

DOCTORS APPOINTMENT

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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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CERTIFICATE OF APPROVAL

The project report/ project entitled “Doctors Appointment” is submitted to the Department of Computer Science and Engineering at University of Liberal Arts Bangladesh (ULAB) in partial fulfillment of the requirements for the degree of Bachelor of Science.

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DECLARATION

I declare that this report/ project entitled “Doctors Appointment” is the result of my own research except as cited in the references. The report /project have not been accepted for any degree and are not concurrently submitted in candidature of any other degree.

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Abstract

Hospitals play a critical role in our lives by providing us with healthcare services. To ensure that the hospitals can function effectively and provide their communities with satisfactory services, it is important to ensure that these facilities are managed efficiently. However, many hospitals in Bangladesh are currently managed using the old-dated paper based system, as a result of which it takes much more time in hospitals to run the system resulting in complaints about the overall quality of the services. To improve the efficiency, effectiveness and quality of healthcare services as well as access to it, many developing countries are moving towards ICT-based Health Information System (HIS). Bangladesh always faces huge challenges with providing adequate and affordable health services. Electronic healthcare management systems can be utilized in Bangladesh to address the current challenges and overcome the limitations. Currently, in many hospitals all activities are done in a traditional handwritten manner. In this context, development of an Electronic Hospital Management System is taken as my undergraduate final year project. In this project, an application named “Doctors Appointment” is proposed where a patient can request appointments through online. The doctors and patients can register. Doctor specialty can be assigned and patients can request an appointment with doctors based on their specialty and Admin will approve the appointment. A feature is currently under active development to save and maintain the medical history of the patients. Once fully implemented, this system can greatly improve the management of clinics and medical care facilities in Bangladesh.

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CHAPTER 1

Introduction

1.1 Introduction

Hospital is an important part of our society; it provides us with healthcare. Better health leads to better happiness, well-being and economic progress. Because of the critical role that hospitals play in our lives, these facilities must be managed effectively and efficiently so that hospitals can provide the best quality care to the people. However, many hospitals in Bangladesh are currently managed using the old-dated paper based system. With this traditional system of hand-written records, it takes much more time in hospitals to run the system, because of which patients often complain about the overall quality of services that they receive.

Many developing countries are moving towards ICT-based Health Information System to improve the quality and efficiency of health services as well as access to it. Research has shown that e-Health tools can be a tool to improve access to healthcare services. Research has also shown that e-Health tools, among them Electronic Health Record (EHR), are either very useful or extremely useful in 70% of the non- OECD countries. Previous studies have also shown that Electronic Health Record systems can prevent serious medication errors and also improve access to patient information. Bangladesh is a country where providing adequate and affordable health service is a big challenge due to over population and poor healthcare infrastructure so that E-health care service needs to be introduced. Bangladesh also has a huge limitation of resources in

healthcare service. In Bangladesh, a huge number of patients are totally unaware of their previous disease histories. In hospitals all activities are done in a traditional handwritten manner, previous histories of patients have no certainty to be saved in hospital (Khan et al, 2012). The efficiency of a hospital can be greatly improved by introducing a computer based management system for the hospital where each department of the hospital is digitally modeled in the software and the digital records of workload, supplies etc are also kept, which is then processed to handle ongoing and future demands. For example, if a patient can make a doctor appointment from home through online and get an idea of the expected time to meet with the doctor, it is very beneficial for him/her. Similarly, a hospital should have a system to collect and store information about its daily activities, patient records and similar information. An electronic Hospital Management System can provide all these facilities to the hospitals. A properly implemented electronic Hospital Management System can make the lives of people much easier. Considering the current limitations of the healthcare management system in Bangladesh and the potential benefits offered by the electronic health management system, this project is carried out with the goals of developing a web-based This System that will make better hospital experience for both patients and the hospital employees . A thorough literature review of different aspects of an Electronic Hospital Management System is provided in Chapter 2. Chapter 3 includes a detailed list of requirements for developing such a system. An implementation of the Electronic Hospital Management System is shown in Chapter 4. Finally, Chapter 5 presents the conclusion and further recommendations of this project.

1.2 Motivation

People get sick unwillingly and to get rid of this illness, they have to see a doctor according to his disease. As the number of doctors is very small in proportion to the population, it is not easy for a patient to meet with a doctor when there is an emergency. A patient must make an appointment before meeting with his or her expected doctor. Traditional paper-based appointment systems make people suffer a lot. Taking such appointments wastes a lot of time and energy of a patient. People working in the clinic also have a lot of trouble while providing such appointments. Many times a patient goes home with a doctor's appointment beforehand and later when he comes to meet with the doctor he gets informed that the doctor will not see patients that day for his emergency work. If the patient finds out in advance that the doctor has canceled his appointment, then the patient does not have to come back to the hospital to meet with the doctor on that. Also, if a patient can make a doctor's appointment from home through online and get an idea of the expected time to meet with the doctor, it is very beneficial for him/her. If a patient can make a doctor's appointment from home, then the patient does not have to bother to come to the doctor's clinic to make an appointment. This will save a patient's time and energy. This will also greatly reduce the patient's suffering. People are getting busier with the passage of time and in this busyness if some time can be saved by using the blessing of technology is a great benefit. In a clinic, an admin has to go through a lot of trouble to schedule an appointment between a patient and a doctor. It is very difficult for an admin to do a lot of work together and also to schedule a meeting with a doctor for many patients according to the disease. If the complete information of patients is saved in a system and the complete information of the doctors is also saved then an admin can easily schedule the appointment of the patient with the

doctor. Similarly, a clinic needs a system to collect and store information about its daily activities, patient records and similar information - an electronic doctor's appointment system can provide all these facilities to the hospital.

The suffering of a patient and the person working in the clinic will be greatly reduced if an online based appointment system can be introduced in a clinic instead of a paper based appointment system. This System will improve the experiences for both patients and the clinic authorities.

1.3 Objectives

The objective of this project is to develop a web-based doctor's appointment system that will use a digital model of the basic attributes of each department of the clinic—namely patients, admin and doctors. This doctor's appointment system will include the following features and functionalities:

- There are three main modules; Admin, Doctor, Patient.
- A new patient will be able to register; admin will also be able to register a new patient.
- Registered patients will be able to request appointments with the doctor.
- Admin can check appointments requested by patients. He/she will be able to schedule appointments between doctor and patients.
- Admin will be able to manage the database.
- Doctors will be able to see the number of patients that they have to see for the day.

- Digital records of each patient will be saved in a database, so that a patient's previous history can be immediately looked up, when he/she comes to the clinic for a new treatment or consultation.
- Each doctor's specialties and capabilities as well as their schedule will be kept in digital records, so that their availability can be checked at any time.
- Doctor can check his available appointments for that day. A doctor can check Numbers of patients discharged after his consultancy.
- When a patient completes his/her meeting with the doctor, the admin can discharge the patient by generating a bill card. Bill cards can be downloaded.

1.4 Methodology

I will follow some methods to complete my project successfully. Those are given below:

- First, all the departments of a typical doctors clinic will be carefully studied.
- The three departments of the doctor's clinic that will be included in the management system in this software are- Patients, Doctors and Admins.
- Upon careful study, object-oriented models that represent the basic attributes and functions of each of the departments will be modeled. The overall software will use the basic models of the departments and add the total features of the software on top of the basic models of the departments.

- The Waterfall model will be followed to make the system. All the requirements will be gathered and then the gathered requirements will be analyzed. After completing this phase, the software architecture will be developed. Based on this software architecture, the software will be then developed using the Python web-development framework Django. HTML, CSS and JavaScript will be used as necessary in the front-end of the software. Django SQLite database and My SQL will be used as the web database.

1.5 Expected outcome

The expected outcome of this project is a web-based application named “Doctors Appointment”, which will dramatically improve the overall management and general service of a doctor’s clinic. It will save users time and energy.

CHAPTER 2

Literature Review

As part of my literature review for my final year project on Doctors Appointment System, I have reviewed some research papers for the purpose of (i) understanding the current scenario of appointment system in Bangladesh (ii) reviewing and studying any software and/or web/mobile application for appointment system that has been developed in Bangladesh and (iii) understanding the progress and trends in appointment system elsewhere in the world. In the following sections, I am summarizing the major points from each of the papers that are most relevant for my project. Those are given below;

The authors of this paper proposed an application where patients can take appointments with doctors and the previous problems of taking appointments of doctors can be solved. The authors implemented this application by using android studio, HTML, PHP. To use this system a patient must have an account. By logging in this system, patients will have a list of hospitals. By selecting any hospital he/she can get all the doctors list of that particular hospital. Patients will be able to contact the doctor by dialing the doctor's phone number or sending an email to the doctor. When you click the book appointment button, a calendar with various available time slots appears on the screen. The patient must submit an appointment request by picking a day and

time. If the appointment is successfully registered in the database, the user will receive a notification message. As a result, the central database is updated. [1]

The authors of this paper proposed a system where the benefits of the internet are appreciated. They divided their system into two parts. Patients can have an office meeting or a video meeting with doctors in their application. Office meetings means the patients can take appointments online but they must have to visit the doctor for treatment. Based on automated questions and taking replies from patients, the system automatically decides that the patient needs office consultation with a doctor or the meeting can be done on video conference. If the video meeting happens then the patient must have an internet connection and webcam. The appointment can be made from two sides, from physicians or from patients. When an appointment is created, the patient receives an Email, SMS. A patient must have to follow four steps to create an appointment. He/she must have to choose a type of consultation. Then the type of appointment must have to be selected. If he/she wants to do an office meeting then he/she will select the office meeting option. For video conferencing meetings he/she will select a video visit option. Then the available time slot will be shown for him. The reasons behind choosing the appointment will be asked at step four to improve the system in future. If the patient chooses a video meeting option then he will have some questions to answer. Multiple questions will be defined based on a patient's area of interest, and a forward chaining decision tree will be constructed for each question. The authors used XMPP protocol to maintain communications between the persons who will join in the video conversation. They also used WebRTC. By using WebRTC, the system doesn't need any other application to create a video conversation. [2]

The authors presented an online application in which a patient might find a doctor who is a great fit for his or her needs and preferences. Their main motivation behind making this application was to reduce the hassle of users to find doctors according to their need. The application provides the best choice to the user by matching between his/her given inputs and the data it has. The user will give his/her inputs according to need and his/her location. And then the application will suggest a suitable doctor according to his/her given inputs. The database of doctors is stored on NoSQL based data store, MongoDB. The system is implemented by Python, HTML, CSS. Django framework is used with Google API. The authors hoped that the application would save time and energy of users. [3]

The authors developed a Smartphone-based application booking system to schedule appointments. This application allows the user to register for appointments with their preferred time. This system is used as a communication channel between hospitals and patients. This mobile application has two panels: patient and doctor. Users need to download this application and install it at the initial stage. Then they have to create their account by using the inputs of name, id, contact number, password etc. The system scheduling checkup (SSC) receives all appointment requests, processes appointments and assigns patients to doctors. When a patient creates an appointment request, he/she must select a desired specialist. The system will show available time slots of the specialist. Once a time slot is selected, the system will never show it to other users. MYSQL, along with WAMP and PHP, was used to design and develop the system. [4]

In this study, the authors tried to implement and integrate all major features and functionality depending on their needs in the UAE. The authors tried to make an appointment system for the UAE to connect over the internet. They tried to reduce the traditional paper based appointment system. The authors proposed a system where a patient can make an appointment easily by sitting in his/her home. Patients will be able to look for doctors in every location from the UAE and take appointments. This software will use a network to reach a large number of hospitals and clinics around the UAE. The authors promised that patients' information is safe, secured and protected. Patients must have to create an account. According to their information given, they can ask for recommendations for selecting suitable doctors. The application is divided into three main sections: a mobile app, a website, and a central database. Mobile application has five key features; registration, login, searching for doctor, booking appointment, editing appointment. To design and implement a central database MySQL is used. The central database must be connected to all clinics and hospitals registered to this system. This database will be controlled and managed by the website, which will compete directly with mobile applications. The system is implemented in C#. For building website C# ASP was used. The user interacts with the mobile application as an interface between the user's needs and clinics and hospitals utilizing preselected techniques and algorithms. The authors desired that the system would assist users in scheduling appointments with healthcare professionals rather than having met with the general healthcare professionals first. The authors hoped that the system would save time and energy of users. [5]

The project proposed simple consultations via an online process, which will save patients time and energy. This application contains doctor's details and available times for patients. The doctor will be able to schedule his/her time for patients. This paper proposes a system where patients can book their appointments through online by doing signup at first. This is an internet software that solves a problem of managing and scheduling appointments focused upon on user's needs or requirements. Users will be able to cancel their booking for emergency cases. The doctor will be able to notify you of his or her schedule. Hospitals can monitor their registry and consultation processes, as well as monitor flow of patients to the doctor. The authors divided the project into three types; patient, doctor and admin. A patient needs to do registration at first. And then he/she will be able to make an appointment request. The admin will confirm the appointment based on doctor's availability. Doctors also need to have a registered account. Doctors can view appointment details forwarded by the admin. Patients can cancel their appointment at any time. The authors hoped that time could be saved to both doctor and patient with this application. [6]

To correct mistakes in collecting data on the data sheet, the authors proposed a system that was required to manage the data sheet and allow the recording of physician observations. According to them, the patient data sheet is a powerful part of the health care professional because it tracks the health condition of the patient as well as the medication used. In addition, the data sheet must be discussed by other specialists who are not employed by the hospital. As a result, if the data sheet is kept on paper, this operation will be much harder to complete, as well as an electronic format is a better way for a patient data sheet. The authors presented an electronic system that uses cloud systems to assist a detailed medical data sheet; further, the

system allows a specialist to submit his views to the sheet by storing them as mp3 files, which would then be forwarded to the cloud for storage and processing. The data has been processed by a cloud-based Voice recognition service, which enables the physician to record the observation for his or her upcoming consultation. The main aim of this study is to reduce physician overload in hospitals as well as to help them in recording data in the patient clinical data sheet. [7]

According to the author, the hospital information process is important to the hospital's development and growth. The management process must always be integrated throughout the hospital's information building process. His project is designed to gather, store, process, analyze, and exchange patient care and administration information using electronic systems and communications systems across all hospital departments. This paper aims to provide patients with high-quality service. Emergency register administration, pricing policies, payment, nursing station administration, report print, pharmacy dispensing, and data dictionary maintenance are among the seven function modules. [8]

The authors said that it is necessary for hospitals to be capable of communicating with one another and with urgent healthcare professionals regarding their bed and staff capacity shortages or supply. The authors described the Hospital Availability Management System. This study is based on a thorough understanding of the resources available of a hospital like staff, beds, services etc. The major goal of this paper is to inform internal hospital workers, as well as first responders such as ambulances, firemen, and public security officers, about the current condition of a hospital's health-care facilities. [9]

The importance of health is first mentioned in this paper, as improved health enhances human happiness, well-being, and economic development. Many developing nations are implementing ICT-based Health Information Systems (HIS) in the hopes of increasing the efficiency, efficacy, and quality of healthcare services, as well as improving the quality of it. E-Health tools have been shown in studies to improve access to healthcare services. In 70 percent of non-OECD nations, e-Health tools, such as the Electronic Health Record (EHR), are either very useful or highly beneficial, according to research. Previous research has demonstrated that electronic health record systems can help minimize serious prescription errors and enhance patient access to data. However, despite the benefits of e-Health, there are difficulties in implementing such a system due to a number of reasons such as cost, lack of infrastructure and shortage of resources with IT skills, poor strategy etc. In this framework, the authors completed their research in order to better understand the hopes and worries related to creating an electronic health record in Bangladesh. Upon their study, the authors make following observations and concluding remarks.[10]

Due to the overpopulation and poor healthcare facilities in Bangladesh, ensuring appropriate and efficient health care is a major concern, demanding the development of E-health care facilities. They also state that Bangladesh has a huge limitation of resources in healthcare service. In Bangladesh, a huge number of patients are totally unaware of their previous disease histories. In hospitals all activities are done in a traditional handwritten manner, previous histories of patients have no certainty to be saved in hospital. That's why the authors pointed to the importance of electronic medical records. They also hoped that the E health care service can make the life of people much easier. [10]

The authors of this paper proposed an application developed in Android OS. This system consists of two main modules called administration and general user. They offer hospitals information, cabin booking, appointment of the doctor, medicine reminders etc for general users. An administrator can update the information. General users can get hospital suggestions based on quality, and cost. User can get his/her selected hospital's location from Google map with a feature from the application. This system also provides an alert system to take medicines timely. Emergency calls for health care services for the users are also added in this system. A unique feature added in this system is cabin booking. A cabin can be booked by paying through the bkaash payment method in advance. [11]

This paper aims to make a system which will reduce the usage of paper. It mainly focuses on efficiency in usage and consistency of the graphical user interface. This paper also proposes a module which can predict the disease of a patient. A patient and a doctor module are the main two modules. Sub modules are pharmacy and lab staff. There is an admin module that can view all patient details, view all doctors' details, add new staff details, and update existing staff details. [12]

This paper proposes the Hospital management System in a user-friendly way where the patient's report and the doctor's report are available to every hospital member. This paper also proposes that the control of the system should have been in the hands of an approved person who has the system's password.. He can make all changes. Other members of the hospital only can view the system. [13]

The paper aims to make intelligent software which predicts for a patient where to go and which lab tests he needs to complete before he meets a doctor. Patients need to be registered first with a friendly question. Patients will be able to select their medical conditions from the application interface after finishing signup. The software will then show the patient the appropriate department, physicians name, consultation date and time, and necessary lab tests, all of which are susceptible to the doctor's approval. Following that, doctors review the patient's health information and authenticate the facts after consulting the patient. The authors believed that by using this software, physicians would be able to spend more time focusing on their patients. The software will be available online, according to the authors, so that sick and elderly people can visit hospitals while remaining at home. [14]

CHAPTER 3

Requirement Analysis and Design

3.1 Requirement Analysis

Requirement gathering and analysis is very important for this project. This project cannot be done properly without collecting data properly. This project is an online Web based application. After doing some research, I figured out some features for my project.

As this project is an online web-based project, internet connection is mandatory and users should have an internet connection based system tools like Smartphone, computer or laptop. There are many software requirements included in the functional requirements of the Doctors appointment, which contains four main modules; Admin, Doctor, Patient and Appointment.

An admin should submit his/her name, address, username during registration. An admin id will be auto generated after the registration. Admin can manage the department of patient and doctor by using the Admin module. He/she can check appointments requested by patients. He/she can add new patients and doctors. An admin can create his/her account manually. Admin can schedule appointments between doctor and patients. He/she has access to view the doctors and patients full details. Admin can update and delete doctors. When a patient completes his/her meeting with the doctor, the admin can discharge the patient by generating a bill card. Bill cards can be downloaded. Admin can manage the database.

Doctor has to create an account first. The doctor has to submit his/her name, address, date of birth, mobile number, username, password, and specialty while getting registered. Username and password should be submitted during login. When a doctor creates an account, a request will be sent to the Admin to approve the request. After approving the request, the doctor can check his appointments. His/her number of appointments will be shown on the dashboard. Discharged patients by admin will also be shown on the dashboard. A doctor can check his/her all patient records. The doctor can delete appointments.

A patient has to register for an account. He/she can manage the account but admin approval is needed to approve the account. He/she has to add name, address, and symptoms as mandatory inputs to create an account. He/she can book an appointment with a doctor. Admin will approve the appointment request. He/she can request multiple appointments with their own account.

The homepage of this application will have five sections; Admin, Doctor, Patient, About us and Contact us. An admin has to login to his/her account by selecting the admin section for further use. Similarly, the doctors have to select the section named Doctor and the patients have to select the section named Patient to log in. The Section named About us and Contact us contains more information about the clinic like location of the clinic, address of the clinic, contact number and email of the clinic.

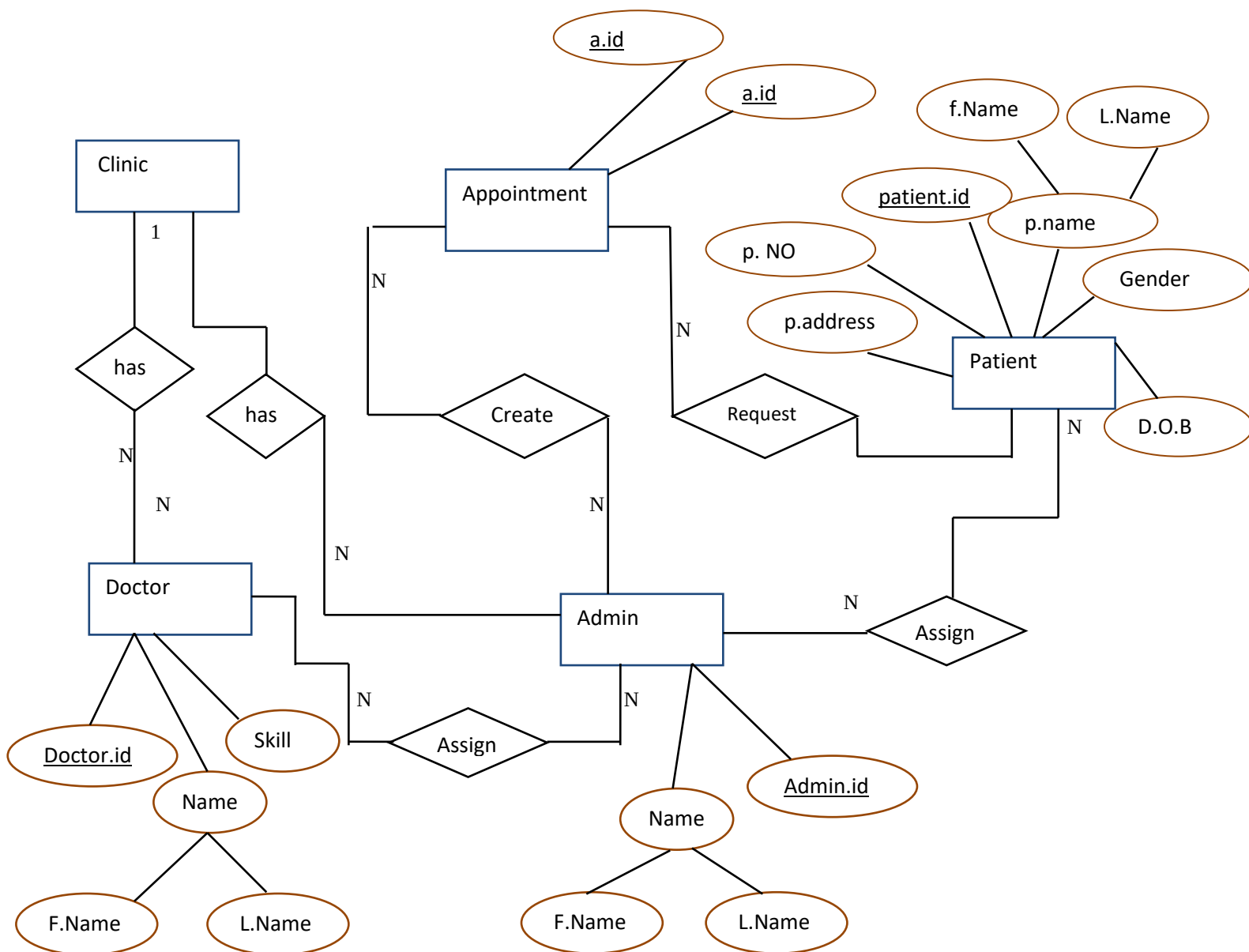
The Waterfall model will be followed to make the system. All the requirements will be gathered and then the gathered requirements will be analyzed. After completing this phase, the software architecture will be developed. Based on this software architecture, the software will be then developed using the Python web-development framework Django. HTML, CSS and JavaScript

will be used as necessary in the front-end of the software. My SQL will be used as the web database.

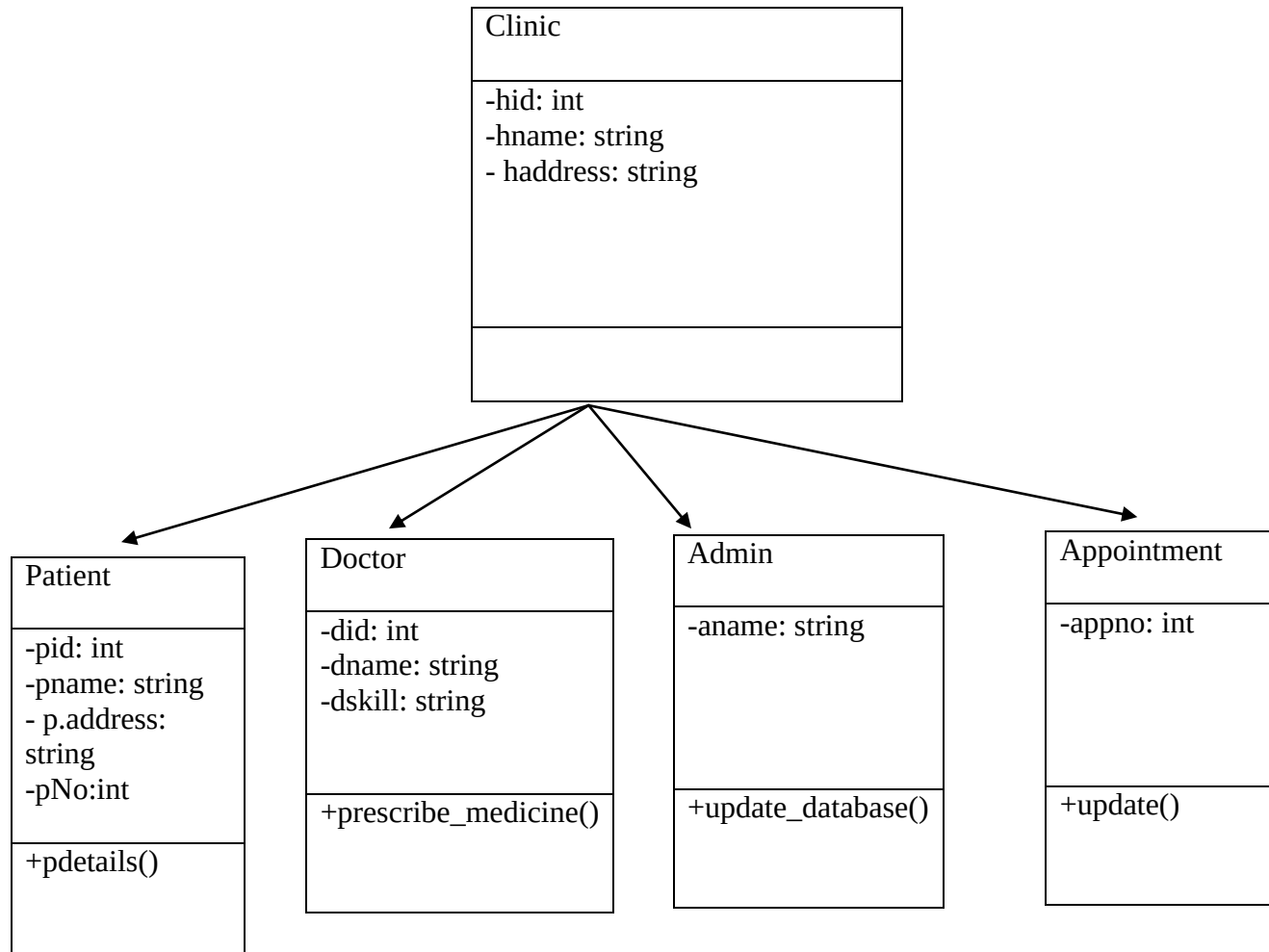
3.2 Design

To Design my project I used Entity Relationship Diagram, UML Class diagram, Use Case diagram. All diagrams are shown below;

3.2.1 Entity Relationship Diagram



3.2.2 UML Class Diagram



3.2.3 Use Case Diagram



CHAPTER 4

Implementation and Discussion

This proposed application named "Doctors Appointment" can schedule appointments between doctors and patients. Before scheduling appointments, all of the major modules (Admin, Doctor, patient) users should have their own account having with unique username. The proposed application consists of two major components; frontend and backend. Frontend is designed by using HTML, CSS, JavaScript, and Django framework. And backend is designed by using Django SQLite.

When an admin, doctor or a patient gets registered in the application, his/her given information is stored in the database. The application matches all of the information given by the user during login. If the information matches with the previous information saved by the user, then the application allows the user to be logged in. For example: if a patient creates his/her account by using username as *raihan.49* but he/she tries to login as *faiyaz.51*, the application will not find any matches between usernames and the application will not allow the patient to be logged in. Similarly, the passwords must be similar as he/she saved during signup. The application will allow the user to create appointments between doctor and patient registered in the application. Patients' symptoms and doctors' specialty should be matched. For example: If a patient has symptoms with heart disease, he/she must select the doctor who is a heart specialist.

The application will not allow users to create appointments between doctors and patients where symptoms and specialty don't match.

More features of the application are discussed and screenshots are attached below;

This is the Home page of “Doctors Appointment” (Fig: 4.1). There are five sections in this page. Those are: Admin, Doctor, Patient sections for login and About Us, Contact Us section to know more about the Clinic. Users need to login for further use. For example: an admin must have to sign up for using the admin section. He/she has to set a username and password with his information during registration. After completing registration, the admin will use the login option for further use. Username and password is mandatory for login. After logging in, the admin will be able to manage Admin the dashboard. Similarly, the Patients and the doctors also have to sign up at first. Then they will be able to login by using a given username and password during sign up. About us and contact us sections will contact more details about the clinic like location, availability, number of doctors, doctor's specialty, clinics contact number, email etc.

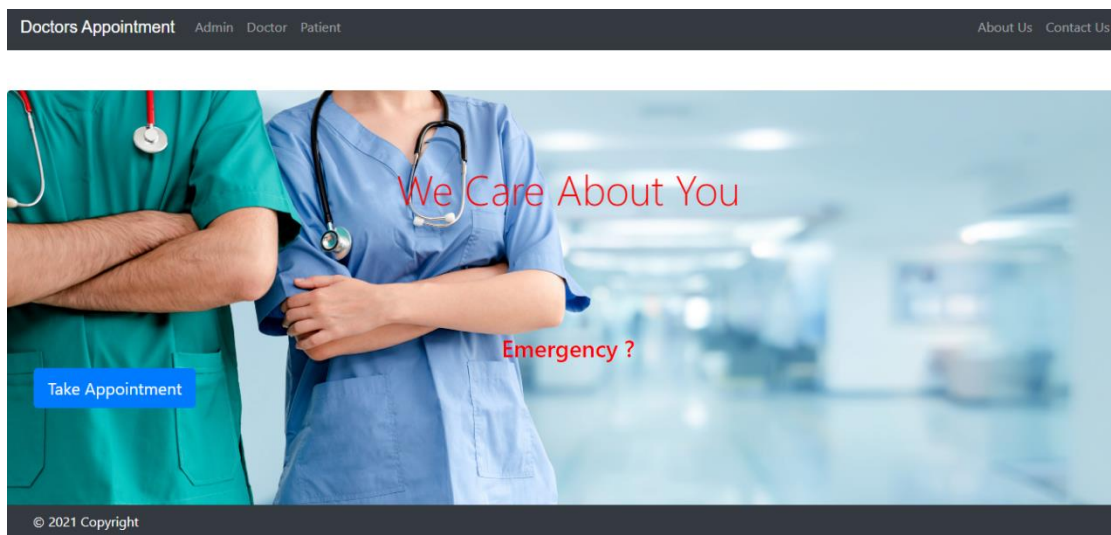


Figure 4. 1: Admin Home page of “Doctors Appointment”

This is the admin signup and login page of “Doctors Appointment” (Fig: 4.2). Admin must have to sign up to login for further use. The admin has to submit his/her name, contact number, address, password while signing up. The application will take the admin directly on the login page when the signing up is done. Then the admin will login into his/her account by using the username and password given during signup. The admin will be able to manage the dashboard page of the clinic after logging in his/her admin account. The patients and the doctors also have to sign up to create their own account.

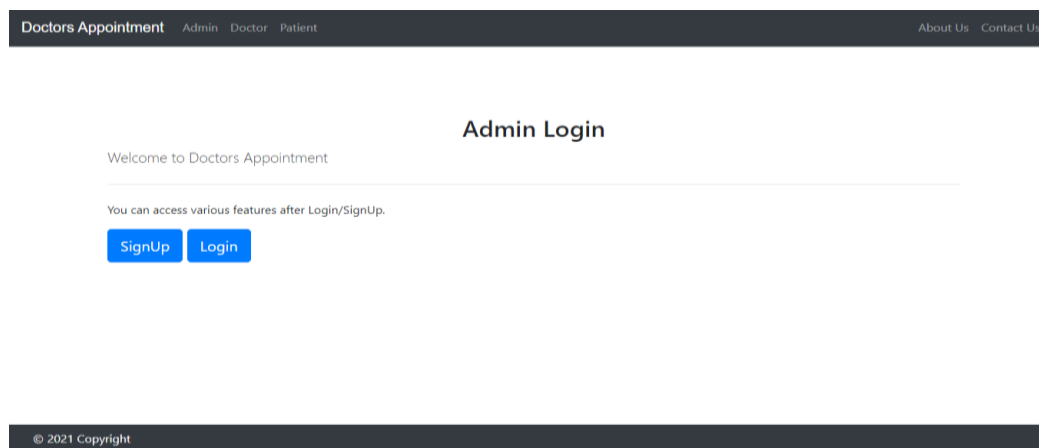


Figure 4. 2: Admin login page of “Doctors Appointment”

This is the Doctor’s register page of “Doctors Appointment” (Fig: 4.3). Doctors must have to register to login for further use. She/he has to set his First name, Last name, Username, password, address, mobile number and specialty to get registered. When a doctor creates an account, an approval request will be sent to the admin account. The admin will immediately check the given information and will approve it. Doctor has no access to login in his account before the approval from admin. The doctor can use his account and dashboard when the approval is done.

The screenshot shows a web page titled "Register in the Clinic" for "Doctors Appointment". The page has a dark header with navigation links: "Doctors Appointment", "Admin", "Doctor", "Patient", "About Us", and "Contact Us". The main content area contains a registration form with the following fields: "First Name", "Last Name", "Username", "Password" (with a "Please fill out this field." error message), "Cardiologist" (a dropdown menu), "Mobile", and "Address". A blue "Register" button is at the bottom left of the form. Below the button, there is a link: "Already have an account? [Login here](#)". The footer of the page says "© 2021 Copyright".

Figure 4. 3: Doctor’s register page of “Doctors Appointment”

This is the Signup page for patients of “Doctors Appointment” (Fig: 4.4). Patients can login after admin approval. When a patient creates an account, an approval request will be sent to the admin account. The admin will immediately check the given information given by the patient and will approve it if everything goes correct. Patient has no access to login in his account before the approval from admin. The patient can use his account and dashboard when the approval is done.

The screenshot shows a registration form titled "Register in the Clinic" under the "Doctors Appointment" header. The form includes input fields for First Name, Last Name, Username, Password, Address, Mobile Number, Symptoms, and a dropdown for Name and Department. A blue "Register" button is at the bottom left, and a link "Already have an account? [Login here](#)" is at the bottom right. The footer contains "© 2021 Copyright".

Figure 4. 4: Signup page for patients of “Doctors Appointment”

This is the After Signup page of “Doctors Appointment” (Fig:4.5). This alert page will be shown to the doctor until the account is approved by admin. As the doctor cannot use his account before the approval from admin, the page will be shown to the doctor as an alert message. When the approval is done by the admin, the page will not be shown. Doctors will be able to login after admin approval. Similarly, this page will also be shown to patients when their accounts are not approved.

The screenshot shows the "After Signup" page with a light blue background. It features the text "Hello Plabon" and "Your Account is not approved till now". Below this, it says "Our Team is checking your profile. Your Account will be confirmed soon." There is a "Check Later" link and a blue "Logout For Now" button. The footer contains "© 2021 Copyright".

Figure 4. 5: After Signup page of “Doctors Appointment”

This is the admin dashboard page of “Doctors Appointment” (Fig: 4.6). Admin can manage appointments, available patients, pending doctors, pending patients, number of appointments. Admin can add doctors, delete doctors, add patients, schedule appointments. Admin dashboard page is the key page of this application.

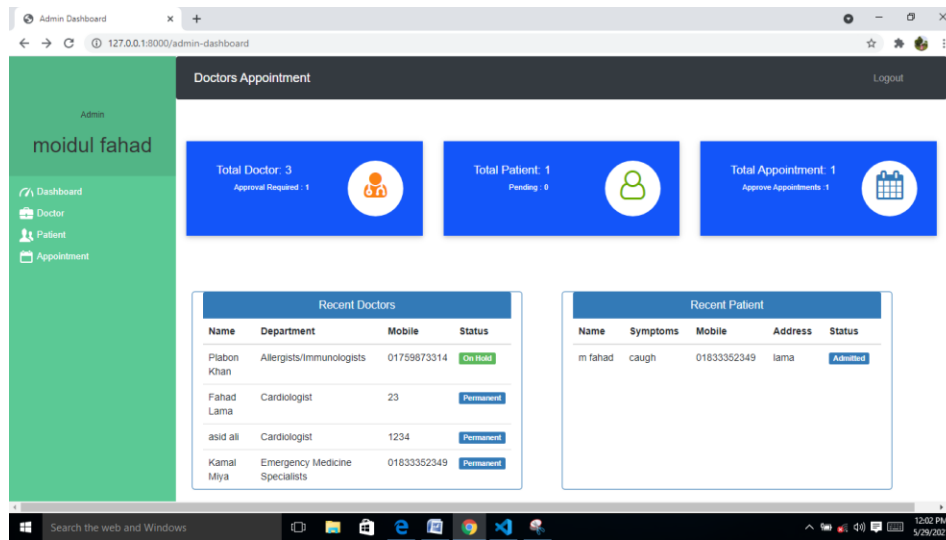


Figure 4. 6: Admin dashboard page of “Doctors Appointment

This is the Doctors dashboard page of “Doctors Appointment” (Fig: 4.7). A doctor can see available appointments under him/her. He/she can see the number of discharged patients under him/her. Recent appointments for the doctor are also shown in the dashboard. A doctor can cancel any appointments.

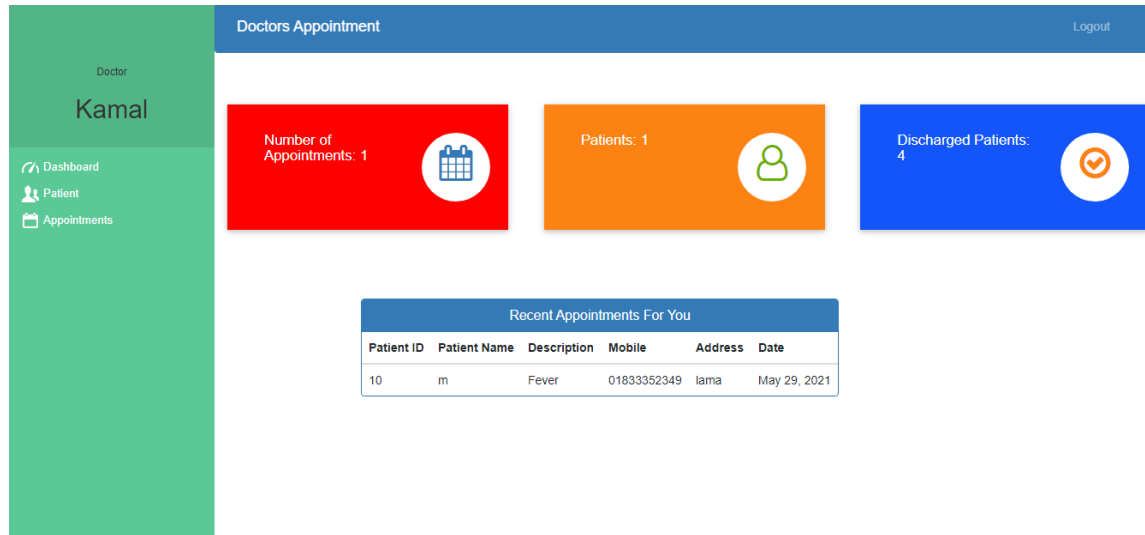


Figure 4. 7: Doctors dashboard page of “Doctors Appointment

This is the Patients dashboard page of “Doctors Appointment” (Fig:4. 8). The dashboard will show patients Symptoms (given information by patients during registration), His/her doctors information and date. Patients can book appointments. Patients also can check if their appointment requests are confirmed or not. When a patient creates an appointment request, the admin has to approve it. The appointment will be shown as pending to patient before approval.

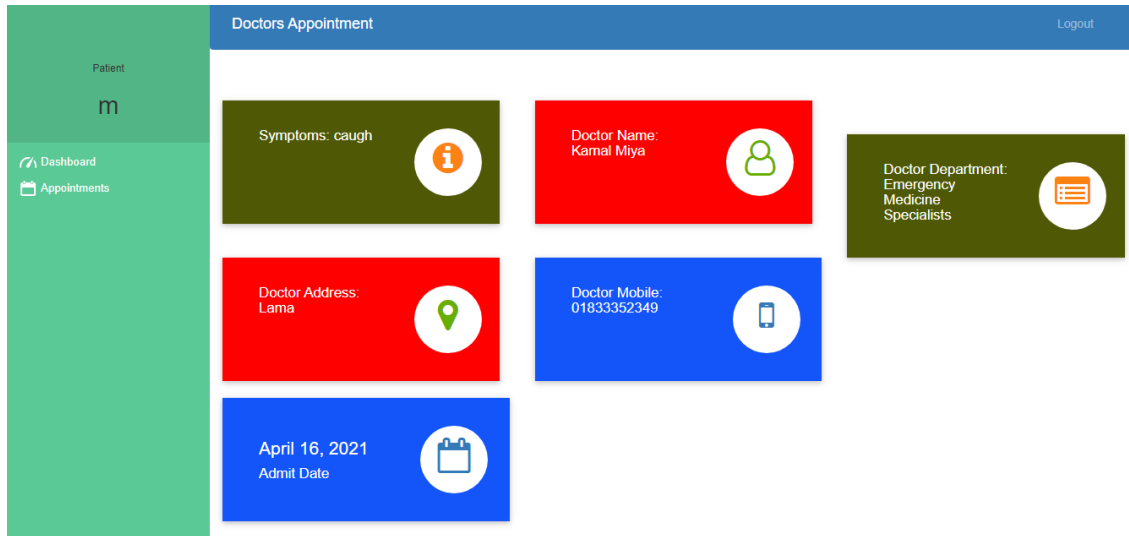


Figure 4. 8: Patients dashboard page of “Doctors Appointment

This is the Login Page of Doctors Appointment Database (Fig: 4.9). Super users can login to the account only.

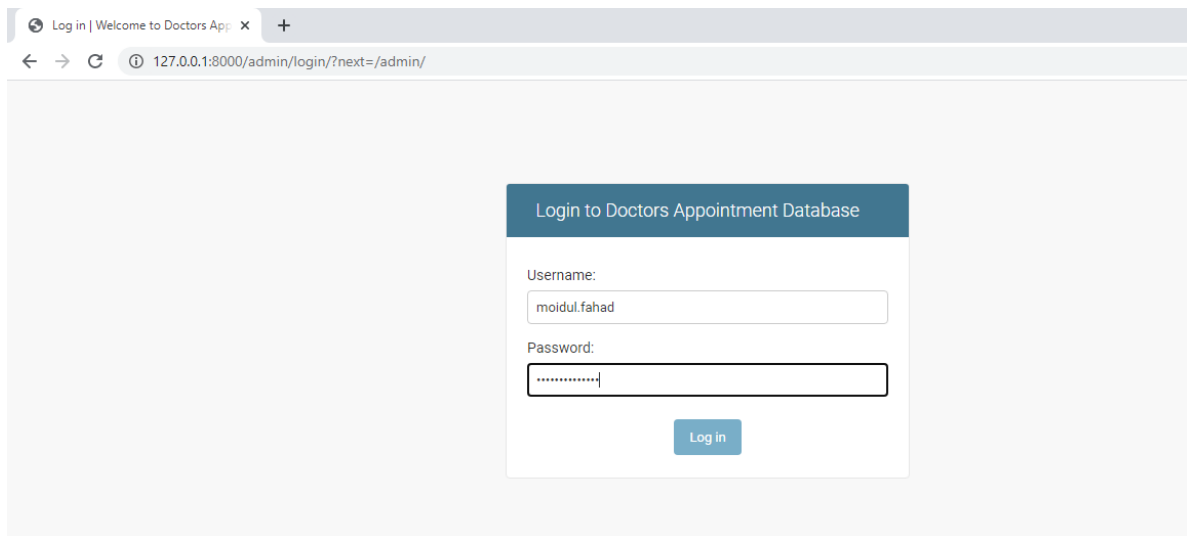


Figure 4. 9: Login Page of Doctors Appointment Database

This is the Homepage of Doctors Appointment Database (Fig: 4.10). This is the Django SQLITE database. Super User can manage the database from this page. Appointment scheduling, Adding new doctor, Deleting any doctor, Edit any doctors account, Adding new patient, Deleting any patient, Edit any patient account can be done from the database. Patient discharged details also can be controlled by the page. Figure 10: Homepage of Doctors Appointment Database

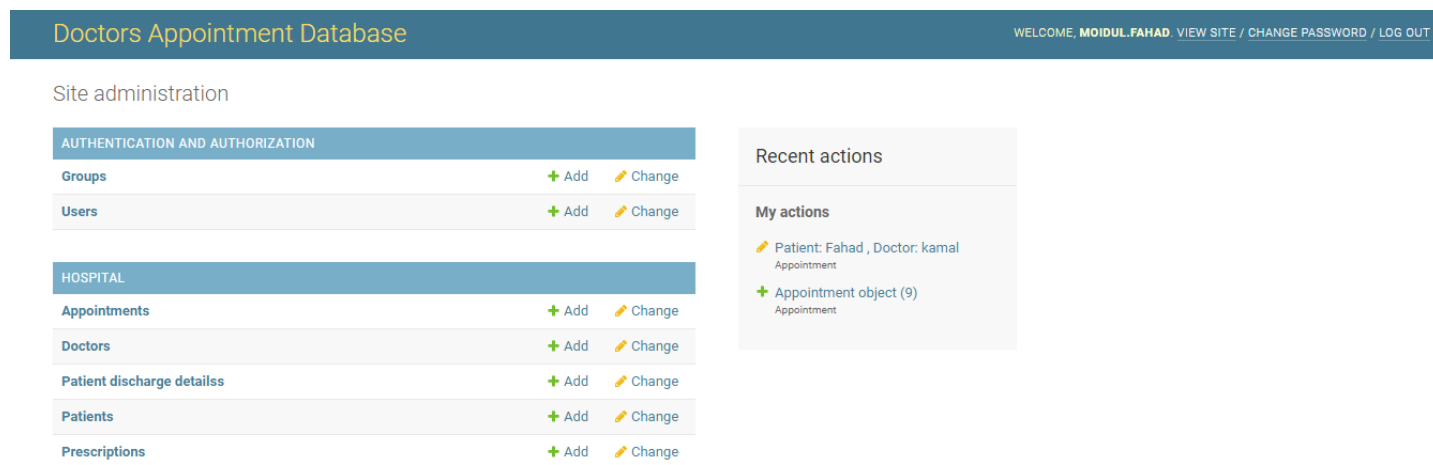


Figure 4. 10: Homepage of Doctors Appointment Database

Conclusion

People get sick unwillingly. To get rid of illness they have to meet a doctor according to their disease. Patients face many difficulties during booking doctor's appointments. As healthcare sectors are very much connected to our livelihood and this system will be very helpful to a user, that's why I decided to build this system. I hope the suffering of patients and the clinic authorities to schedule appointments will be greatly reduced by using this system. I hope that patients and clinic staff will have a better experience by using this system.

This project was a very exciting topic to work on. To get better and easier for users, online systems develop day by day and online systems are always changeable. There are many scoops to make this system more efficient and user friendly. I believe that more advanced features like doctors adding prescription by doctor; online meeting schedule and many more will be added in future.

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