



Daffodil
International
University

PROJECT REPORT

COURSE TITLE: SOFTWARE PROJECT III

COURSE CODE: CSE316

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Project Name: 'E-Health' Online Doctor Appointment System.

ABSTRACT

This system is designed to streamline healthcare-related tasks for both patients and medical professionals, focusing on efficient user account creation, doctor registration, appointment scheduling, and search functionality based on specialization. It aims to provide patients with a seamless way to select doctors, schedule appointments, and access their medical histories, while allowing admins to manage doctor registrations, view patient data, and ensure smooth operation of medical services. The system also supports real-time tracking of appointments and doctor availability, helping to improve overall healthcare service delivery.

BACKGROUND INFORMATION

The healthcare industry is undergoing rapid transformation, with an increasing reliance on digital platforms to streamline services and enhance patient experiences. In this evolving landscape, there is a significant need for systems that facilitate easy access to healthcare providers while improving operational efficiency. This system is designed to address these needs by enabling patients to search for doctors, schedule appointments, and manage their healthcare interactions seamlessly. With a focus on user-friendly interfaces, the system allows patients to search for doctors based on specialization, view doctor availability, and schedule appointments accordingly.

For healthcare providers, the system offers a robust framework for registration and approval, ensuring that only qualified doctors gain access to patient appointments. Doctors can register through a secure process, providing necessary credentials, while administrators manage the approval process. The system also provides an admin control panel that allows super admins to manage doctor registrations, modify appointments, add new admins, and oversee the overall operation of the system.

By integrating real-time data updates, the system ensures that patients and doctors have access to the most accurate and up-to-date information regarding appointments and availability. The goal is to create a streamlined process for patients to find the right doctors based on their medical needs, while also simplifying administrative tasks for healthcare providers and administrators. This combination of features aims to improve the overall efficiency and accessibility of healthcare services, contributing to a better patient experience and more effective healthcare management.

OBJECTIVES

The primary objectives of the Online Doctor Appointment System are as follows:

1. **Simplify Doctor Search and Appointment Booking:** Allow patients to easily search for doctors based on specialization and schedule appointments without friction.
2. **Ensure Real-Time Data Accessibility:** Enable patients to view up-to-date information regarding doctors' availability, specializations, and appointment status.
3. **Streamline Doctor Registration and Approval Process:** Provide a clear and efficient process for doctors to register with the system, including the submission of personal details and credentials for approval.
4. **Enhance Administrative Control:** Allow admins to manage doctor registrations, add new admins, and track system activity through dashboards with detailed information on doctors, patients, and appointments.
5. **Improve User Experience for Both Patients and Doctors:** Ensure that both patients and doctors have easy-to-navigate interfaces that enhance their experience with scheduling, profile management, and account access.
6. **Handle Errors Gracefully:** Implement error handling for situations such as invalid credentials during login, doctor unavailability for selected times, and incomplete doctor registration.

7. **Expand System Scalability:** Design the system to handle increasing user and data load as the number of doctors, patients, and appointments grows.

Scope

In-Scope:

1.**Doctor Registration and Approval:** Doctors can register by providing their personal details, specialization, availability, and other required credentials. Admins review and approve or deny doctor registrations.

2.**Appointment Scheduling:** Patients can search for doctors based on specialization and availability, then schedule appointments accordingly.

3.**Doctor Search by Specialization:** Patients can search for doctors based on the desired specialization. The system will display a list of doctors matching the criteria.

4.**Real-Time Data Updates:** The system will update and display doctors' availability and appointment status in real-time.

5.**Admin Control Panel:** Admins (and super admins) can log in, manage doctor registrations, add new admins, and track system activity through dashboards.

6.**Patient Profile Management:** Patients can create accounts, log in, view and manage their scheduled appointments, and check past appointment details.

7.**Error Handling:** The system will handle cases of invalid login credentials, unavailable doctors, and incomplete registration with appropriate error messages and guidance.

Out-of-Scope:

1. **Payment Processing:** The system does not handle payment transactions for consultations or appointments.
2. **Patient Medical History Management:** This system does not include detailed management of medical records or patient history.
3. **Doctor-Patient Communication:** Direct communication between doctors and patients (such as messaging or telemedicine consultations) is not part of this system.
4. **Offline Functionality:** The system is designed to function with an active internet connection. Offline capabilities are not included.
5. **Advanced Filtering:** The system does not include advanced filtering options such as insurance type, location, or language preference in the doctor search.

DIAGRAM:

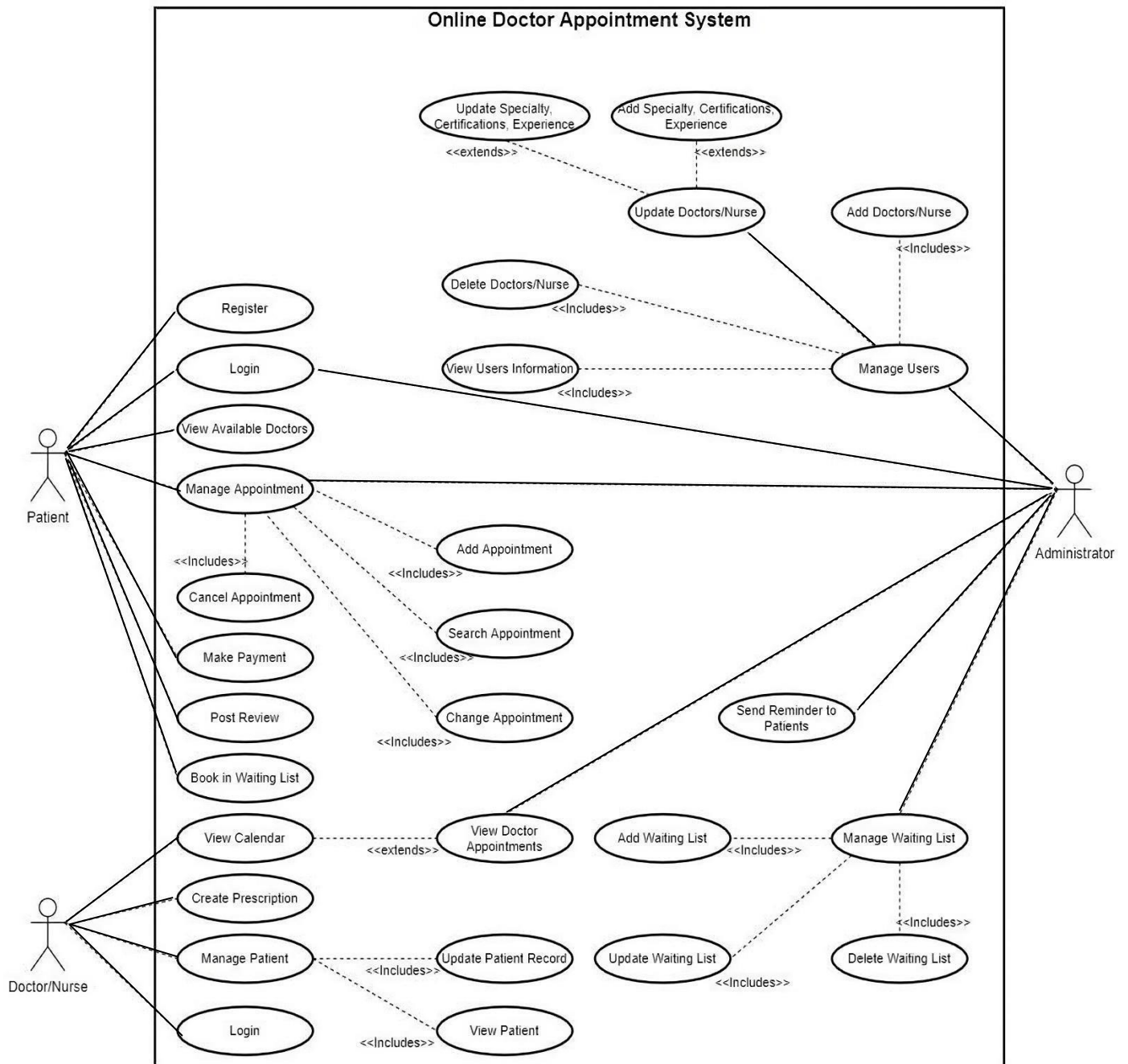


Fig 1: Use case diagram of doctor appointment system

USE CASE SPECIFICATION/ DESCRIPTION

Table 1: User Login and Account Creation

Use case name	UC1: User Login and Account Creation	
Actor(s)	User, System Authentication	
Description	A user creates a new account on the system. It has successful login, invalid credentials, and account creation.	
Reference ID		
Typical Course of events	Actor action Step 1: The user selects the "Sign Up" option and enters personal details (name, email, age, password, confirm password). Step 3: The user clicks on the "Submit" button to proceed with account creation. Step 5: The user enters their email and password to log in. Step 7:	System response Step 2: The system verifies the entered details (name, email, age, password, confirm password). Step 4: If the details are valid, the system creates a new account and saves the credentials in the database. It displays a success message. Step 6: The system validates the credentials with the database. Step 8: If the credentials are correct, the system grants access to the user and redirects them to their profile.

The alternative course of events	<p>Step 2.B: If missing or invalid information is detected (e.g., email format, password length), the user corrects the fields.</p> <p>Step 4.A: If the login fails due to incorrect email or password, the user is notified.</p> <p>Step 5.A: If the system is under maintenance, the user is notified.</p>	<p>Step 2.C: The system highlights the invalid or missing fields for correction.</p> <p>Step 4.B: The system displays an "Invalid email or password" message.</p> <p>Step 5.B: The system displays a "Temporarily unavailable" message. displays a "temporarily unavailable" message</p>
Precondition	The user must have accurate information ready for sign-up, such as name, email, age,	The system must be operational, capable of
	and password (including confirmation).	validating and storing credentials securely.

Table 2: Doctor Approval and Verification

Use case name	UC2: Doctor Registration and Approval
Actor(s)	Doctor, Admin, System
Description	Doctors sign up and await admin verification before gaining access to patient appointments
Reference ID	

Typical Course of events	<p>Actor action</p> <p>Step 1: Doctor registers by providing the following details: name, email, password, confirm password, contact number, specialization, consultant fee, available days, registration number, start check-up time, and end check-up time.</p> <p>Step 3: Doctor uploads a profile picture (optional) and updates their profile if needed.</p> <p>Step 5: Admin reviews the doctor's details and credentials.</p> <p>Step 7: The doctor logs in with their approved account.</p>	<p>System response Step 2: The system notifies the admin of a pending doctor registration.</p> <p>Step 4: The system stores the updated profile and profile picture. If the doctor's account is pending approval, the system displays the message: "Your account is pending approval. Patient services will resume after verification. Please wait for verification or contact admin after 24 hours. Thank you for your patience."</p> <p>Step 6: The system approves the registration and sends an approval confirmation to the doctor.</p> <p>Step 8: The system validates credentials and grants access to the doctor interface.</p>
An alternative course of events	<p>Step 2.A: The doctor provides additional registration details if prompted.</p> <p>Step 4.A: The admin reviews the doctor's information and chooses to deny approval if the requirements aren't met.</p>	<p>Step 2.B: The system detects insufficient registration information and prompts the doctor to complete any missing fields.</p> <p>Step 4.B: The system notifies the doctor of the denial and provides feedback on what is missing or incorrect.</p>
Precondition	The system must notify the admin of pending doctor registrations.	The system reflects the doctor's access status and grants access to the doctor interface after verification.

Table 3: Admin Control Panel and Permissions Management

Use case name	UC3 - Admin Panel and Permissions
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Actor(s)	Actor(s): Admin, System	
Description	The super admin manages the permissions of patients and doctors, approves doctor registrations, adds admins, and views dashboards with doctor details, patient details, and appointment details.	
Reference ID		
Typical Course of events	<p>Actor action</p> <p>Step 1: Admin logs into the control panel</p> <p>Step 3: Admin views the dashboard, which includes details about doctors, patients, and appointments.</p> <p>Step 5: Admin approves or denies doctor applications or modifies appointments if necessary.</p> <p>Step 7: Super Admin decides to add a new admin.</p> <p>Step 9: Admin confirms the addition of a new admin or approves doctor registration.</p>	<p>System response</p> <p>Step 2: The system validates credentials and grants admin-level access.</p> <p>Step 4: The system displays the requested data in a manageable interface, showing doctor details, patient details, and appointment information.</p> <p>Step 6: The system updates records changes.</p> <p>Step 8: The system prompts the super admin to enter the new admin's details and sets permissions.</p> <p>Step 10: The system grants the new admin access or approves the doctor registration and notifies the relevant users.</p>
Alternative course of events	<p>Step 1.A: Admin enters an invalid email or password while logging into the control panel.</p> <p>Step 3.A: Admin attempts to add a new admin with invalid credentials or missing details</p>	<p>Step 2.A: The system displays an "Invalid email or password" message and prompts the admin to re-enter valid credentials.</p> <p>Step 4.A: The system displays an error message, asking the admin to enter valid details and reauthorize the action.</p>

Precondition	The admin sees the updated user permissions, doctor registrations, and appointment details after successful approval or modification.	The system must be fully functional and accessible for performing administrative tasks.
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Table 4: Make Appointments

Use case name	UC4 - Make Appointments	
Actor(s)	Patient, System	
Description	Patients schedule and view appointments, select doctors based on specialization and available times.	
Reference ID		
Typical Course of events	<p>Actor action</p> <p>Step 1: The patient selects a doctor from the list of available doctors based on specialization, available days, and times.</p> <p>Step 3: The patient reviews the doctor's available days and times.</p> <p>Step 5: The patient selects an available date and time for the appointment.</p> <p>Step 7: The patient views scheduled appointments and summaries of past appointments.</p>	<p>System response</p> <p>Step 2: The system displays the doctor's available schedule, including available days and times.</p> <p>Step 4: The system provides detailed information about the doctor, including specialization and available dates and times.</p> <p>Step 6: The system checks the doctor's availability for the selected date and time. If available, the system confirms the appointment.</p> <p>Step 8: The system displays the scheduled appointment details and past appointment summaries.</p>

Alternative course of events	<p>Step 1.A: If there are no available doctors, the patient is notified that no doctors are currently available.</p> <p>Step 3.A: If the patient selects a time or date that does not match the doctor's availability (based on the schedule displayed), the system notifies the patient that the doctor is unavailable for the selected date and time.</p>	<p>Step 2.A: The system displays a message indicating that no available doctors are present for selection.</p> <p>Step 4.A: The system displays a message indicating that the doctor is not available for the selected date.</p>
Precondition	The doctor must be available for appointments.	The system must be able to check doctor availability in real time.

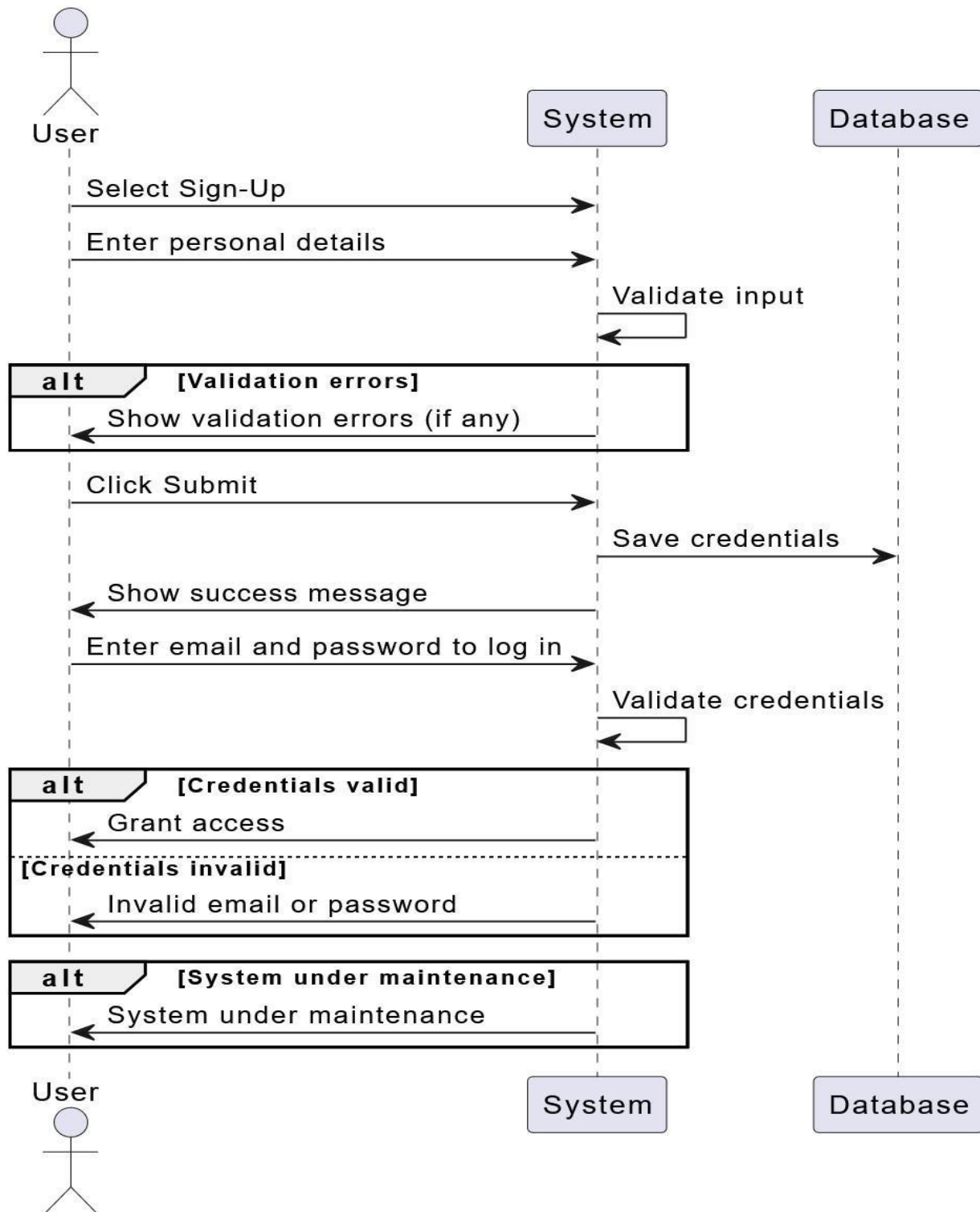
Table 5: Search Doctors

Use case name	UC4 - Patient can Search by Specialization
Actor(s)	Patient, System
Description	Patients search for doctors based on specialization.
Reference ID	

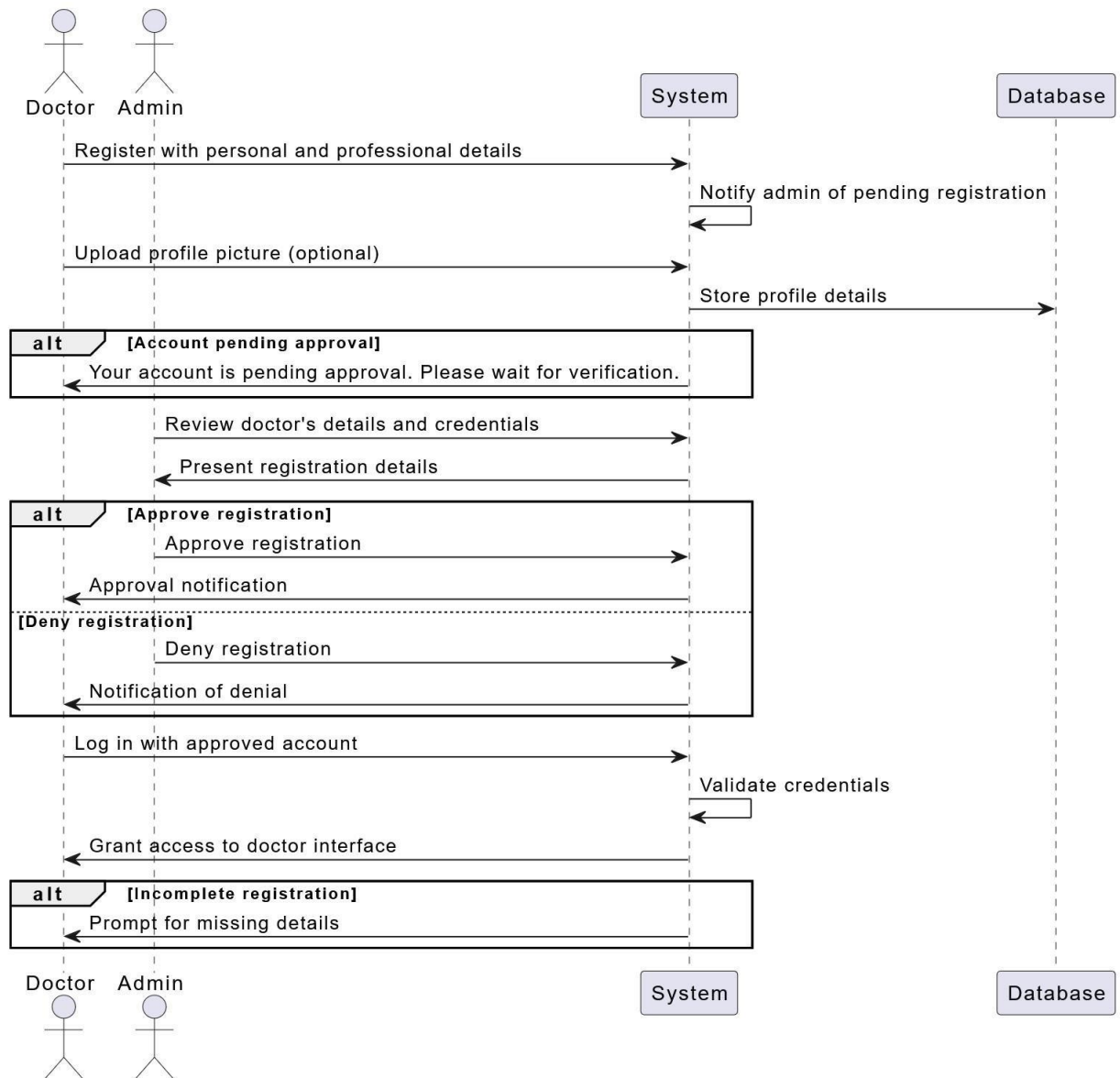
Typical Course of events	<p>Actor action</p> <p>Step 1: The patient enters the desired specialization in the search bar.</p> <p>Step 3: The patient clicks "Search" to submit the request.</p>	<p>System response</p> <p>Step 2: The system searches the database for doctors with the matching specialization.</p> <p>Step 4: If matching doctors are found, the system displays a list of available doctors with their details (e.g., name, specialization, availability)</p> <p>Step 5: If no matching doctors are found, the system will show nothing in the available doctors</p>
Alternative course of events	Step 3.A: The patient attempts to search without entering a specialization.	Step 3.B: The system will show the all available doctors.
Precondition	The patient must have access to the system and be able to search for doctors based on specialization.	The system must have data on doctors' specializations for search functionality to work.

SEQUENCE DIAGRAM:

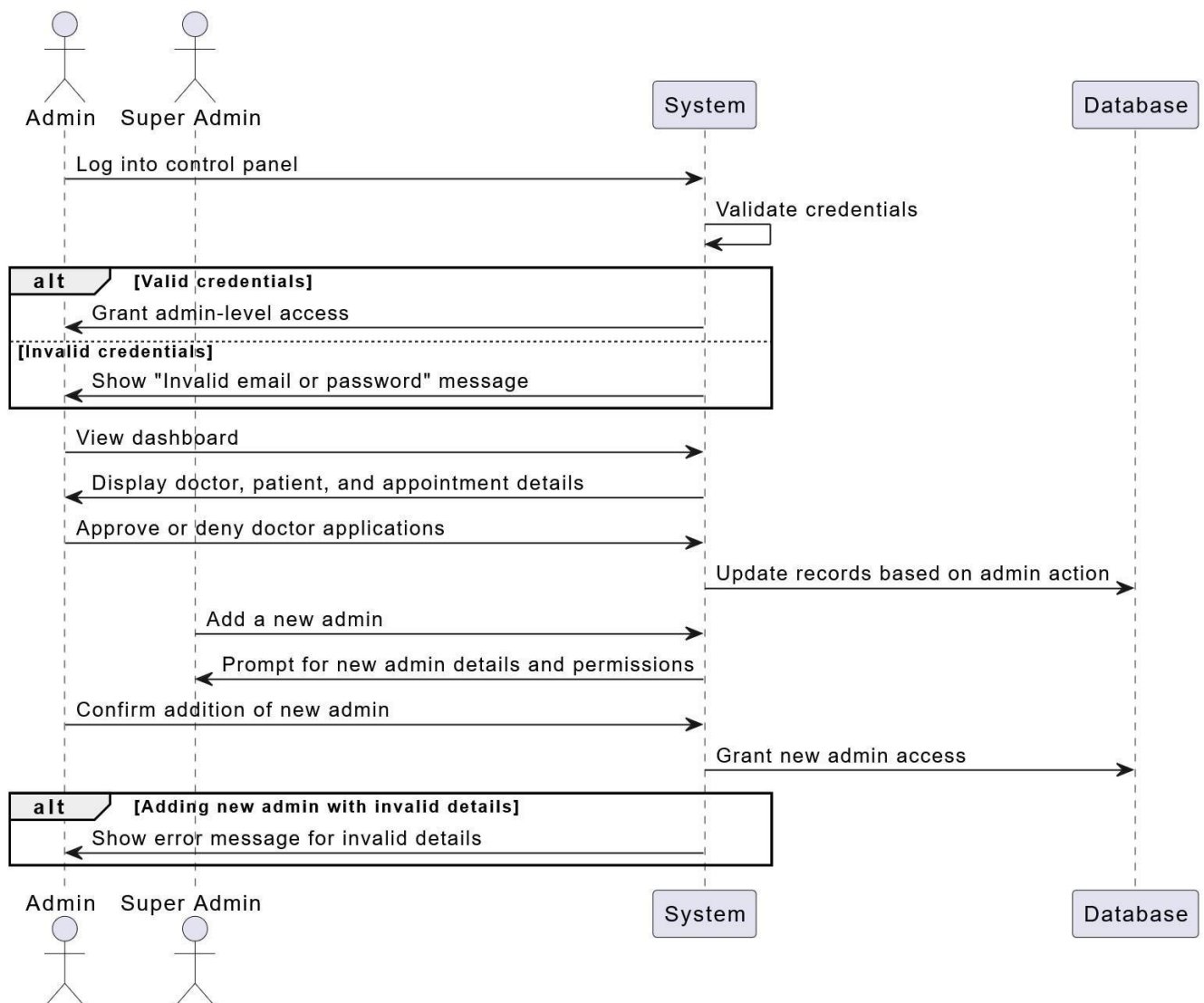
- 1. **User Login and Account Creation**



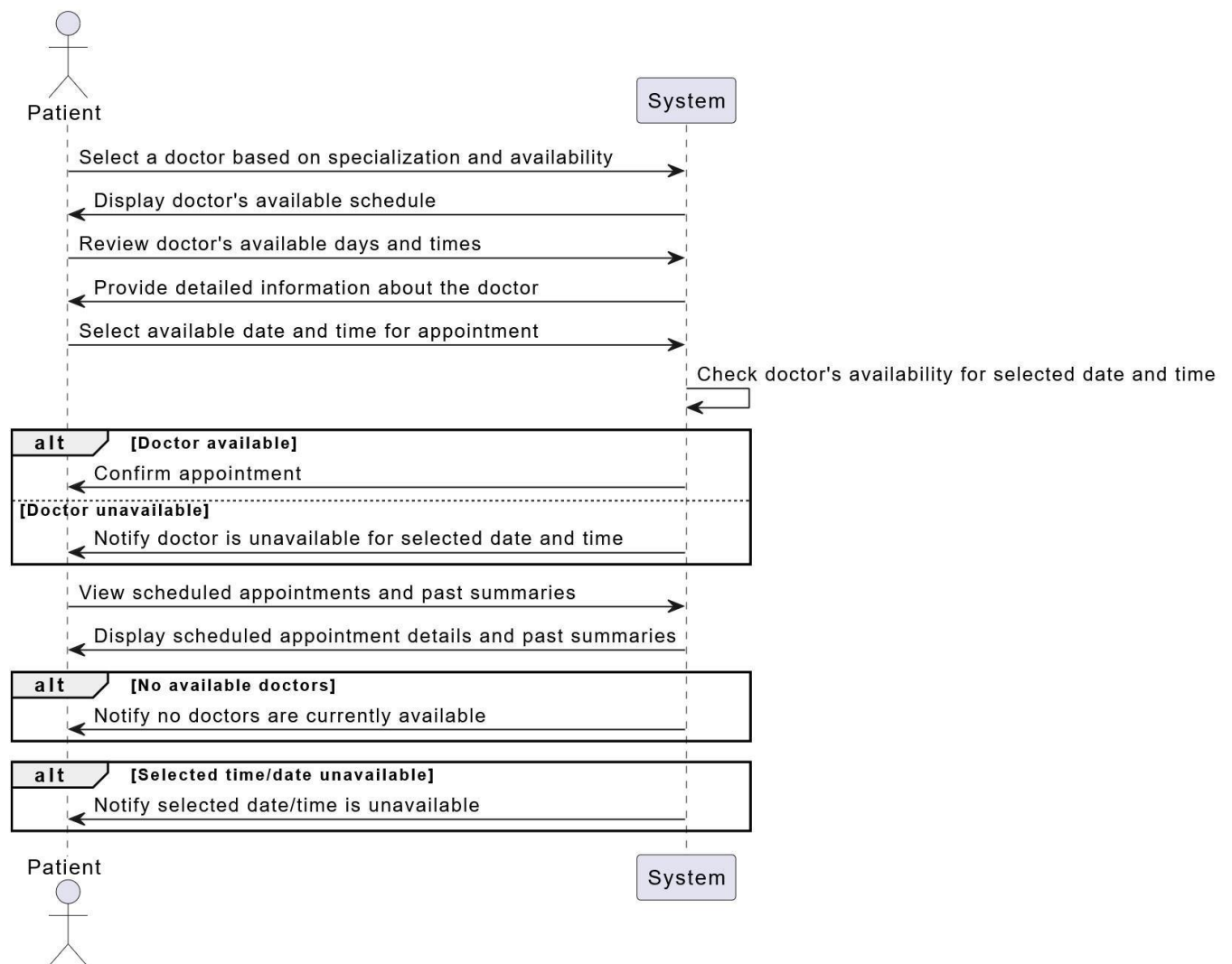
2. Doctor Registration and Approval



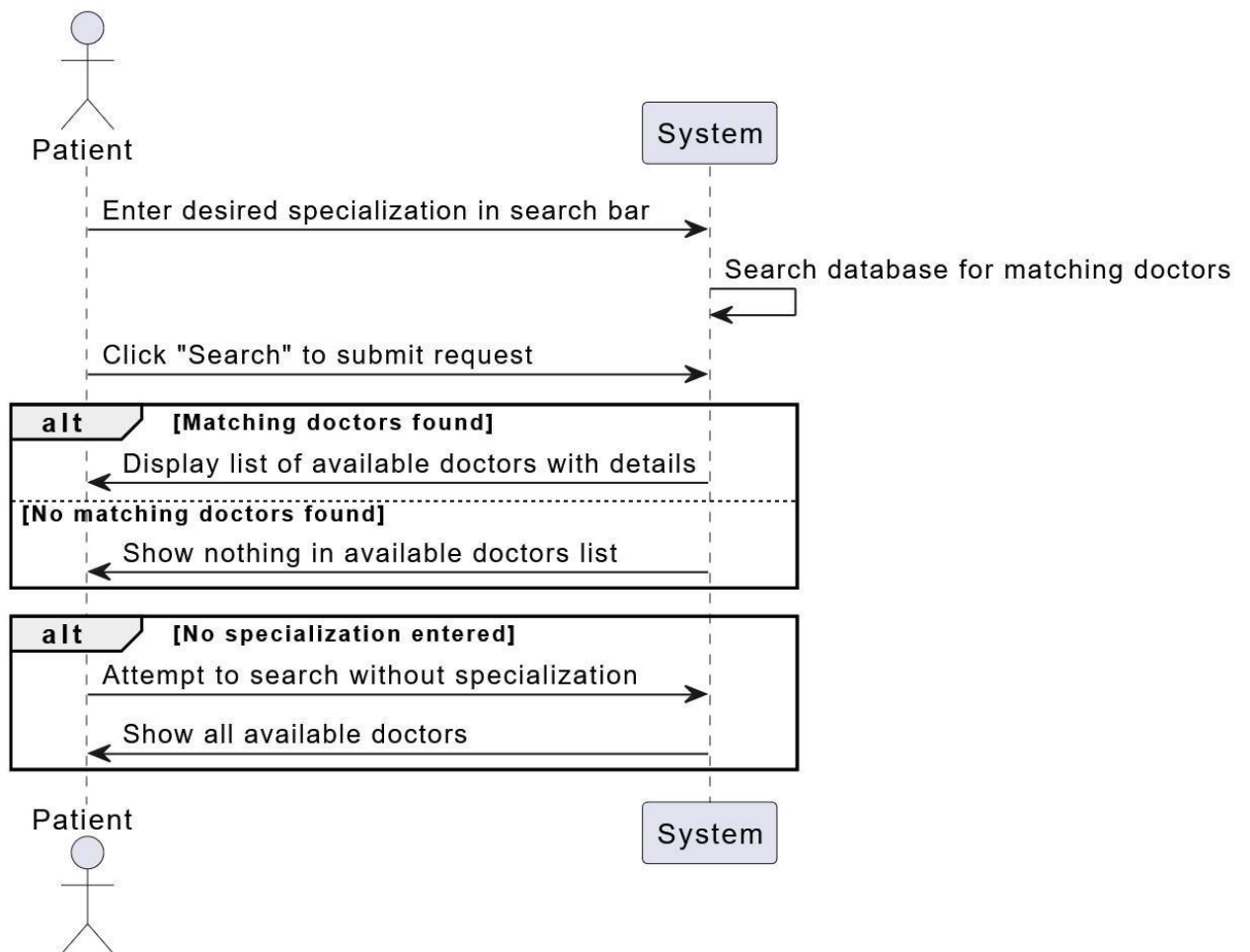
3. Admin Control Panel and Permissions Management

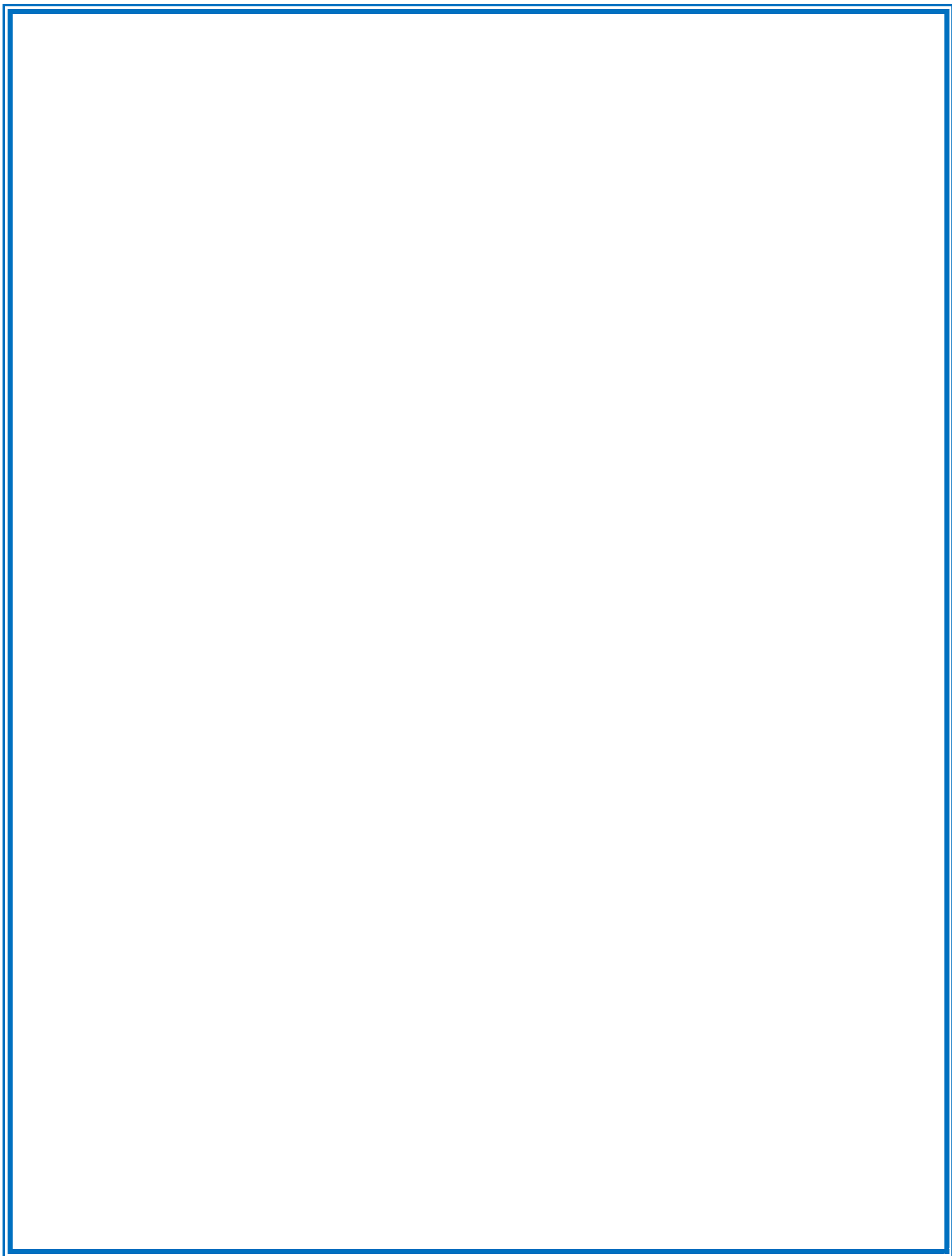


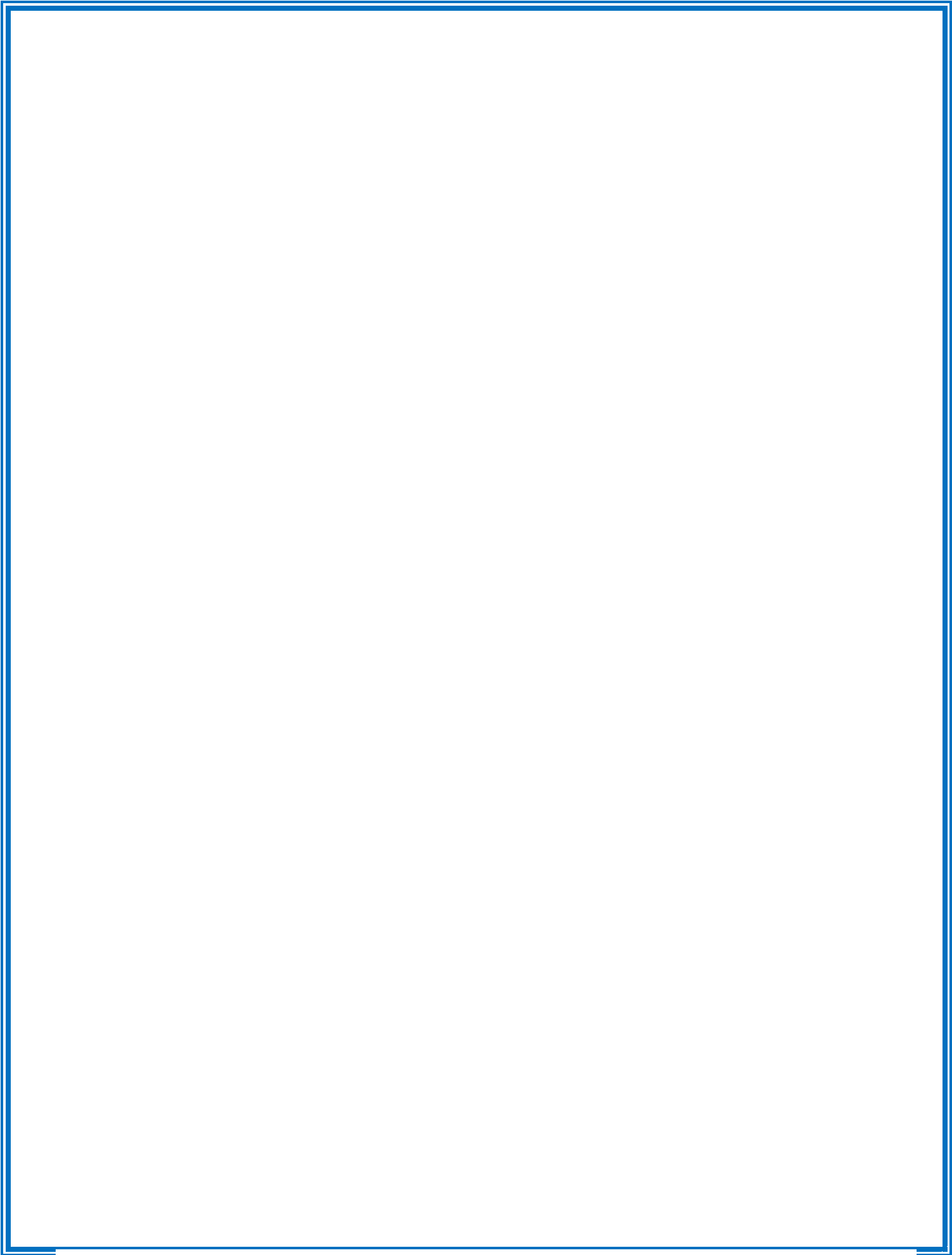
4. Schedule Appointments



5. Search Doctors



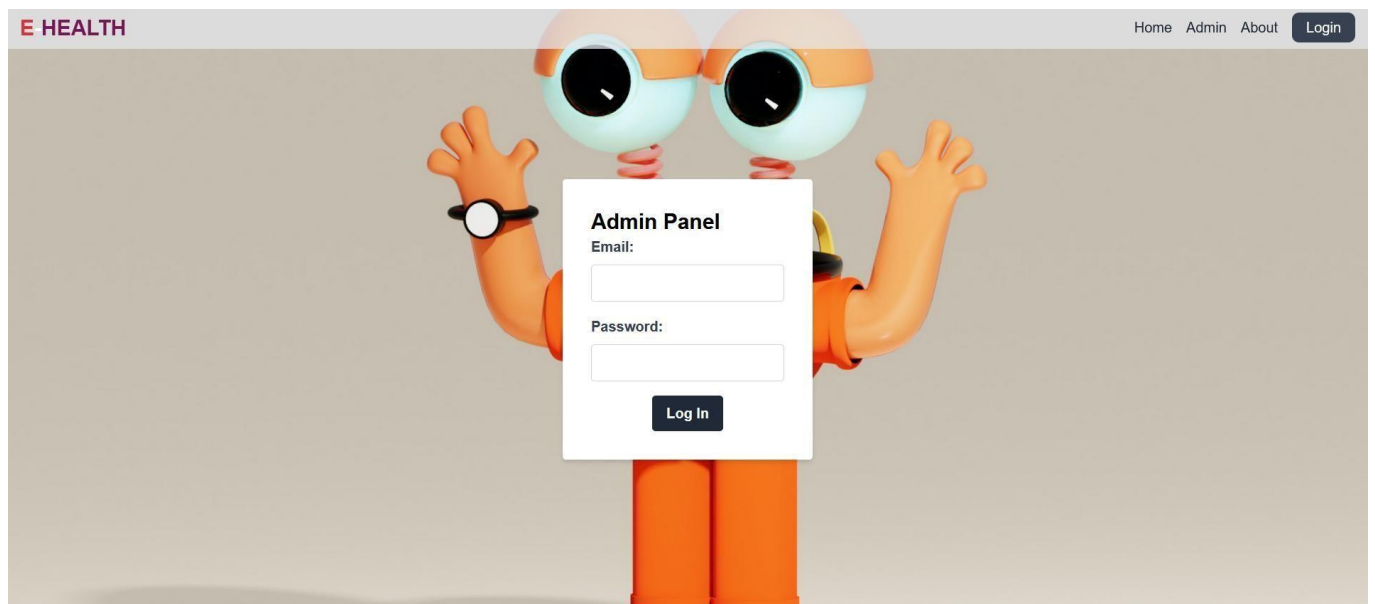
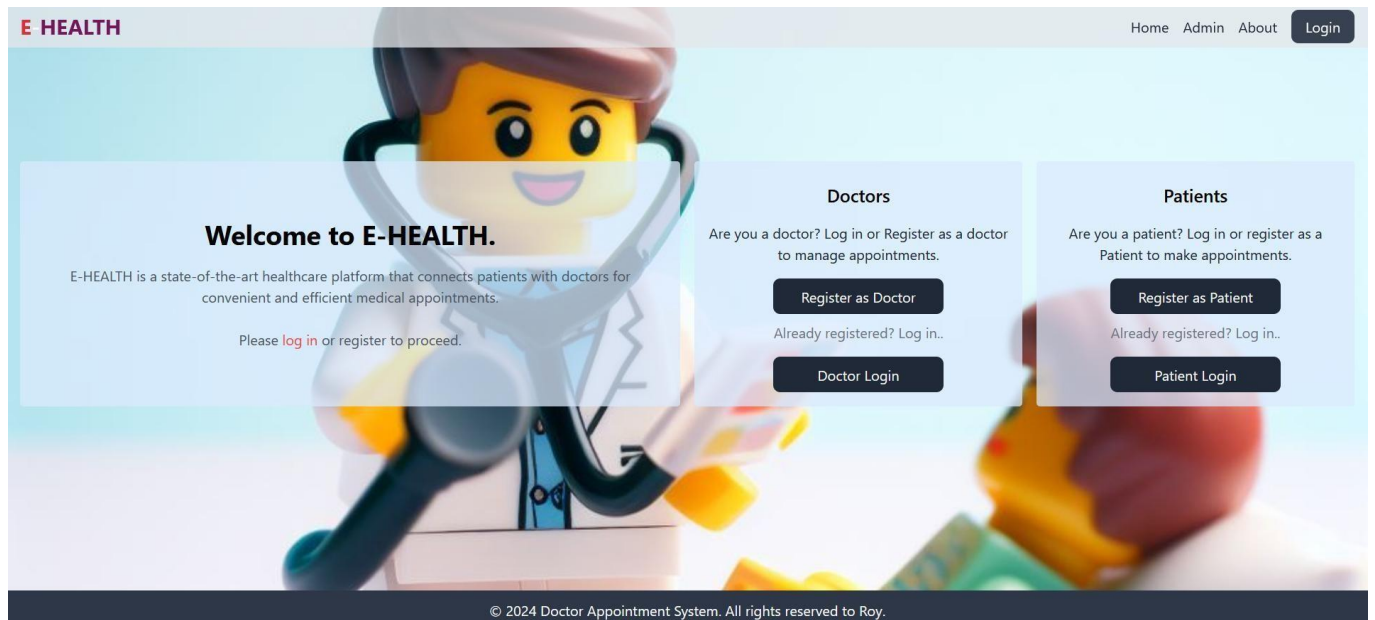




User

Class Diagram of Doctor Appointment System

PROTOTYPE:



Admin Panel

Dashboard

Doctors

Patients

Appointments

Add Admin

Logout

Dashboard

Name: admin

Email: admin@gmail.com

Role: superadmin

You are eligible to add admin.

Admins List

Admin ID	Name	Email	Role
1	admin	admin@gmail.com	superadmin
8	roy	roy2@gmail.com	admin

Doctors List

Name	Specialization	Email	Contact	Availability	Working Hours	Status (pending/ approved)	Actions
Dr. Mohammad Ferdous Khan	Medicine	khan@gmail.com	1234567899	Friday, Saturday	17:00:00-21:00:00	pending	Edit
Lochon Chandra Roy	Bones	lochonroy01@gmail.com	01780961963	Monday, Tuesday, Friday	08:30:00-16:30:00	approved	Edit

E HEALTH

Home

Admin

About

Lochon

Logout

Name: Lochon

Email: lochon@gmail.com

Contact Number: 01567

Age: 25

Appointment History:

No history found.

Available Doctors

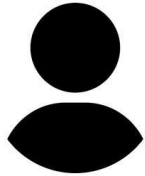
Search by Specialization:

click the search to view all

Search

Doctor Name	Specialization	Contact	Consultant Fee	Working Days	Working Hours	Actions
Lochon Chandra Roy	Bones	01780961963	500 tk	Monday, Tuesday, Friday	08:30:00 - 16:30:00	Make Appointment
imran	heart	022883363	1500 tk	Monday, Tuesday, Wednesday, Thursday	17:00:00 - 21:00:00	Make Appointment

Doctor Dashboard



mr

Speciality: **skin**
Email: **mr@gmail.com**
Contact: **01564**
Availability: **Monday, Sunday**
Working Hours: **18:30:00 - 22:00:00**
Registration Number: **2342**

Update Profile

Your account is pending approval. Patient services will resume after verification. Please wait for verification or contact admin after 24 hours. Thank you for your patience.

Appointment ID	Patient Name	Contact	Date	Time	Status	Actions
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Register as Doctor

Name	
<input type="text"/>	
Email	
<input type="text"/>	
Password	
<input type="password"/>	
Confirm Password	
<input type="password"/>	
Contact Number	
<input type="text" value="+880"/>	
Specialization	Consultant Fee
<input type="text"/>	<input type="text" value="1000 BDT"/>
Availability Days	
<input type="checkbox"/> Monday <input type="checkbox"/> Tuesday <input type="checkbox"/> Wednesday <input type="checkbox"/> Thursday <input type="checkbox"/> Friday <input type="checkbox"/> Saturday <input type="checkbox"/> Sunday	
Registration Number	
<input type="text" value="0123456789.."/>	
Start Checkup Time	End Checkup Time
<input type="text" value="--:-- --"/>	<input type="text" value="--:-- --"/>

Register