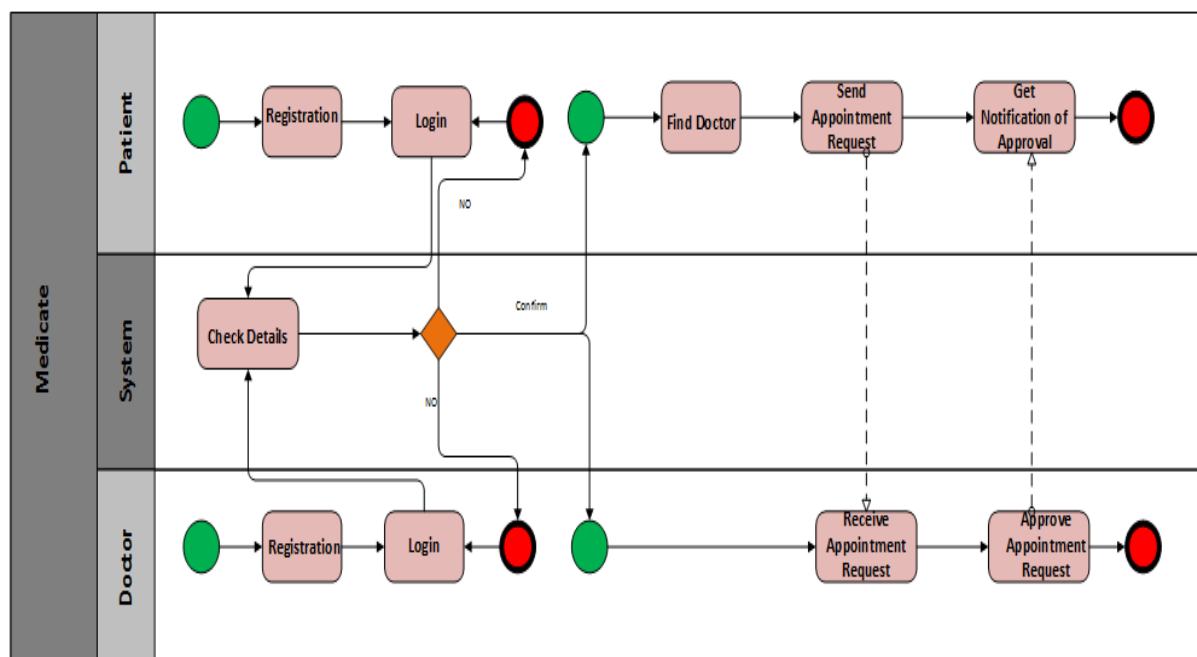


Figure A.1: Business Process Model

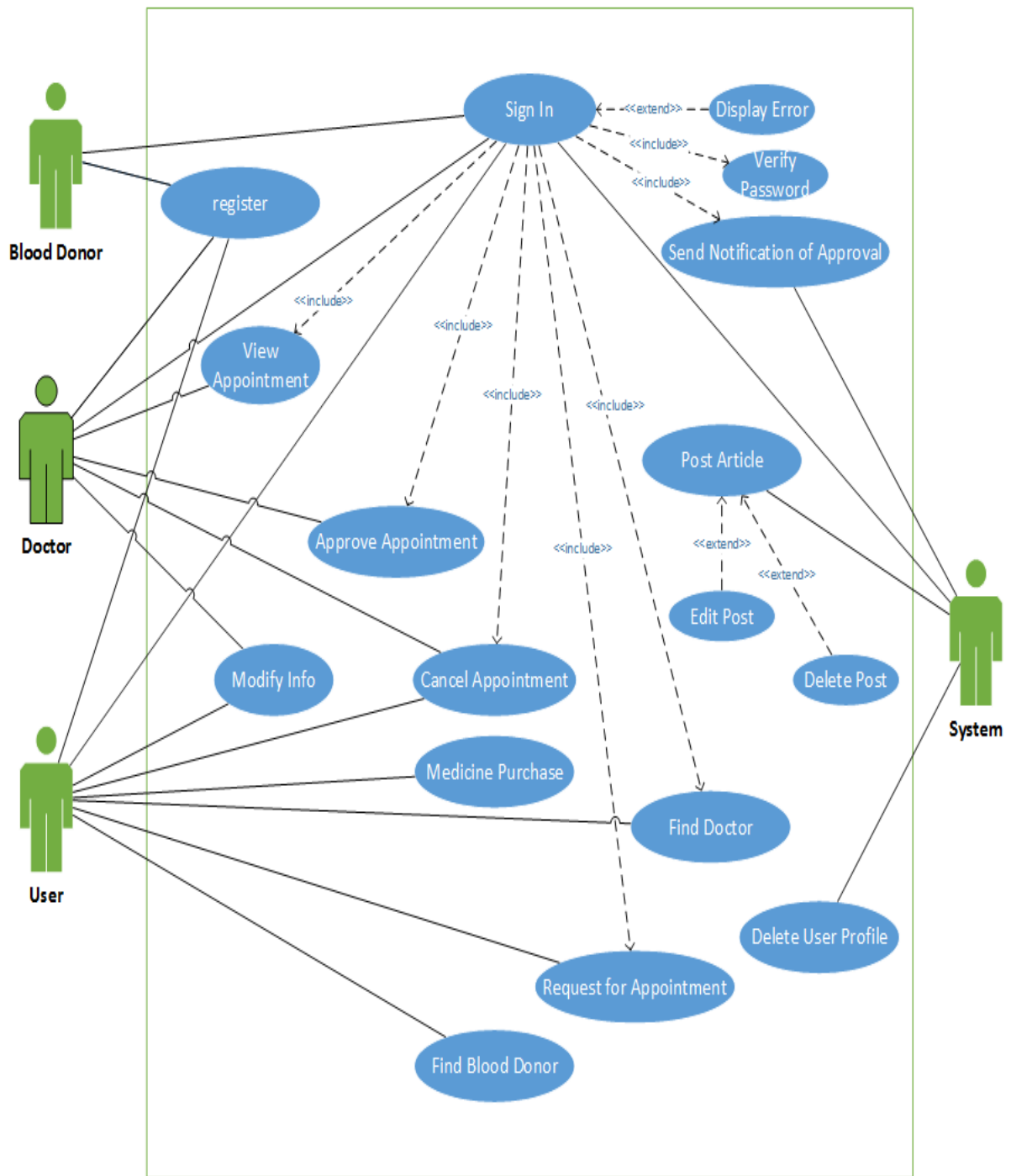


Figure A.2: Use case Model

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