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by ~ **Badhon Indro**

Project Title: Telemedicine Platform for Remote Areas

Introduction

Telemedicine has become an essential tool in bridging the healthcare gap, particularly in remote and underserved areas where access to quality healthcare is often limited. The "Telemedicine Platform for Remote Areas" aims to provide a robust solution that enables patients in these regions to receive timely medical consultations, diagnoses, and treatment plans without the need to travel long distances. This system leverages modern technology to deliver healthcare services directly to patients' homes, thereby improving health outcomes and reducing disparities.

Objectives:

1. **Enhance Accessibility:** Provide reliable and easy access to healthcare services for people living in remote areas.
2. **Improve Health Outcomes:** Facilitate early diagnosis and timely treatment by connecting patients with qualified healthcare professionals.
3. **Reduce Healthcare Costs:** Minimize the financial burden on patients by reducing the need for travel and enabling remote consultations.
4. **Ensure Data Security and Privacy:** Protect patient data through robust encryption and compliance with healthcare regulations.
5. **Promote Healthcare Equity:** Ensure that everyone, regardless of location, has access to quality healthcare services.

Key Features:

1. **Registration:** Easy registration process for patients, doctors, and administrators, with support for multilingual interfaces.
2. **Appointment Scheduling:** Flexible scheduling options that allow patients to book consultations based on doctor availability.
3. **Real-Time Video Consultations:** Secure and stable video conferencing for real-time interactions between patients and doctors.
4. **Electronic Medical Records (EMR):** Centralized storage of patient medical histories, accessible to doctors during consultations.
5. **E-Prescriptions:** Doctors can issue electronic prescriptions, which patients can access and use at local pharmacies.
6. **Notifications and Reminders:** Automated alerts for upcoming appointments, medication schedules, and follow-up consultations.
7. **Data Security:** Multi-factor authentication to ensure patient data is secure and compliant with healthcare regulations.
8. **Scalability:** Designed to handle a growing number of users and consultations, ensuring consistent performance as the platform expands.

Scenario Writing

Scenario writing involves describing specific situations or use cases that illustrate how a system or software application will be used by its users. These scenarios help to better understand the system's functionalities, interactions, and outcomes. In the context of the Telemedicine Platform for Remote Areas, let's write some scenarios to depict typical user interactions:

Scenario-1: Add Patient Profile

Scenario Description:

- Request to add a patient profile
- Provide required fields (e.g., name, age, gender, contact information)
- Fill in additional health details (e.g., medical history, current medications)
- Submit the form to add the profile
- Profile addition successful

Scenario-2: Book a Consultation

Scenario Description:

- Request to book a consultation
- Select a doctor based on specialization and availability

- Check the doctor's available time slots
- Enter preferred date and time for the consultation
- Consultation booking confirmed

Scenario-3: Conduct Video Consultation

Scenario Description:

- Request to start a video consultation
- Select the upcoming consultation from the scheduled appointments
- Ensure internet connection and camera/microphone settings are working
- Join the video call with the doctor
- Consultation conducted successfully

Scenario-4: Write and Issue Prescription

Scenario Description:

- Request to write a prescription
- Select the patient from the recent consultations
- Provide prescription details (medications, dosages, instructions)
- Issue the prescription to the patient
- Prescription issuance successful

Scenario-5: Access and Pay for Consultation

Scenario Description:

- Request to access consultation details
- Select the recent consultation from the history
- Provide payment details (consultation fee, payment method)
- Pay for the consultation
- Payment successful

These scenarios provide how different users interact with the System “Telemedicine Platform for Remote Areas” and how the system responds to their actions. These scenarios help stakeholders to understand the system's behavior and meet user needs effectively.

Stakeholder

The key stakeholders involved in this Telemedicine Platform for Remote Areas are:

1. Patients:

Individuals in remote or underserved areas who need access to healthcare services. They are the primary users of the platform, seeking medical consultations, diagnoses, and treatment plans.

2. Doctors / Medical Professionals:

Healthcare providers offering consultations, diagnoses, and treatment plans via the platform. They are responsible for delivering medical care and maintaining patient records.

3. Healthcare Administrators:

Individuals responsible for managing the platform, including user accounts, data security, system performance, and compliance with healthcare regulations.

User Profile

User Profile-01: Patients

User Class	Notes on Characteristic	Requirement Implied
Type of User	Seeks medical consultation for various health issues.	Usability, Accessibility, Acceptance, Security
Age Range	20-60	Usability, Accessibility, Performance
Frequency of Use	Depends on the health condition.	Usability, Performance, Operation
Mandatory	Yes	Usability, Accessibility, Acceptance
Computer Experience	Basic to Intermediate	Documentation, Usability, Training
Education	Varies (Some may have limited formal education)	Usability, Accessibility, Documentation
Goals	Receive quality healthcare without traveling	Usability, Accessibility, Performance, Acceptance
Language Skills	Bangla, English	Usability, Accessibility
Number of Users	Potentially large user base in remote areas	Scalability, Performance, Operation
Training	Minimal training preferred	Usability, Documentation
Other System Used	No	Usability, Documentation

Ways of Working	Full reliance on the system for consultations	Usability, Performance, Acceptance, Safety
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User Profile-02: Doctor

User Class	Notes on Characteristic	Requirement Implied
Type of User	Doctor/Medical Professional	Security, Performance, Usability, Operation
Age Range	30-50	Usability, Documentation, Performance
Frequency of Use	Daily for several hours	Performance, Operation, Acceptance
Mandatory	Yes	Usability, Security, Performance
Computer Experience	Intermediate to Advanced	Usability, Documentation, Training
Goals	Deliver effective healthcare remotely	Performance, Security, Usability, Acceptance
Language Skills	Bangla, English	Usability, Accessibility
Number of Users	Varies, depending on workload	Performance, Scalability, Usability
Training	Open to training, but values efficiency	Documentation, Usability
Other System Used	Familiar with hospital EMRs	Usability, Performance
Ways of Working	Requires a secure, efficient, and reliable system	Security, Performance, Usability, Safety

User Profile-03: Platform Administrator

User Class	Notes on Characteristic	Requirement Implied
Type of User	Administrator	Security, Performance, Maintenance, Operation
Age Range	25-40	Performance, Maintenance, Documentation
Frequency of Use	Constantly throughout the day	Performance, Usability, Operation
Mandatory	Yes	Performance, Security, Maintenance
Computer Experience	Experienced	Documentation, Security, Maintenance
Education	B. Sc	Performance, Maintenance, Security
Goals	Ensure system uptime, security, and efficiency	Performance, Security, Maintenance, Safety
Language Skills	English, possibly local language for communication	Documentation, Accessibility
Number of Users	Limited to a small team of admins	Performance, Security, Maintenance
Training	Capable but requires system-specific knowledge	Documentation, Maintenance
Other System Used	Experience with server management and network security tools	Maintenance, Security, Performance

Ways of Working	Requires full control over system operations and security	Security, Performance, Maintenance, Operation
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Scope

1. User Registration and Login:

- a. Objective:** To allow users (patients, doctors, and administrators) to register and log in to the telemedicine platform.
- b. Functionality:** Users will provide necessary information (e.g., name, email, phone number) for registration. Secure authentication mechanisms will be implemented for user logins. Password recovery options will be available via email or SMS.

2. Add Profile and Update Profile:

- a. Objective:** Enable patients and doctors to create and update their profiles within the system.
- b. Functionality:** Patients can input and store personal details, medical history, and current health conditions. Doctors can add qualifications, specializations, and availability. Both patients and doctors can update their profile information such as contact details or preferences.

3. Book Consultation:

- a. Objective:** Facilitate patients in booking online consultations with healthcare providers.
- b. Functionality:** Display available doctors based on specialization, location, and availability. Patients can select and book consultations. The system provides options for scheduling follow-up appointments and sending reminders.

4. Conduct Video Consultation:

- a. Objective:** Enable real-time video consultations between patients and healthcare providers.
- b. Functionality:** Secure, high-quality video conferencing tools will be integrated into the platform. Patients and doctors can start consultations at the scheduled time. The system will ensure stable connectivity and offer options for chat-based communication as a backup.

5. Issue and View E-Prescriptions:

- a. Objective:** Allow doctors to issue electronic prescriptions and patients to view them.

- b. Functionality:** After the consultation, doctors can prescribe medications and upload them directly to the patient's profile. Patients can access their e-prescriptions and download or share them with pharmacies.

6. Billing and Payments:

- a. Objective:** Provide a seamless billing and payment process for consultations and services.
- b. Functionality:** The system will generate bills based on the services provided. Patients can review the bill before proceeding with payment. Multiple payment options (e.g., credit/debit card, mobile wallets) will be available. The system updates payment status and records transaction details.

7. Notifications:

- a. Objective:** Keep all users informed at every step of the consultation process.
- b. Functionality:** Automated notifications for appointment confirmations, upcoming consultations, e-prescription availability, and payment status. Users can customize notification preferences (e.g., SMS, email, in-app alerts).

8. Helpline and Support:

- a. Objective:** Offer 24/7 customer support within the telemedicine platform.
- b. Functionality:** Provide a helpline feature for users to seek assistance with technical issues or medical queries. Access to a comprehensive FAQ section and resolution of common issues will be available.

9. Security Measures:

- a. Objective:** Ensure the security of patient data, consultation details, and financial transactions.
- b. Functionality:** Implement secure socket layer (SSL) for data encryption. Incorporate secure user authentication and authorization mechanisms. Regularly update and patch system vulnerabilities to maintain the highest security standards.

Feasibility Study

The Telemedicine Platform for Remote Areas aims to address the challenges of accessing healthcare services in underserved regions by leveraging modern technology. This feasibility study evaluates the platform's viability by examining its technical, operational, economic, and scheduling aspects.

1. Technical Feasibility:

- a. **Hardware Compatibility:** The platform should be compatible with basic mobile devices and computers available in remote areas. A review of existing infrastructure and necessary upgrades (e.g., internet connectivity, device compatibility) will be conducted.
- b. **Software Compatibility:** Ensure that the platform integrates seamlessly with third-party services like video conferencing tools, electronic health records (EHR), and payment gateways. Compatibility with common operating systems (e.g., Android, iOS, Windows) will be evaluated.

2. Operational Feasibility:

- a. **User Acceptance:** Gather feedback from potential users, including patients, healthcare providers, and administrators, to ensure the platform meets their needs and expectations. User-friendly design and ease of use will be prioritized.
- b. **Impact on Current Operations:** Analyze how the implementation of the telemedicine platform will affect current healthcare practices in remote areas. Strategies for smooth integration and minimizing disruptions will be developed.

3. Economic Feasibility:

- a. **Cost-Benefit Analysis:** Conduct a thorough analysis of the costs associated with developing, implementing, and maintaining the telemedicine platform versus the expected benefits, such as increased access to healthcare, improved health outcomes, and potential cost savings for patients and healthcare providers.
- b. **Return on Investment (ROI):** Calculate the projected ROI over a specified period, considering both tangible benefits (e.g., reduced travel costs for patients) and intangible benefits (e.g., improved patient satisfaction and health outcomes).

4. Scheduling Feasibility:

- a. **Project Timeline:** Develop a realistic timeline for the different phases of the platform's implementation, including development, testing, and user training. Account for potential delays, such as regulatory approvals or technical challenges.
- b. **Dependencies:** Identify dependencies on external factors, such as third-party service integrations (e.g., payment gateways, video conferencing) or internet connectivity in remote areas, that may impact the project schedule.

5. Security and Privacy Considerations:

- a. **Data Encryption:** Confirm that the platform incorporates robust encryption methods, including SSL, to protect sensitive information during transmission and storage.
- b. **Compliance:** Ensure the telemedicine platform complies with relevant data protection regulations (e.g., HIPAA, GDPR) and healthcare industry standards to safeguard patient privacy.

Block Diagrams

Block Diagram for Patients:

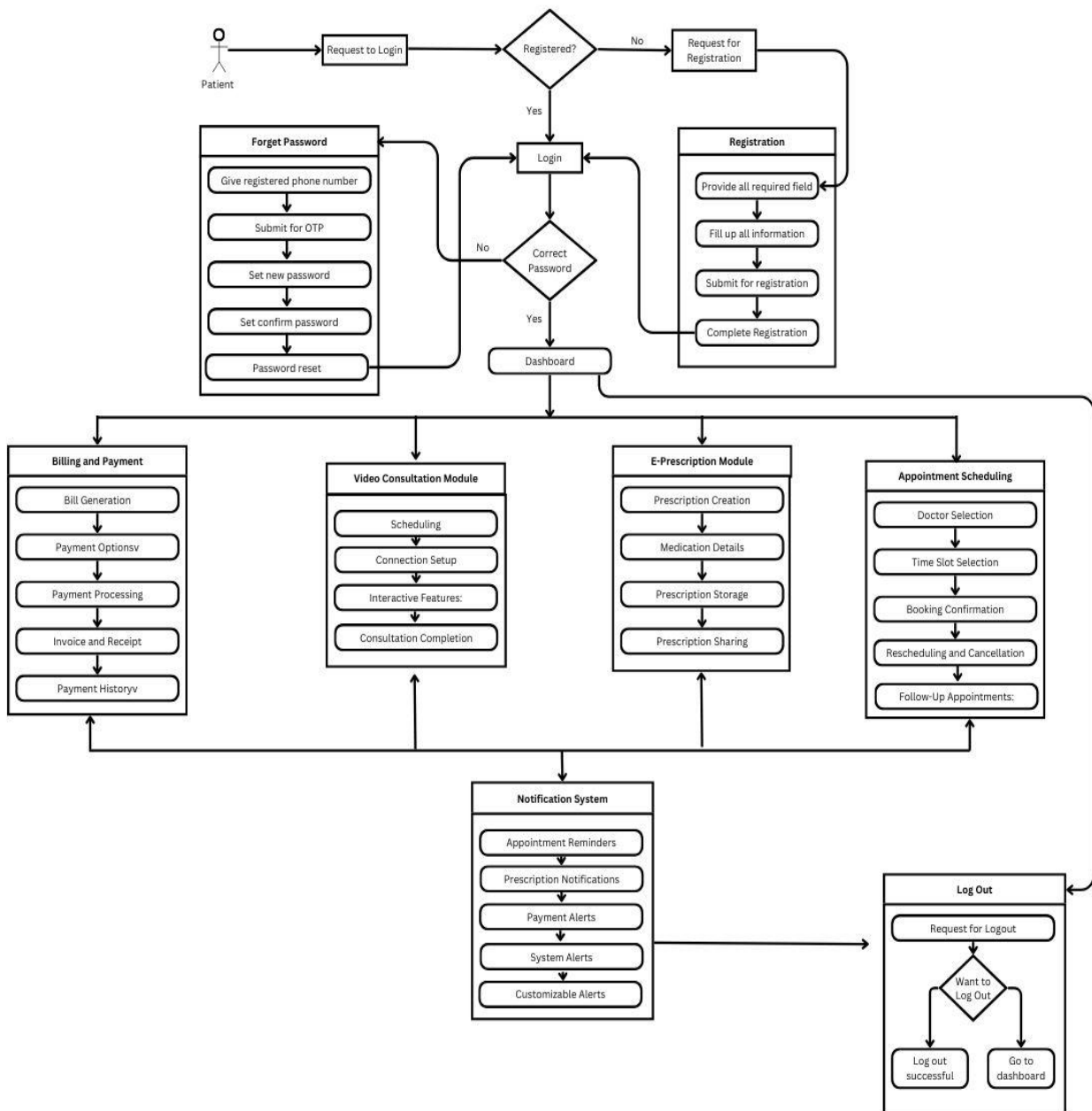


Figure-1: Block Diagram for Patients

Block Diagram for Doctors:

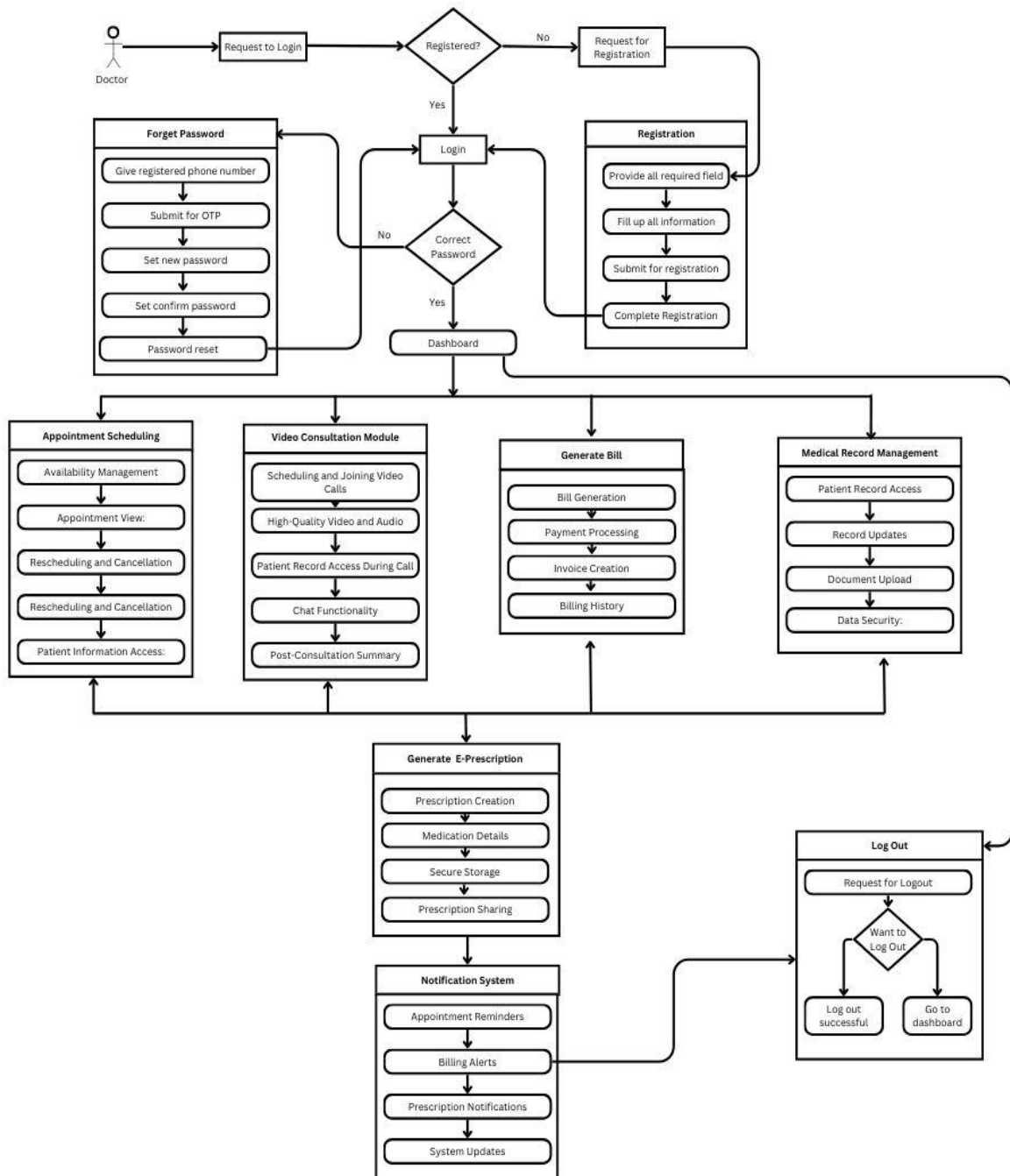


Figure-2: Block Diagram for Doctors

Block Diagram for Platform Administrator:

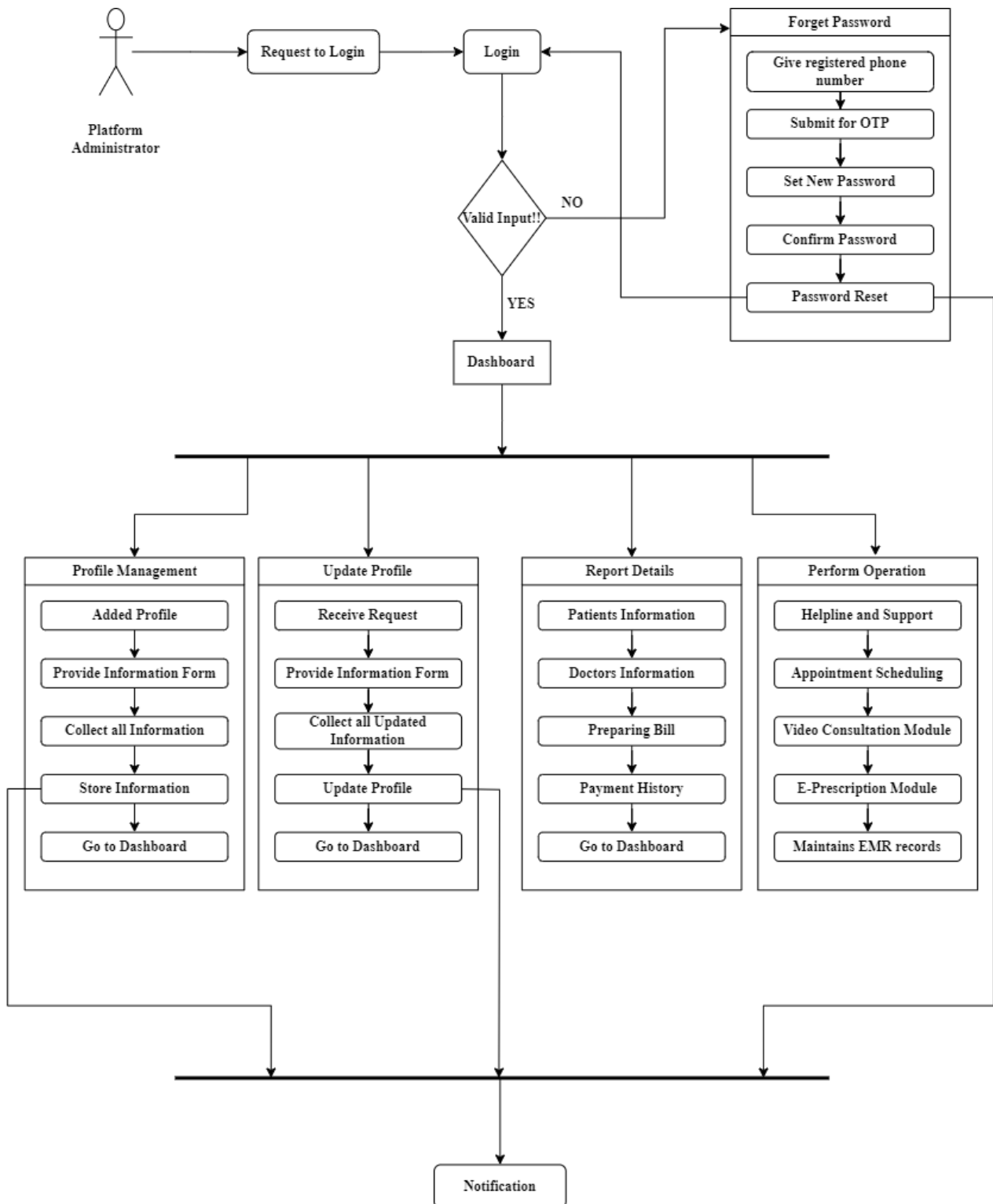


Figure-3: Block Diagram for Platform Administrator

Software Requirement Specification

SRS

FR01	Registration
Description	Before using the telemedicine platform, all users (patients, doctors, and administrators) must register by providing necessary personal and professional details.
Stakeholder	Patients, Doctors

FR02	Login
Description	All users (patients, doctors, and administrators) must log in to the telemedicine platform using their credentials before accessing its features.
Stakeholder	Patients, Doctors, Admin

FR03	Add Profile Information
Description	Patients and doctors can add personal information to their profiles, including medical history for patients and qualifications for doctors.
Stakeholder	Patients, Doctors

FR04	Book Consultation
Description	Patients can book online consultations with available healthcare providers based on their specialization, location, and availability.
Stakeholder	Patients

FR05	Update Profile
Description	Patients and doctors can update their profile information, such as contact details, medical history, availability, or preferences.
Stakeholder	Patients, Doctors

FR06	View Medical Reports
Description	Patients will submit their medical reports after completing tests given by their respective doctors, and Doctors can View these reports and prescribe based on that.
Stakeholder	Doctors, Patients

FR07	Make Payment
Description	The system will generate a bill for the services rendered during the consultation, which patients can review and pay using available payment options.
Stakeholder	Patients, Admin

FR08	View Schedule
Description	Doctors can view their schedule and based on that they will make consultations.
Stakeholder	Doctors

FR09	Consult Patients
Description	The system will allow secure and real-time video consultations between patients and doctors.
Stakeholder	Patients, Doctors

FR10	Prescribe Medicine
Description	Doctors can issue electronic prescriptions after consultations, which patients can access and download from their profiles.
Stakeholder	Doctors, Patients

FR11	Forget Password
Description	If any user forgets their password, they can recover it using a secure password recovery mechanism, such as email or SMS verification.
Stakeholder	Patients, Doctors

FR12	Logout
Description	Users can log out of the telemedicine platform after using it. The system can remember login details if the user opts to save their account credentials.
Stakeholder	Patients, Doctors, Admin

This SRS document outlines the functional requirements for the telemedicine platform, ensuring that all necessary features and operations are addressed for successful implementation and user satisfaction.

User Case Diagram

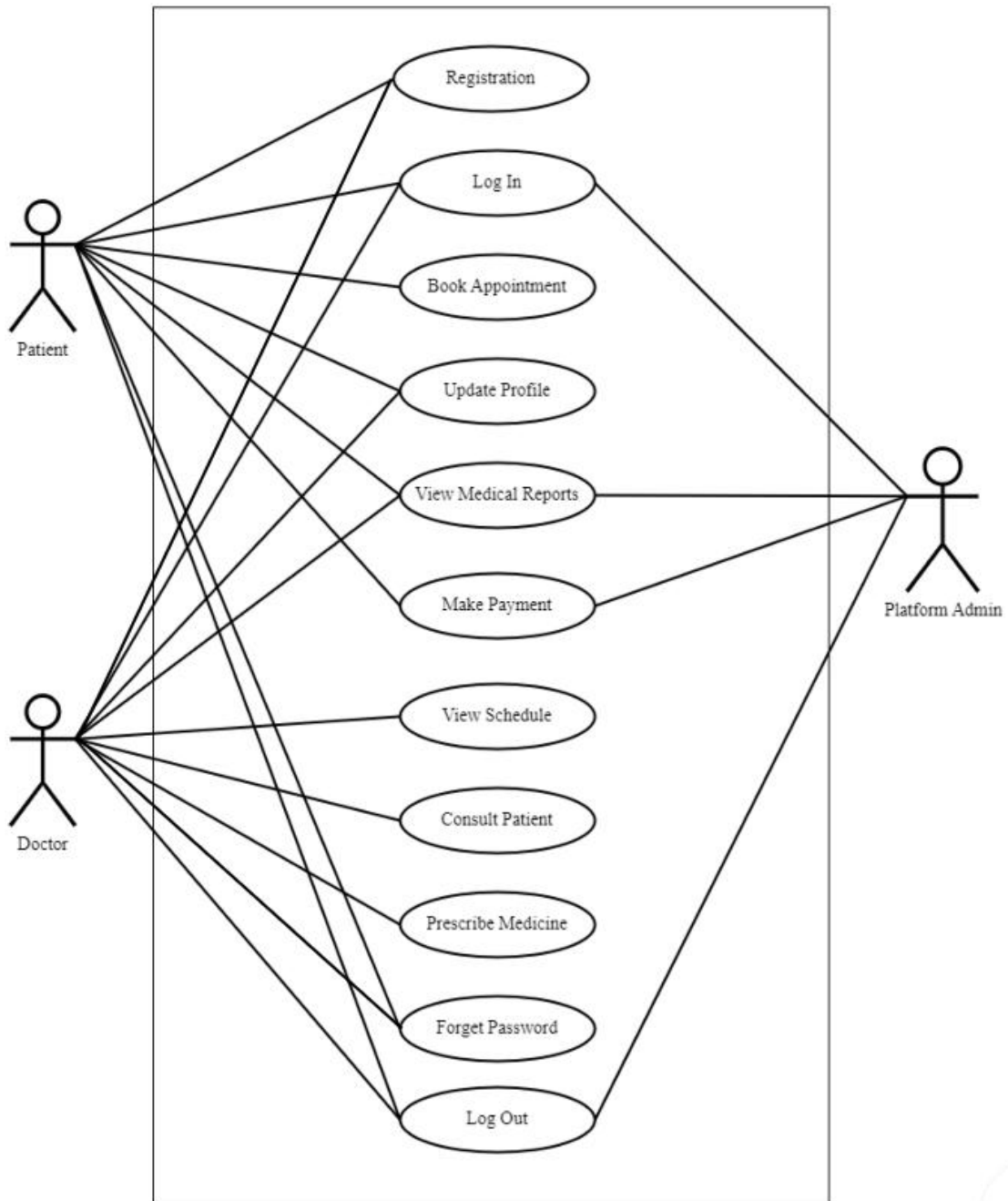


Figure-4: User Case Diagram

User Case Description

Case Description-01: Registration

Use Case	Registration																				
Goal	Users can register to sign in to the system.																				
Precondition	Users must have access to the telemedicine platform via the web or mobile app.																				
Success End Condition	Notification: !!!Successfully Registered!!!																				
Failed End Condition	Notification: "Submission Not Submitted"																				
Primary Actors: Secondary Actors:	Patients Doctors / Medical Professionals Healthcare Administrators																				
Trigger	User will request a registration form to fill up																				
Description / Main Success Scenario	<table border="1"> <tr><td>1.</td><td>Press "Registration" Button</td></tr> <tr><td>2.</td><td>Provide registration form</td></tr> <tr><td>3.</td><td>Enter Information</td></tr> <tr><td>4.</td><td>Press "Submit" Button.</td></tr> <tr><td>5.</td><td>Information saved</td></tr> <tr><td>6.</td><td>The system saves the details and shows them !!!Successfully Registered!!! Notify</td></tr> </table>	1.	Press "Registration" Button	2.	Provide registration form	3.	Enter Information	4.	Press "Submit" Button.	5.	Information saved	6.	The system saves the details and shows them !!!Successfully Registered!!! Notify								
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Alternative Flows	<table border="1"> <tr><td>1.1</td><td>System Error</td></tr> <tr><td></td><td>1.1.a. Try Again!!</td></tr> <tr><td>2.1</td><td>System Doesn't work.</td></tr> <tr><td></td><td>2.1.a. Try Again Later!</td></tr> <tr><td>4.1</td><td>The user Did not fill up the details!</td></tr> <tr><td></td><td>4.1.a. Checked By the system & Notify by "Please! Fill Up the Box".</td></tr> <tr><td>5.1</td><td>The system did not respond</td></tr> <tr><td></td><td>5.1.a. Show Error Message.</td></tr> <tr><td>6.1</td><td>The system Doesn't save the details.</td></tr> <tr><td></td><td>6.1.a. Notification: "Details did not Save"</td></tr> </table>	1.1	System Error		1.1.a. Try Again!!	2.1	System Doesn't work.		2.1.a. Try Again Later!	4.1	The user Did not fill up the details!		4.1.a. Checked By the system & Notify by "Please! Fill Up the Box".	5.1	The system did not respond		5.1.a. Show Error Message.	6.1	The system Doesn't save the details.		6.1.a. Notification: "Details did not Save"
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	5.1.a. Show Error Message.																				
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	6.1.a. Notification: "Details did not Save"																				
Quality Requirements	The user Will fill up all the details in 30 minutes.																				

Case Description-02: Login

Use Case	Login																	
Goal	Users can log into the system to access their account.																	
Precondition	Users must have registered and have valid login credentials.																	
Success End Condition	Notification: “Login Successful”																	
Failed End Condition	Notification: “Login Failed!!”																	
Primary Actors:	Patients, Doctors																	
Secondary Actors:	Admin																	
Trigger	The user requests to log in by entering their credentials.																	
Description / Main Success Scenario	<table><tr><td>1.</td><td>Press “Login” Button</td></tr><tr><td>2.</td><td>Provide login interface</td></tr><tr><td>3.</td><td>Enter user id and password.</td></tr><tr><td>4.</td><td>User press the “Login” button</td></tr><tr><td>5.</td><td>System verifies the credentials.</td></tr><tr><td>6.</td><td>Notification: “Login Successful”</td></tr></table>		1.	Press “Login” Button	2.	Provide login interface	3.	Enter user id and password.	4.	User press the “Login” button	5.	System verifies the credentials.	6.	Notification: “Login Successful”				
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	4.1.a. Show error message.																	
5.1	Information Error!!																	
	5.1.a. Notification: “Enter valid User ID and Password.”																	
Quality Requirements	Session timeout occurs after 10 minutes of inactivity.																	

Case Description-03: Add Profile Information

Use Case	Add Profile Information																	
Goal	Adding the required information to create an account.																	
Precondition	The user must log in to the system.																	
Success End Condition	Notification: “User Information Added Successfully”																	
Failed End Condition	Notifications: “Failed to Update Profile Information!”																	
Primary Actors:	Patients, Doctors																	
Secondary Actors:	Admin																	
Trigger	Users will request to add their profile information in the profile info.																	
Description / Main Success Scenario	<table><tr><td>1.</td><td>Visit Dashboard</td></tr><tr><td>2.</td><td>Press “Add Profile Information”</td></tr><tr><td>3.</td><td>Provide information field</td></tr><tr><td>4.</td><td>Filled up information</td></tr><tr><td>5.</td><td>User press “Submit” button</td></tr><tr><td>6.</td><td>Profile information saved</td></tr></table>		1.	Visit Dashboard	2.	Press “Add Profile Information”	3.	Provide information field	4.	Filled up information	5.	User press “Submit” button	6.	Profile information saved				
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	4.1.a. Field up required information																	
5.1	Info not saved																	
	5.1.a Notification: “Info Not saved”																	
Quality Requirements	Users should complete the profile update process within 10 minutes.																	

Case Description-04: Book Consultation

Use Case	Book Consultation																													
Goal	Patients can book a consultation appointment with a doctor.																													
Precondition	Must visit Room Booking Option in Dashboard.																													
Success End Condition	Notification: "Consultation Booked Successfully!"																													
Failed End Condition	Notification: "Failed to Book Consultation!"																													
Primary Actors:	Patients, Doctors																													
Secondary Actors:	Admin																													
Trigger	Users will request to book a consultation with respected doctors.																													
Description / Main Success Scenario	<table><tr><td>1.</td><td>Visit Dashboard.</td></tr><tr><td>2.</td><td>Select “Book A Consultation”</td></tr><tr><td>3.</td><td>Check Available Doctors And Available Time Slots.</td></tr><tr><td>4.</td><td>Patients Choose Slot From Available Time Slots.</td></tr><tr><td>5.</td><td>User Clicks the "Confirm Booking" Button.</td></tr><tr><td>6.</td><td>Provide Patient Information Form.</td></tr><tr><td>7.</td><td>Fill the Information Field.</td></tr><tr><td>8.</td><td>Then press “Submit” button</td></tr><tr><td>9.</td><td>Information Save</td></tr><tr><td>10.</td><td>Notification: “Consultation Booking Successful”</td></tr></table>		1.	Visit Dashboard.	2.	Select “Book A Consultation”	3.	Check Available Doctors And Available Time Slots.	4.	Patients Choose Slot From Available Time Slots.	5.	User Clicks the "Confirm Booking" Button.	6.	Provide Patient Information Form.	7.	Fill the Information Field.	8.	Then press “Submit” button	9.	Information Save	10.	Notification: “Consultation Booking Successful”								
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5.	User Clicks the "Confirm Booking" Button.																													
6.	Provide Patient Information Form.																													
7.	Fill the Information Field.																													
8.	Then press “Submit” button																													
9.	Information Save																													
10.	Notification: “Consultation Booking Successful”																													
Alternative Flows	<table><tr><td>2.1</td><td>System did not respond.</td></tr><tr><td></td><td>2.1.a. Try again</td></tr><tr><td>3.1</td><td>System error</td></tr><tr><td></td><td>3.1.a. Try again Later.</td></tr><tr><td>4.1</td><td>Not Available room</td></tr><tr><td></td><td>4.1.a Select another room</td></tr><tr><td>5.1</td><td>Select date</td></tr><tr><td></td><td>5.1.a. Must be added date</td></tr><tr><td>6.1</td><td>Select date</td></tr><tr><td></td><td>6.1.a. Must be added date</td></tr><tr><td>7.1</td><td>Check empty field</td></tr><tr><td></td><td>7.1.a. Fill up required field</td></tr><tr><td>10.1</td><td>Information did not save</td></tr><tr><td></td><td>10.1.a. Try again</td></tr></table>		2.1	System did not respond.		2.1.a. Try again	3.1	System error		3.1.a. Try again Later.	4.1	Not Available room		4.1.a Select another room	5.1	Select date		5.1.a. Must be added date	6.1	Select date		6.1.a. Must be added date	7.1	Check empty field		7.1.a. Fill up required field	10.1	Information did not save		10.1.a. Try again
2.1	System did not respond.																													
	2.1.a. Try again																													
3.1	System error																													
	3.1.a. Try again Later.																													
4.1	Not Available room																													
	4.1.a Select another room																													
5.1	Select date																													
	5.1.a. Must be added date																													
6.1	Select date																													
	6.1.a. Must be added date																													
7.1	Check empty field																													
	7.1.a. Fill up required field																													
10.1	Information did not save																													
	10.1.a. Try again																													
Quality Requirements	Users will get 30 mins to fill up																													

Case Description-05: Update Profile

Use Case	Update Profile													
Goal	Users update their profile info if they need any changes on the update.													
Precondition	Must visit profile info.													
Success End Condition	Notification “Profile Info Updated”													
Failed End Condition	Notification “Update Profile Failed”.													
Primary Actors:	Patients, Doctors													
Secondary Actors:	Admin													
Trigger	Users will request to update their profiles.													
Description / Main Success Scenario	<table><tr><td>1.</td><td>Visit Dashboard</td></tr><tr><td>2.</td><td>Press “Update Profile Info”</td></tr><tr><td>3.</td><td>Provide information field</td></tr><tr><td>4.</td><td>Filled update information</td></tr><tr><td>5.</td><td>User press “Submit” button</td></tr><tr><td>6.</td><td>Profile information updated.</td></tr></table>		1.	Visit Dashboard	2.	Press “Update Profile Info”	3.	Provide information field	4.	Filled update information	5.	User press “Submit” button	6.	Profile information updated.
1.	Visit Dashboard													
2.	Press “Update Profile Info”													
3.	Provide information field													
4.	Filled update information													
5.	User press “Submit” button													
6.	Profile information updated.													
Alternative Flows	<table><tr><td>2.1</td><td>System Error</td></tr><tr><td></td><td>2.1.a Try again</td></tr><tr><td>3.1</td><td>Not responding</td></tr><tr><td></td><td>3.1.a Try later</td></tr><tr><td>5.1</td><td>Information not updated</td></tr><tr><td></td><td>5.1.a Notification: “Information Not Updated”</td></tr></table>		2.1	System Error		2.1.a Try again	3.1	Not responding		3.1.a Try later	5.1	Information not updated		5.1.a Notification: “Information Not Updated”
2.1	System Error													
	2.1.a Try again													
3.1	Not responding													
	3.1.a Try later													
5.1	Information not updated													
	5.1.a Notification: “Information Not Updated”													
Quality Requirements	Users will get 30 mins to fill up													

Case Description-06: View Medical Reports

Use Case	Update Profile Info	
Goal	Users can update / view their medical reports securely within the system.	
Precondition	Users must be logged into the system	
Success End Condition	The user views their medical report successfully.	
Failed End Condition	Notification: "Failed to Retrieve Medical Report!"	
Primary Actors:	Patients	
Secondary Actors:	Doctors	
Trigger	The user requests to update / view their medical reports.	
Description / Main Success Scenario	1.	User logs into the system and navigates to the "Medical Reports" section.
	2.	Displays a list of available medical reports with their corresponding date.
	3.	Selects a specific medical report from the list.
	4.	Report is displayed to the user in a readable format (e.g., PDF or web format).
	5.	Users can download or print the report if necessary.
	6.	Notification: "Medical Report Viewed Successfully!"
Alternative Flows	2.1	System Error
		2.1.a Try again
	3.1	Not responding
		3.1.a Try later
	4.1	No Reports Available
		5.1.a Notification: "No medical reports available at this time."
Quality Requirements	Users will get 30 mins to fill up	

Case Description-07: Make Payment

Use Case	Make Payment																					
Goal	Patients can pay their bills by using this system.																					
Precondition	The user must be registered and logged in the system.																					
Success End Condition	Notification “Bill Payment Successful.”																					
Failed End Condition	Notification “Bill Not Pay.”.																					
Primary Actors:	Patients																					
Secondary Actors:	Admin																					
Trigger	Patients will request to pay their bill by providing service.																					
Description / Main Success Scenario	<table><tr><td>1.</td><td>Visit Dashboard.</td></tr><tr><td>2.</td><td>Select “Make Payments” Section</td></tr><tr><td>3.</td><td>Enter “Bill ID Number”.</td></tr><tr><td>4.</td><td>Provide payment option</td></tr><tr><td>5.</td><td>Select “Payment Option”</td></tr><tr><td>6.</td><td>Then Pay the Bill.</td></tr><tr><td>7.</td><td>After that press “Complete Payment”</td></tr></table>		1.	Visit Dashboard.	2.	Select “Make Payments” Section	3.	Enter “Bill ID Number”.	4.	Provide payment option	5.	Select “Payment Option”	6.	Then Pay the Bill.	7.	After that press “Complete Payment”						
1.	Visit Dashboard.																					
2.	Select “Make Payments” Section																					
3.	Enter “Bill ID Number”.																					
4.	Provide payment option																					
5.	Select “Payment Option”																					
6.	Then Pay the Bill.																					
7.	After that press “Complete Payment”																					
Alternative Flows	<table><tr><td>2.1</td><td>Server Down.</td></tr><tr><td></td><td>2.1.a. Again Later.</td></tr><tr><td>3.1</td><td>Bill ID not match</td></tr><tr><td></td><td>3.1.a. Enter the correct Bill ID.</td></tr><tr><td>4.1</td><td>System Not responds</td></tr><tr><td></td><td>4.1.a. Please try again later</td></tr><tr><td>5.1</td><td>Server not respond</td></tr><tr><td></td><td>5.1.a. Try again</td></tr><tr><td>6.1</td><td>System Error</td></tr><tr><td></td><td>6.1.a. Try again</td></tr></table>		2.1	Server Down.		2.1.a. Again Later.	3.1	Bill ID not match		3.1.a. Enter the correct Bill ID.	4.1	System Not responds		4.1.a. Please try again later	5.1	Server not respond		5.1.a. Try again	6.1	System Error		6.1.a. Try again
2.1	Server Down.																					
	2.1.a. Again Later.																					
3.1	Bill ID not match																					
	3.1.a. Enter the correct Bill ID.																					
4.1	System Not responds																					
	4.1.a. Please try again later																					
5.1	Server not respond																					
	5.1.a. Try again																					
6.1	System Error																					
	6.1.a. Try again																					
Quality Requirements	Users will get 10 mins to fill up																					

Case Description-08: View Schedule

Use Case	View Schedule	
Goal	Allow a doctor to view their daily or weekly schedule, including appointments, patient consultations, meetings, and other related tasks, through the system.	
Precondition	The doctor must be logged into the system.	
Success End Condition	Notification: "Schedule Loaded".	
Failed End Condition	Notification: "Failed to load schedule. Please try again."	
Primary Actors:	Doctor	
Secondary Actors:	Patients, Admin	
Trigger	The doctor requests to view their schedule by selecting a date or time range.	
Description / Main Success Scenario	1.	Navigate to Schedule.
	2.	Select “Schedule” Section.
	3.	Selects the time range.
	4.	Select “Display Schedule” Section
Alternative Flows	2.1	Schedule Not Found
		2.1.a. No schedule found for the selected date.
	3.1	Session Timeout
		3.1.a. Session expired. Please log in again.
	4.1	System Not responds
		4.1.a. Please try again later
	5.1	Server not respond
		5.1.a. Try again
	6.1	System Error
		6.1.a. Try again
Quality Requirements	Users will get 10 mins to fill up	

Case Description-09: Consult Patients

Use Case	Consult Patients	
Goal	Enable a doctor to conduct patient consultations and update consultation notes through the system.	
Precondition	The doctor must be logged into the system.	
Success End Condition	The doctor successfully completes the consultation.	
Failed End Condition	Notification "Failed to complete consultation. Please try again."	
Primary Actors:	Doctors	
Secondary Actors:	Patients	
Trigger	The doctor initiates the consultation for a scheduled patient from the list of appointments.	
Description / Main Success Scenario	1.	Visit Dashboard.
	2.	Navigates to the "Consultations" or "Appointments" section.
	3.	Doctor selects the patient for the consultation
	4.	The system displays the patient’s medical history
	5.	Doctor conducts the consultation with the patient, possibly entering real-time notes
Alternative Flows	2.1	Server Down.
		2.1.a. Again Later.
	3.1	Patient ID not match
		3.1.a. Enter the correct Patient ID.
	4.1	System Not responds
		4.1.a. Please try again later
	5.1	Server not respond
		5.1.a. Try again
	6.1	System Error
		6.1.a. Try again
Quality Requirements	Users will get 10 mins to fill up	

Case Description-10: Prescribe Medicine

Use Case	Prescribe Medicine																					
Goal	Doctor can prescribe medicine to a patient during or after a consultation,																					
Precondition	The doctor must be logged into the system.																					
Success End Condition	Notification “Prescription Issued Successfully.”																					
Failed End Condition	Notification “Prescription not Issued”.																					
Primary Actors:	Doctors																					
Secondary Actors:	Patients																					
Trigger	Doctor will request to Prescribe Medicine for patients.																					
Description / Main Success Scenario	<table><tr><td>1.</td><td>Visit Dashboard.</td></tr><tr><td>2.</td><td>Select “Prescribe Medicine” Section</td></tr><tr><td>3.</td><td>Select Patient</td></tr><tr><td>4.</td><td>View Medical History</td></tr><tr><td>5.</td><td>Check Drug Interaction</td></tr><tr><td>6.</td><td>Confirm and Save Prescription</td></tr><tr><td>7.</td><td>After that Send Prescription to the Patents</td></tr></table>		1.	Visit Dashboard.	2.	Select “Prescribe Medicine” Section	3.	Select Patient	4.	View Medical History	5.	Check Drug Interaction	6.	Confirm and Save Prescription	7.	After that Send Prescription to the Patents						
1.	Visit Dashboard.																					
2.	Select “Prescribe Medicine” Section																					
3.	Select Patient																					
4.	View Medical History																					
5.	Check Drug Interaction																					
6.	Confirm and Save Prescription																					
7.	After that Send Prescription to the Patents																					
Alternative Flows	<table><tr><td>2.1</td><td>Server Down.</td></tr><tr><td></td><td>2.1.a. Again Later.</td></tr><tr><td>3.1</td><td>Patient not match</td></tr><tr><td></td><td>3.1.a. Enter the correct Patient ID.</td></tr><tr><td>4.1</td><td>System Not responds</td></tr><tr><td></td><td>4.1.a. Please try again later</td></tr><tr><td>5.1</td><td>Server not respond</td></tr><tr><td></td><td>5.1.a. Try again</td></tr><tr><td>6.1</td><td>System Error</td></tr><tr><td></td><td>6.1.a. Try again</td></tr></table>		2.1	Server Down.		2.1.a. Again Later.	3.1	Patient not match		3.1.a. Enter the correct Patient ID.	4.1	System Not responds		4.1.a. Please try again later	5.1	Server not respond		5.1.a. Try again	6.1	System Error		6.1.a. Try again
2.1	Server Down.																					
	2.1.a. Again Later.																					
3.1	Patient not match																					
	3.1.a. Enter the correct Patient ID.																					
4.1	System Not responds																					
	4.1.a. Please try again later																					
5.1	Server not respond																					
	5.1.a. Try again																					
6.1	System Error																					
	6.1.a. Try again																					
Quality Requirements	Users will get 10 mins to fill up																					

Case Description-11: Forget Password

Use Case	Forget Password																					
Goal	Users can restore forgotten passwords.																					
Precondition	The user must log in to the system.																					
Success End Condition	Notification: “Password Restored Successfully”.																					
Failed End Condition	Notification: “Password Restored Failed.”																					
Primary Actors:	Patients, Doctors																					
Secondary Actors:																						
Trigger	The user will request to Restore the password.																					
Description / Main Success Scenario	<table><tr><td>1.</td><td>Log in to the system.</td></tr><tr><td>2.</td><td>Select the “Forget Password” Option.</td></tr><tr><td>3.</td><td>Enter the registered number</td></tr><tr><td>4.</td><td>Press the “Send Verification Code” Button.</td></tr><tr><td>5.</td><td>Enter the verification code</td></tr><tr><td>6.</td><td>Set new password</td></tr><tr><td>7.</td><td>Press “Save & Apply”.</td></tr></table>		1.	Log in to the system.	2.	Select the “Forget Password” Option.	3.	Enter the registered number	4.	Press the “Send Verification Code” Button.	5.	Enter the verification code	6.	Set new password	7.	Press “Save & Apply”.						
1.	Log in to the system.																					
2.	Select the “Forget Password” Option.																					
3.	Enter the registered number																					
4.	Press the “Send Verification Code” Button.																					
5.	Enter the verification code																					
6.	Set new password																					
7.	Press “Save & Apply”.																					
Alternative Flows	<table><tr><td>1.1</td><td>Server down</td></tr><tr><td></td><td>1.1.a try again</td></tr><tr><td>2.1</td><td>Not Responding</td></tr><tr><td></td><td>2.1.a Reload</td></tr><tr><td>3.1</td><td>Wrong phone number</td></tr><tr><td></td><td>3.1.a Notification: Choose the Valid Phone Number.</td></tr><tr><td>5.1</td><td>Wrong OTP Code</td></tr><tr><td></td><td>5.1.a Notification: Choose the Valid OTP Code.</td></tr><tr><td>6.1</td><td>System Error</td></tr><tr><td></td><td>6.1.a. Try again</td></tr></table>		1.1	Server down		1.1.a try again	2.1	Not Responding		2.1.a Reload	3.1	Wrong phone number		3.1.a Notification: Choose the Valid Phone Number.	5.1	Wrong OTP Code		5.1.a Notification: Choose the Valid OTP Code.	6.1	System Error		6.1.a. Try again
1.1	Server down																					
	1.1.a try again																					
2.1	Not Responding																					
	2.1.a Reload																					
3.1	Wrong phone number																					
	3.1.a Notification: Choose the Valid Phone Number.																					
5.1	Wrong OTP Code																					
	5.1.a Notification: Choose the Valid OTP Code.																					
6.1	System Error																					
	6.1.a. Try again																					
Quality Requirements	Users will get 10 mins to fill up																					

Case Description-12: Log Out

Use Case	Log Out													
Goal	Users can Log Out from the system.													
Precondition	The user must log in to the system.													
Success End Condition	Notification: “Logout Successful”.													
Failed End Condition	Notification: “System Error”.													
Primary Actors:	Patients, Doctors													
Secondary Actors:	Admin													
Trigger	The user will request to Log Out from the System													
Description / Main Success Scenario	<table><tr><td>1.</td><td>Log in to the system.</td></tr><tr><td>2.</td><td>Select the “Logout” Option.</td></tr><tr><td>3.</td><td>Press the “Logout” Button.</td></tr><tr><td>4.</td><td>Logout Successful</td></tr></table>		1.	Log in to the system.	2.	Select the “Logout” Option.	3.	Press the “Logout” Button.	4.	Logout Successful				
1.	Log in to the system.													
2.	Select the “Logout” Option.													
3.	Press the “Logout” Button.													
4.	Logout Successful													
Alternative Flows	<table><tr><td>1.1</td><td>Server Down</td></tr><tr><td></td><td>1.1.a try again</td></tr><tr><td>2.1</td><td>Not Responding</td></tr><tr><td></td><td>2.1.a Try Again</td></tr><tr><td>3.1</td><td>Not Responding</td></tr><tr><td></td><td>3.1.a Reload</td></tr></table>		1.1	Server Down		1.1.a try again	2.1	Not Responding		2.1.a Try Again	3.1	Not Responding		3.1.a Reload
1.1	Server Down													
	1.1.a try again													
2.1	Not Responding													
	2.1.a Try Again													
3.1	Not Responding													
	3.1.a Reload													
Quality Requirements	The user will Immediately Logout After hitting the Logout Button.													

System Design

Activity Diagram

Activity Diagram-01: Registration

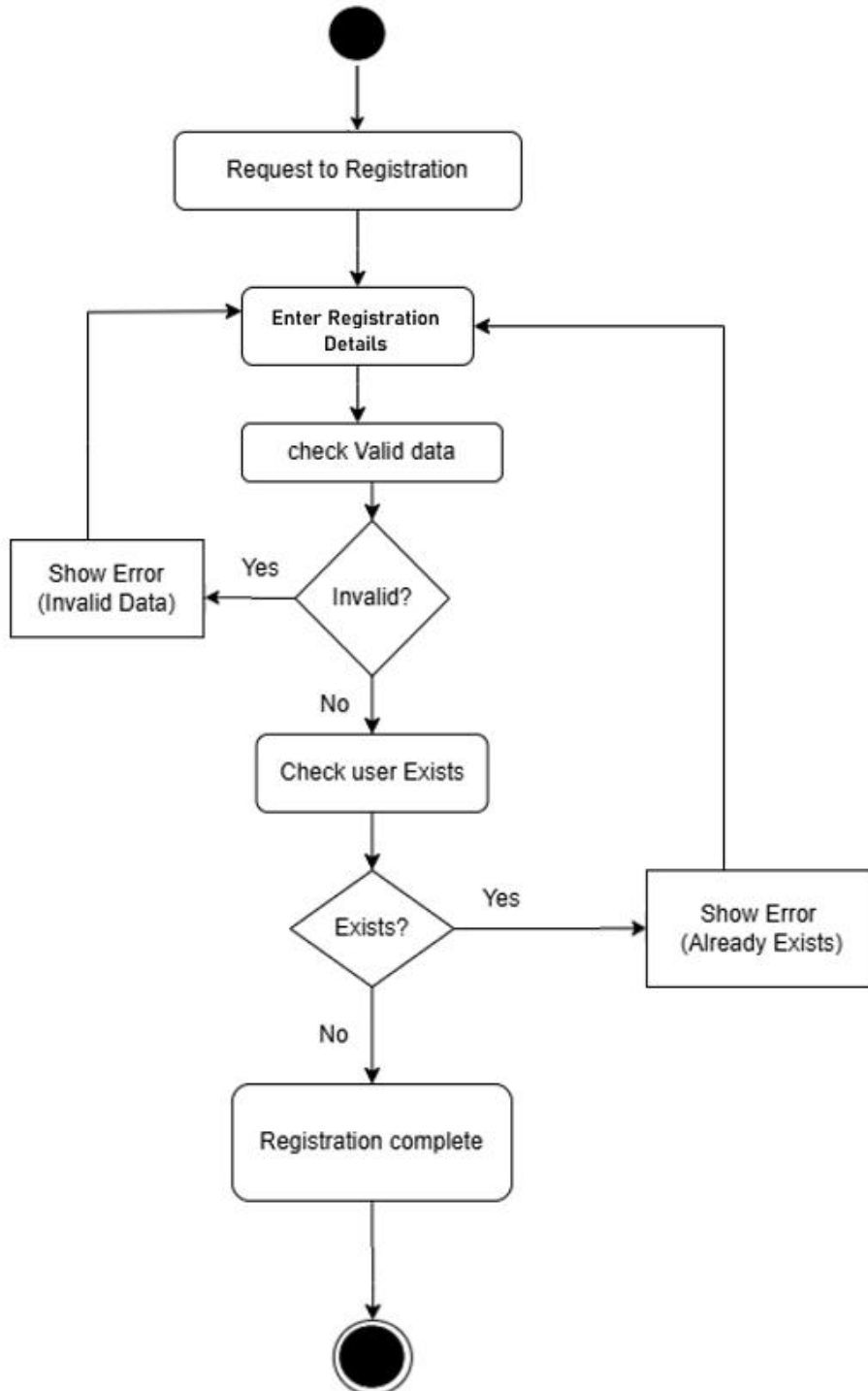


Figure-5: Activity Diagram for Registration

Activity Diagram-02: Login

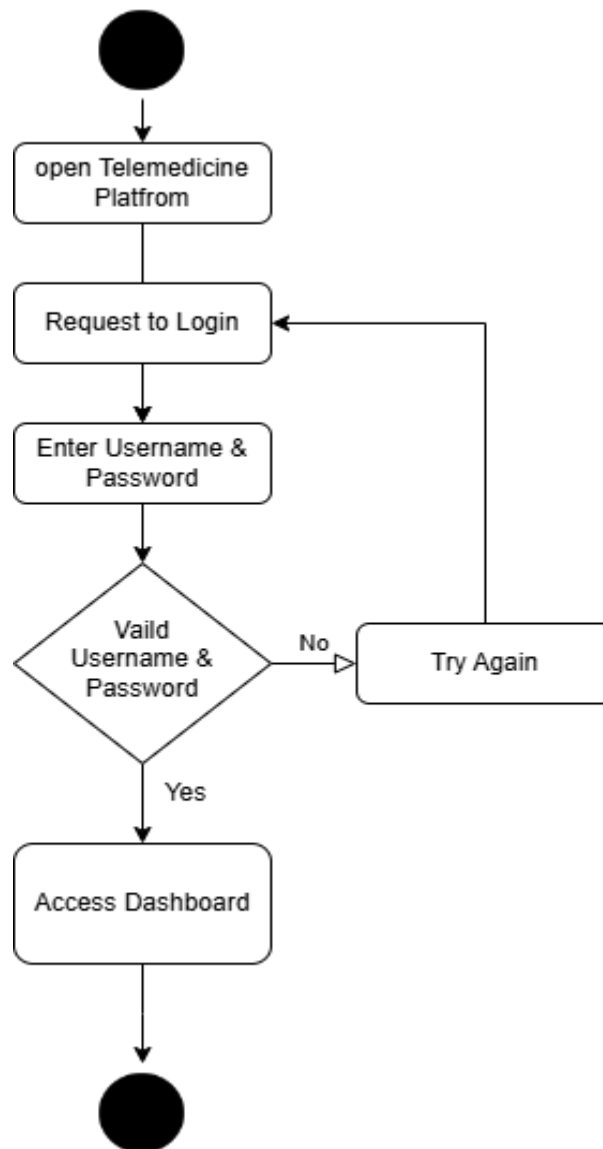


Figure-6: Activity Diagram for LogIn

Activity Diagram-03: Add Profile Information

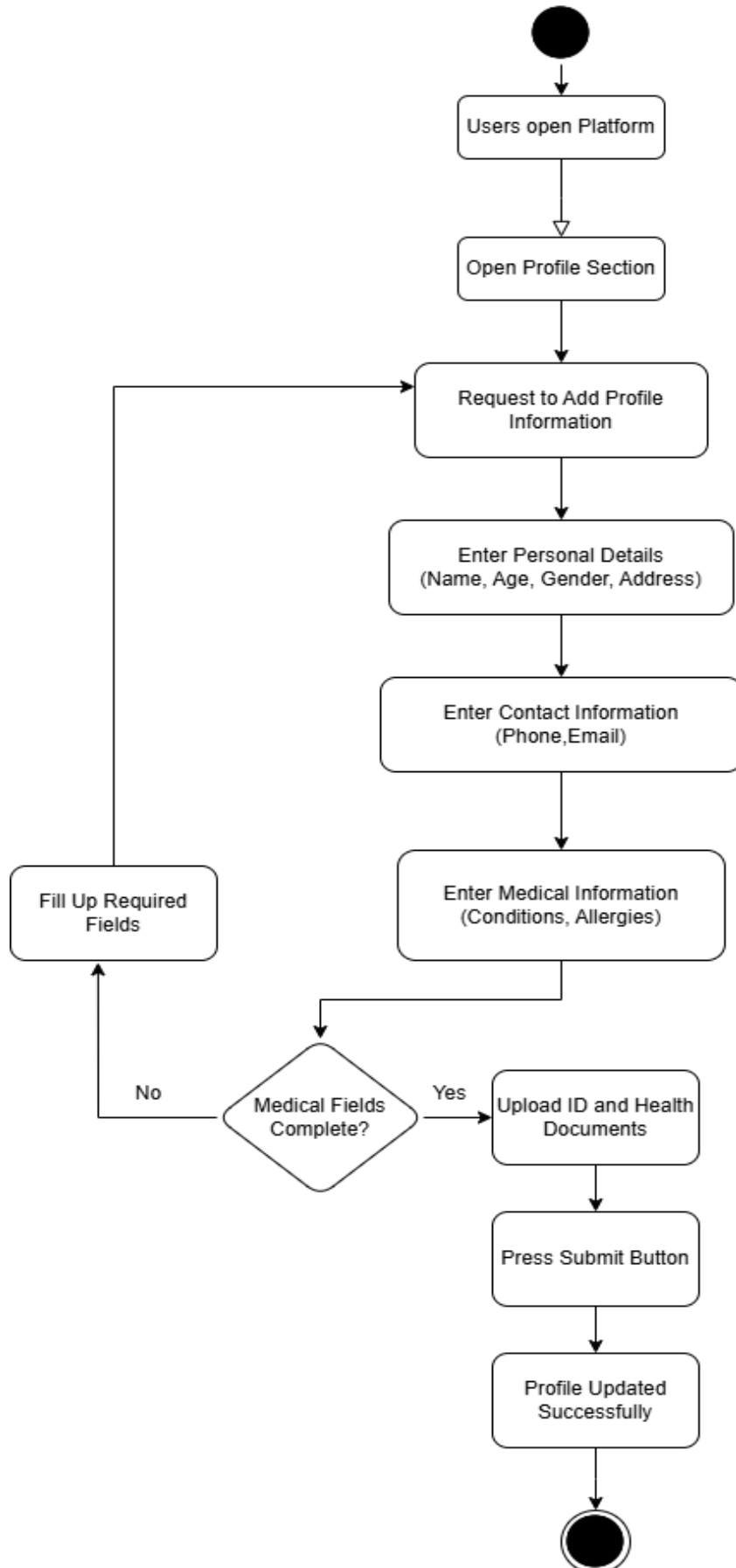


Figure-7: Activity Diagram for Add Profile Information

Activity Diagram-04: Book Consultation

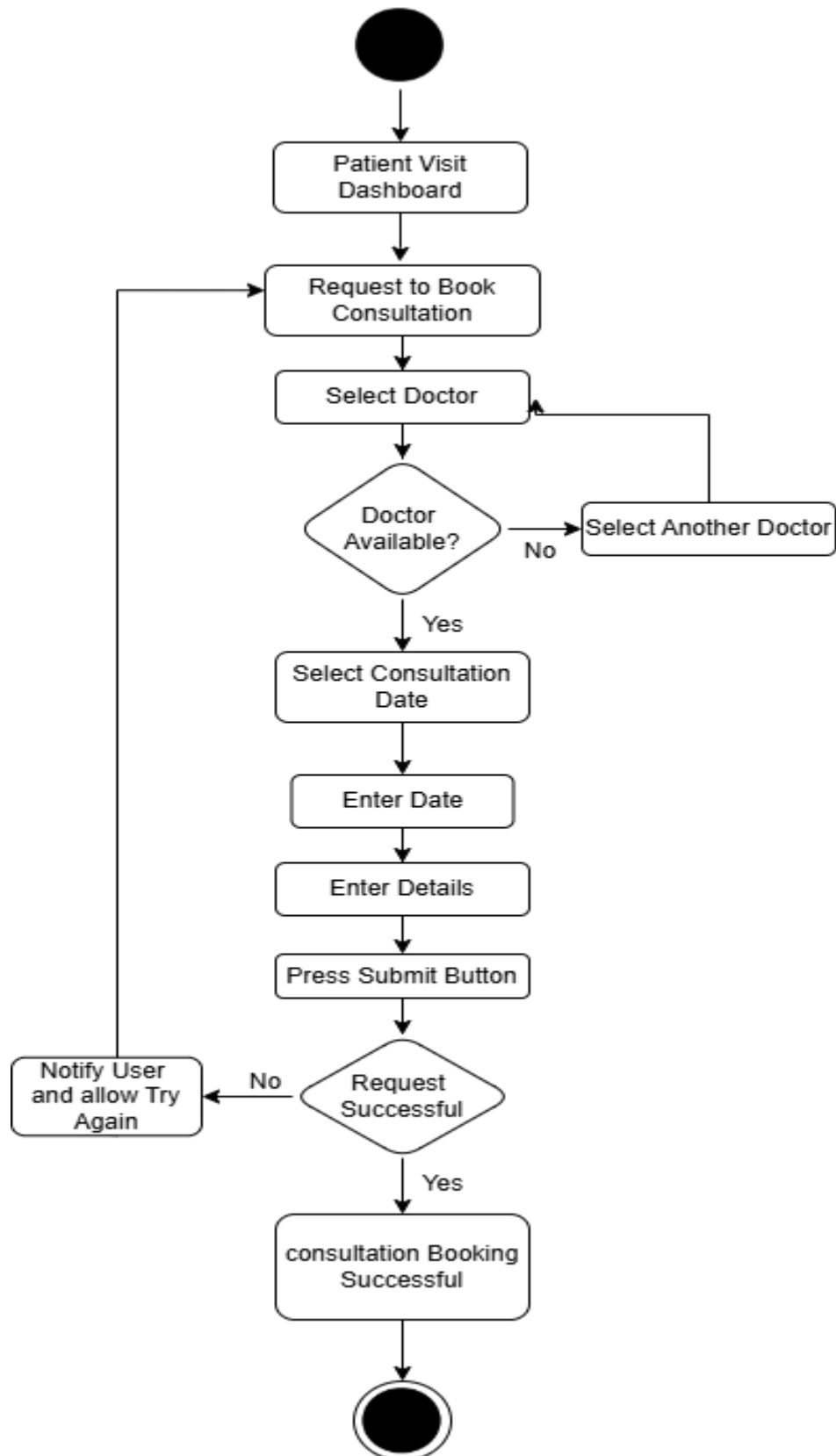


Figure-8: Activity Diagram for Book Consultation

Activity Diagram-06: View Medical Reports

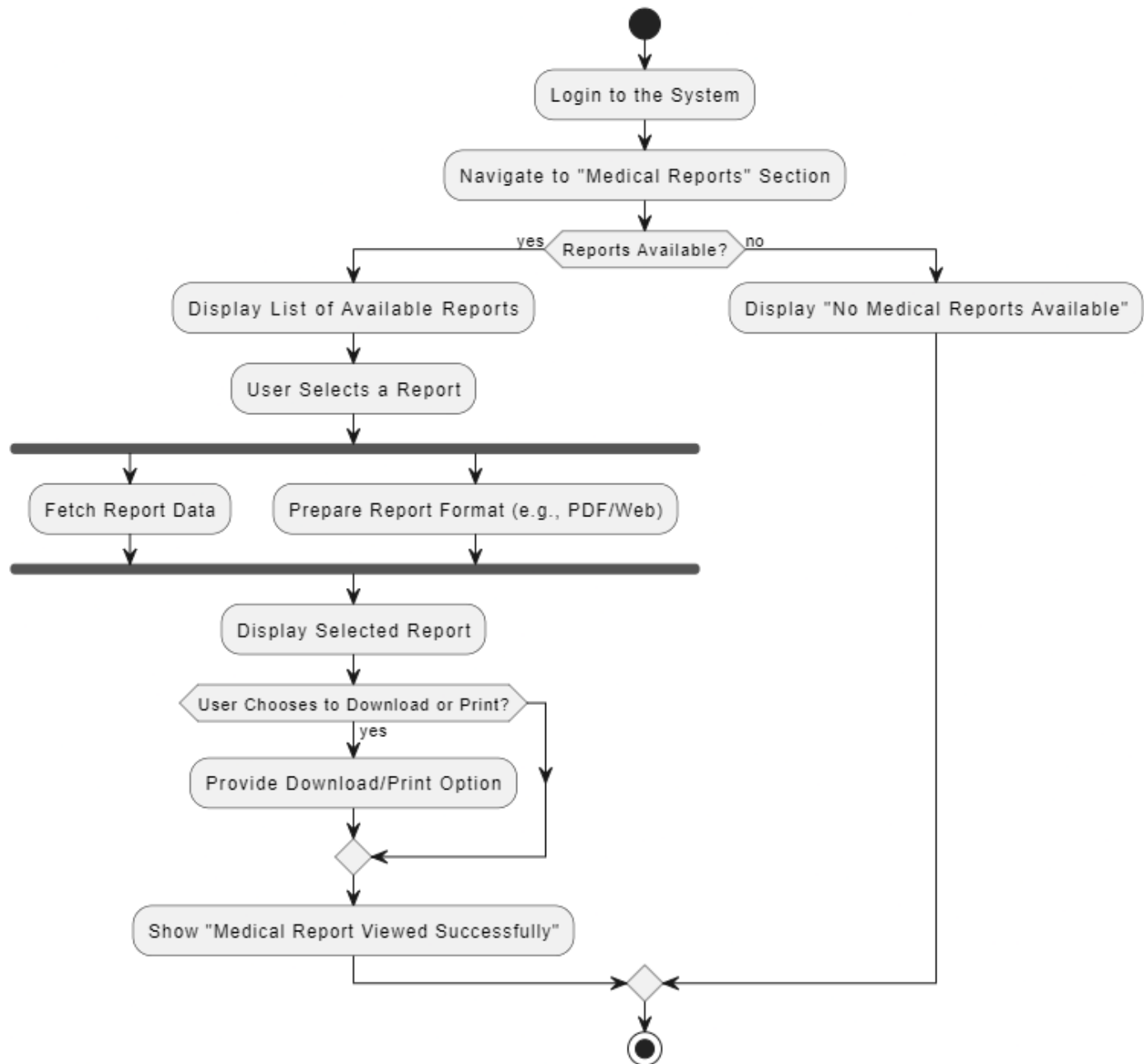


Figure-9: Activity Diagram for View Medical Reports

Activity Diagram-07: Make Payment

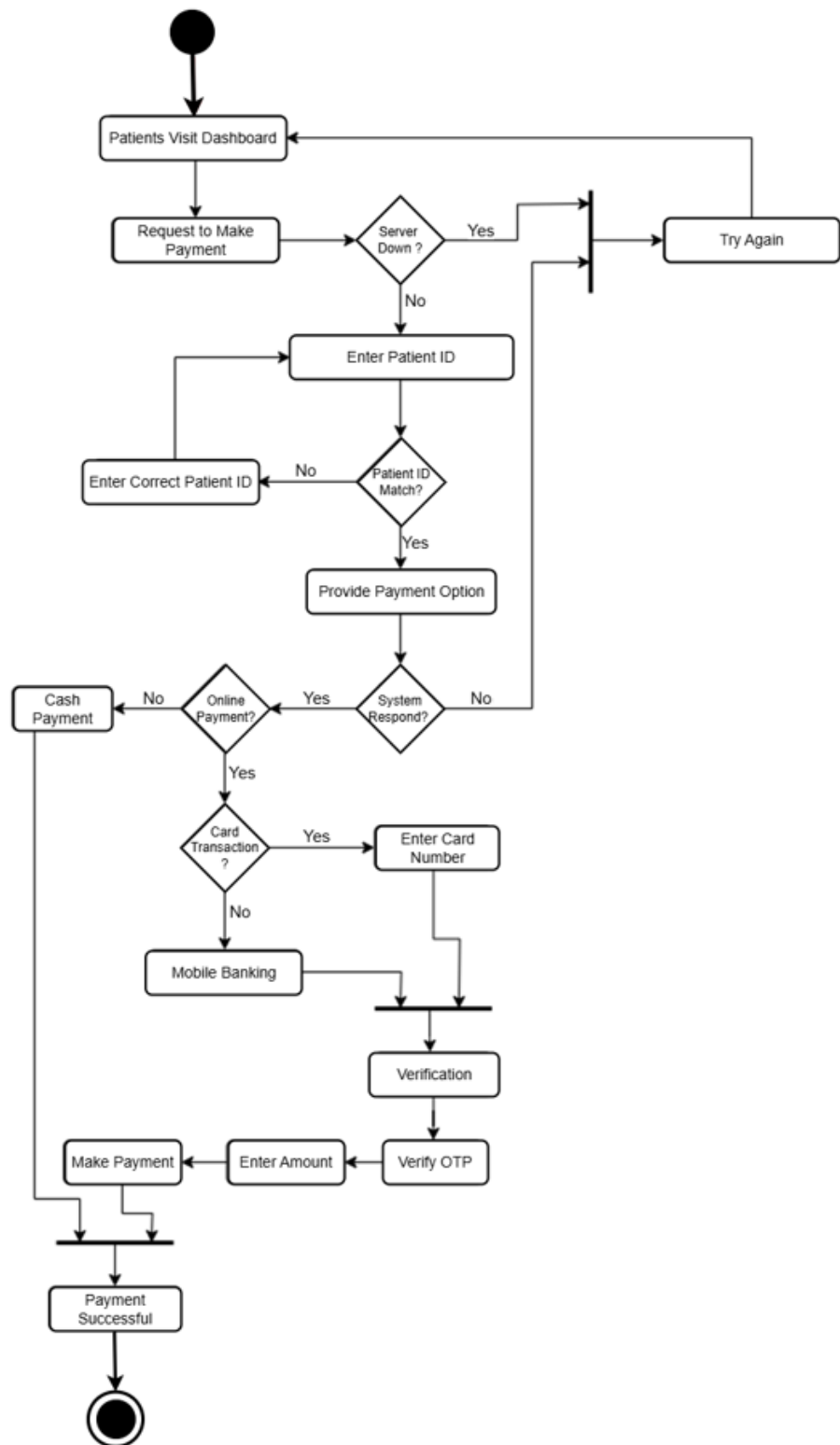


Figure-10: Activity Diagram for Make Payment

Activity Diagram-08: View Schedules

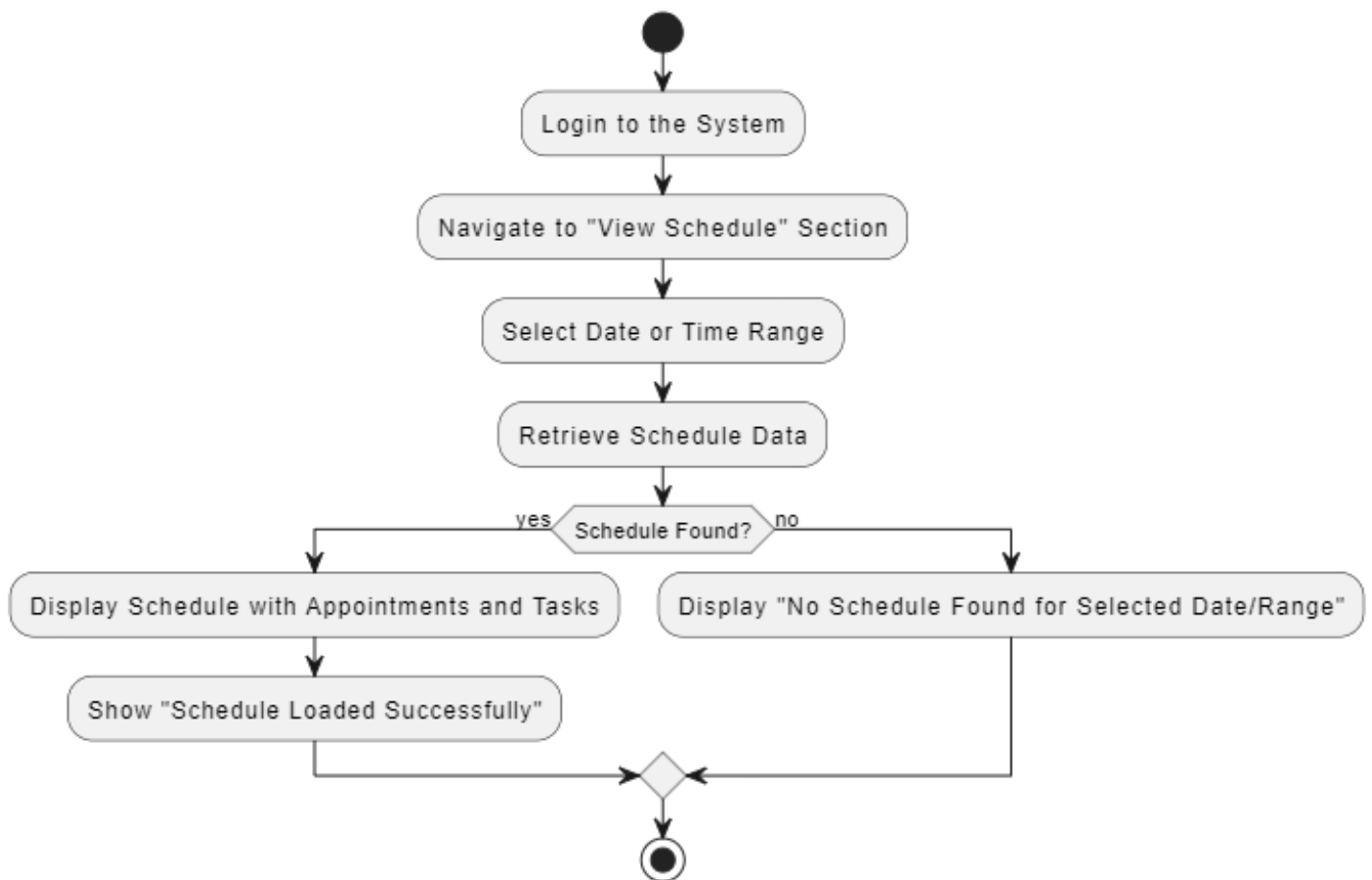


Figure-11: Activity Diagram for View Schedule

Activity Diagram-09: Consult Patients

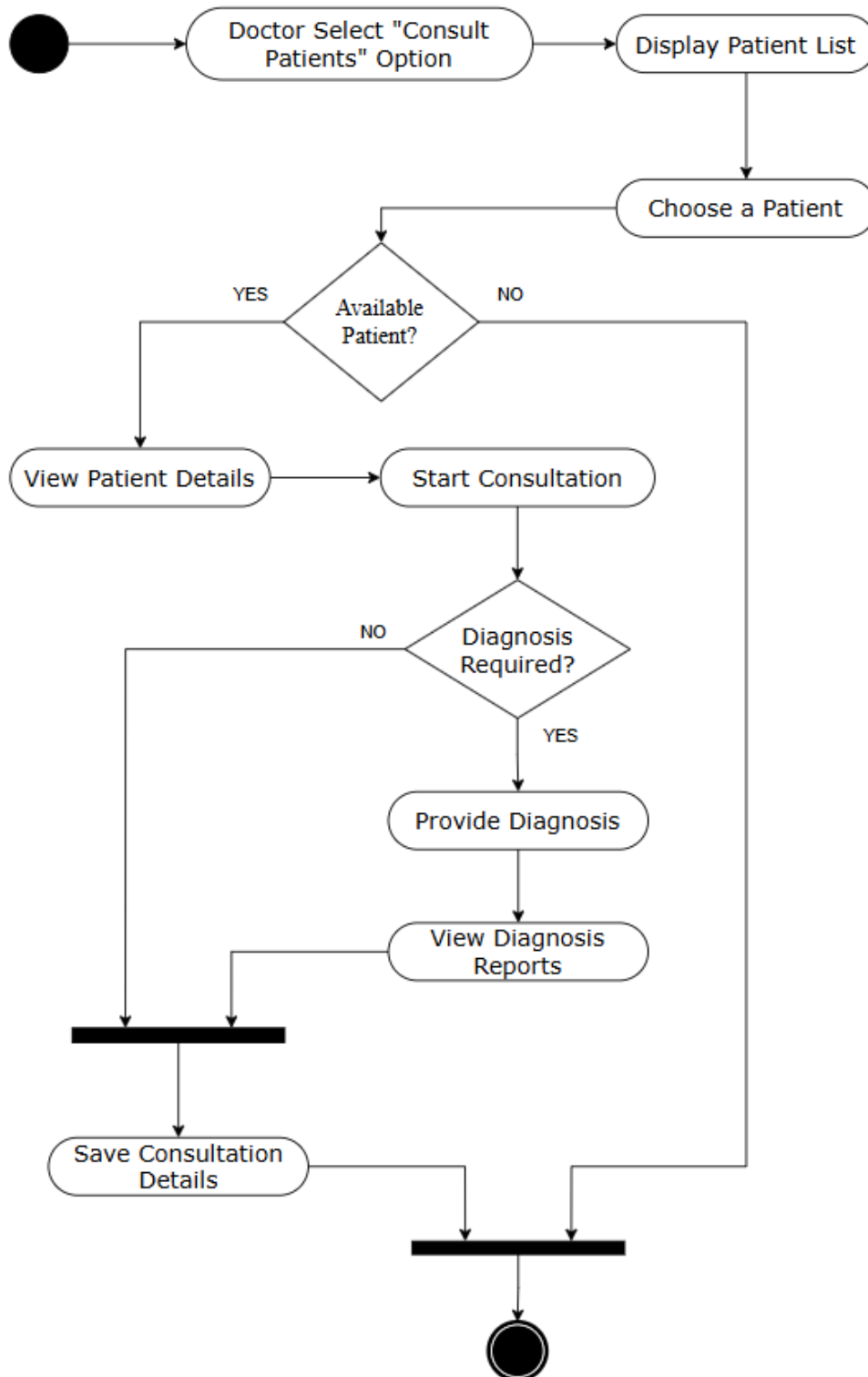


Figure-12: Activity Diagram for Consult Patients

Activity Diagram-10: Prescribe Medicine

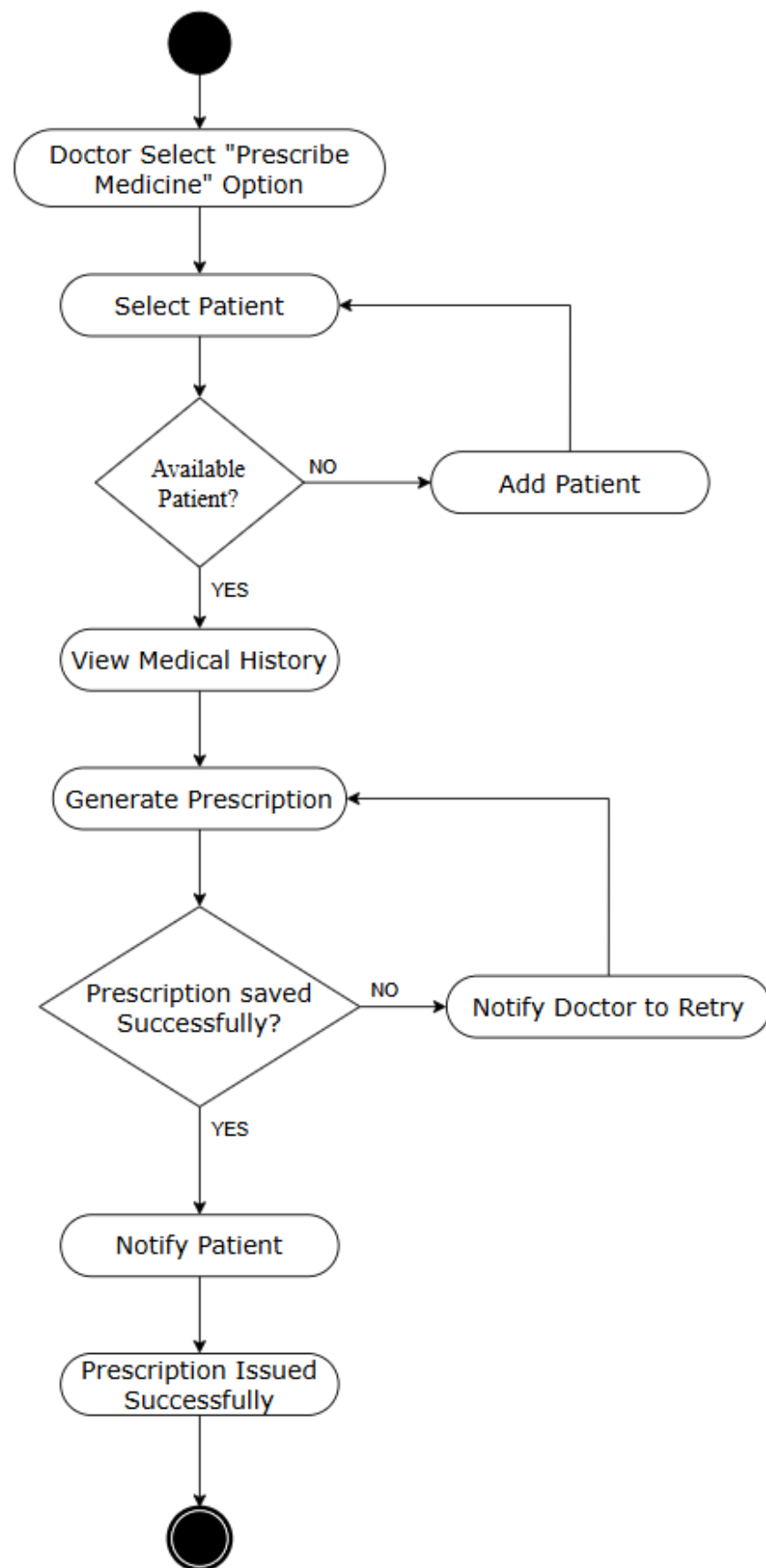


Figure-13: Activity Diagram for Prescribe Medicine

Activity Diagram-11: Forget Password

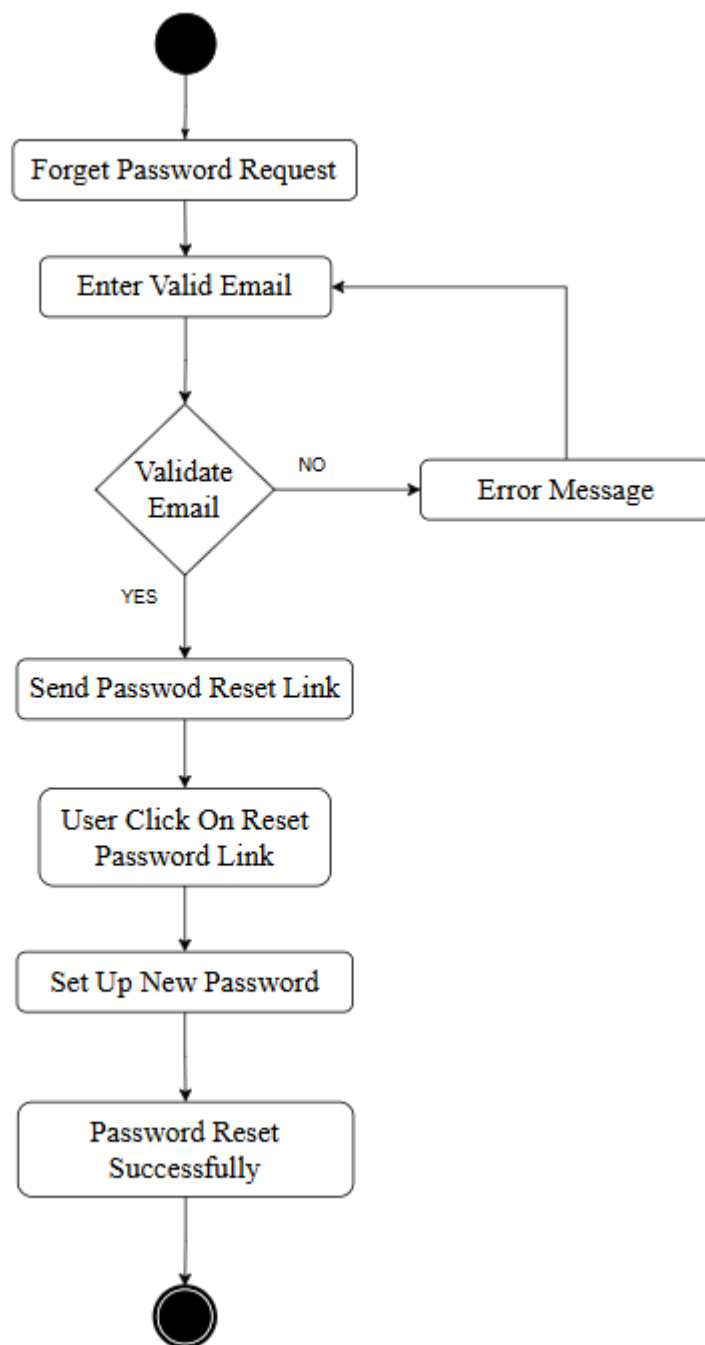


Figure-14: Activity Diagram for Forget Password

Activity Diagram-12: Log Out

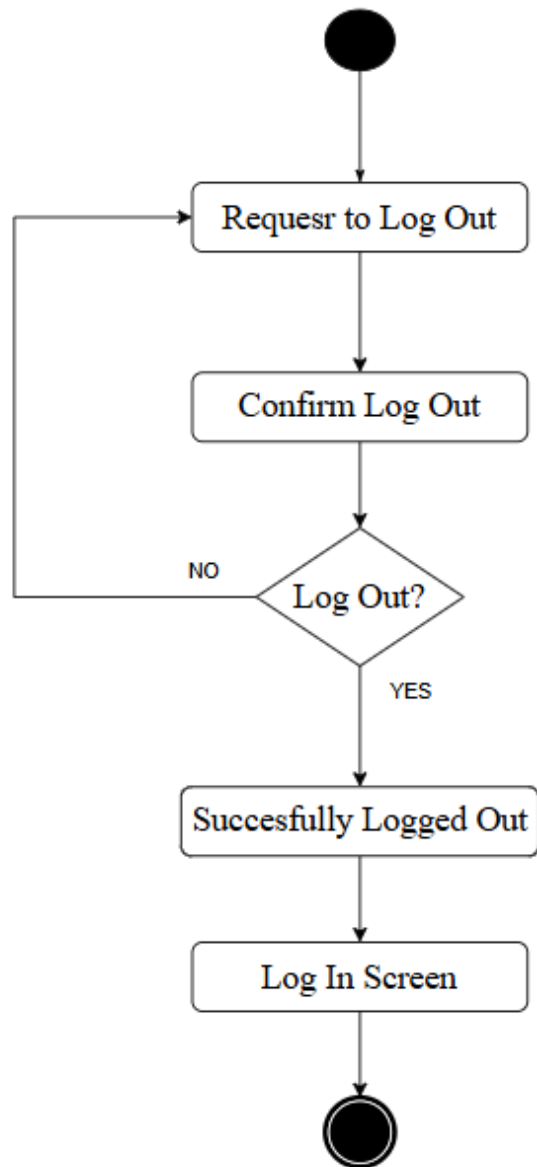


Figure-15: Activity Diagram for Log Out

Sequence Diagram

Sequence Diagram-1: Registration

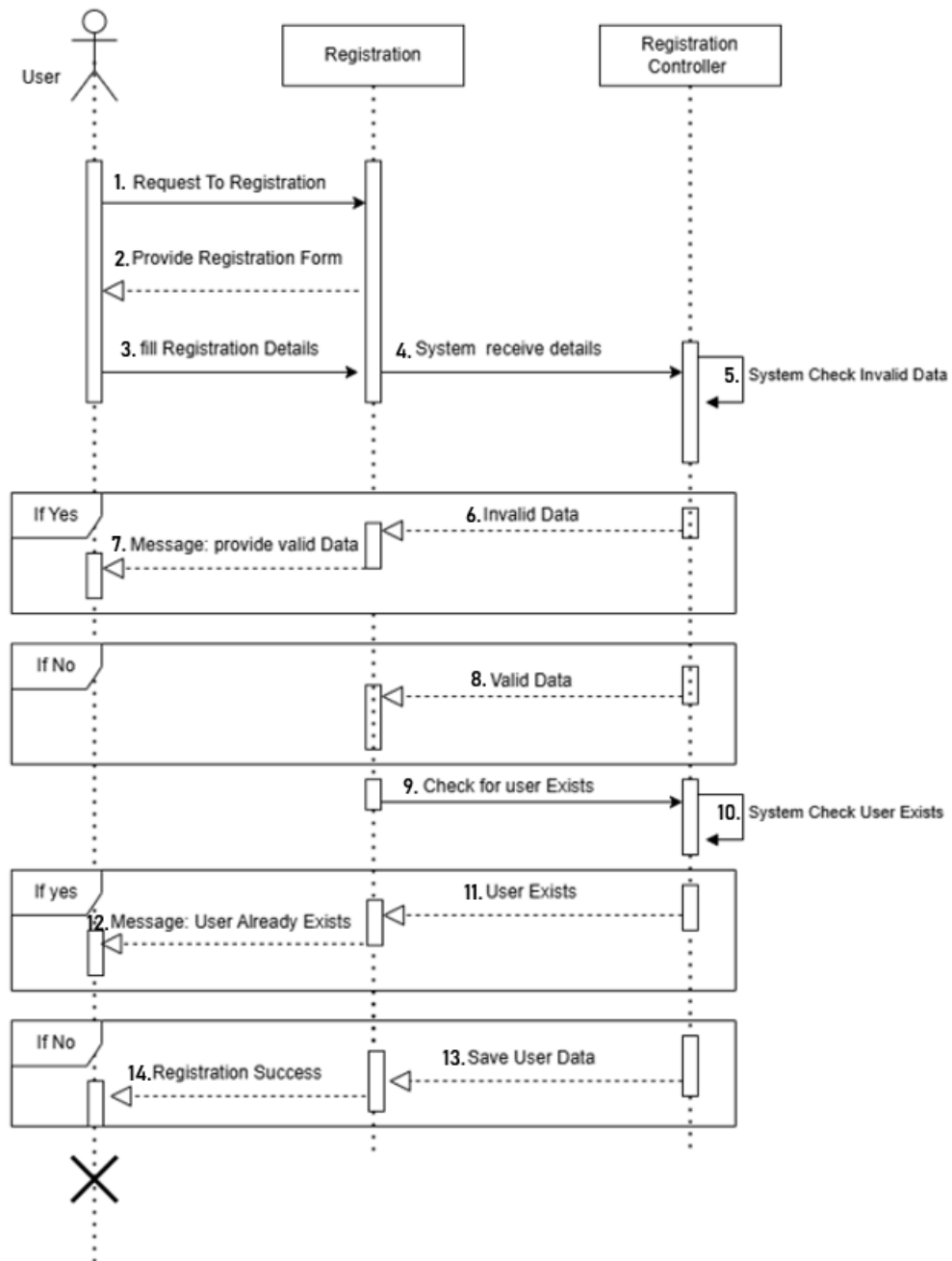


Figure-16: Sequence Diagram for Registration

Sequence Diagram-2: Log In

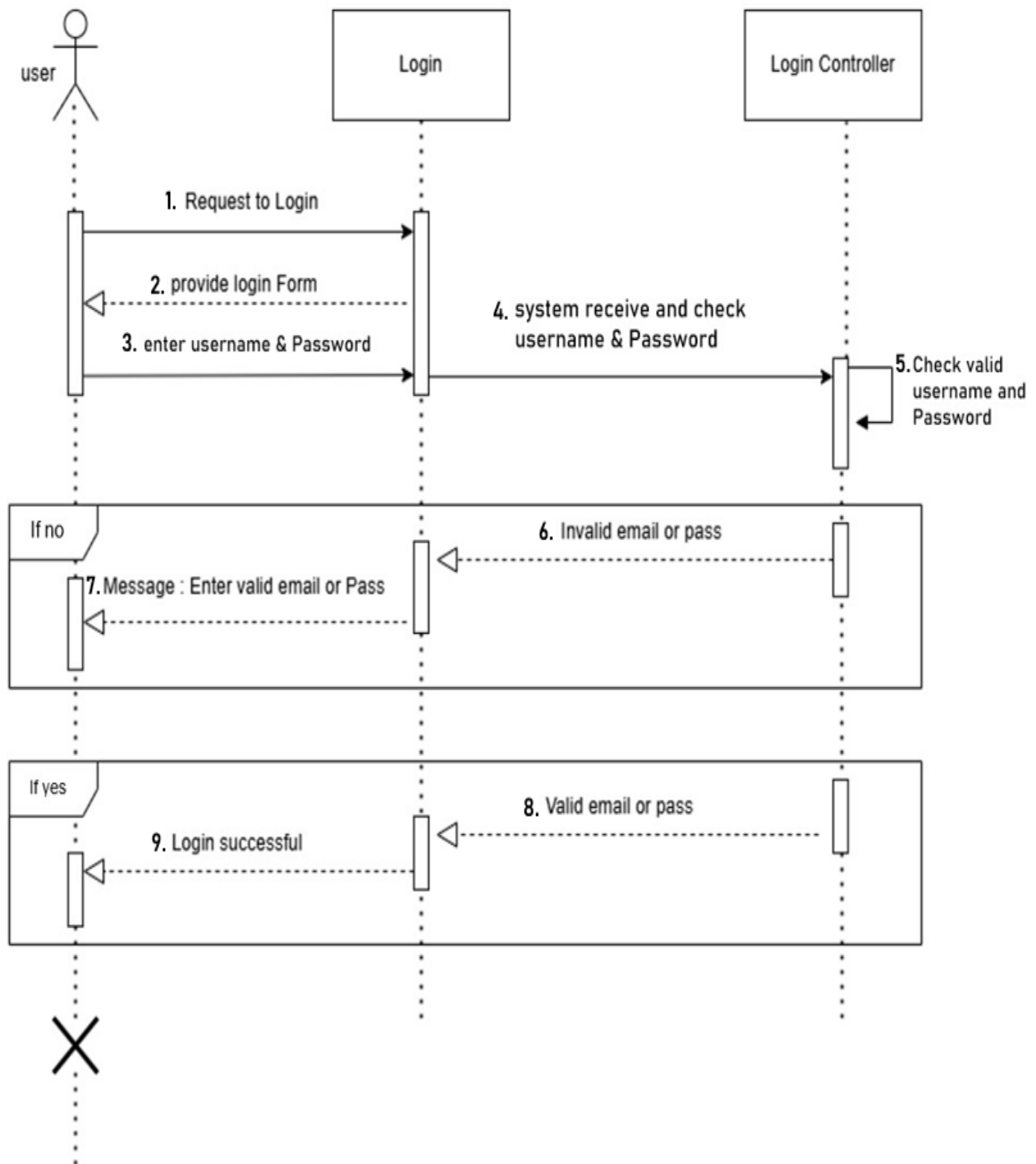


Figure-17: Sequence Diagram for Log In

Sequence Diagram-3: Add Profile Information

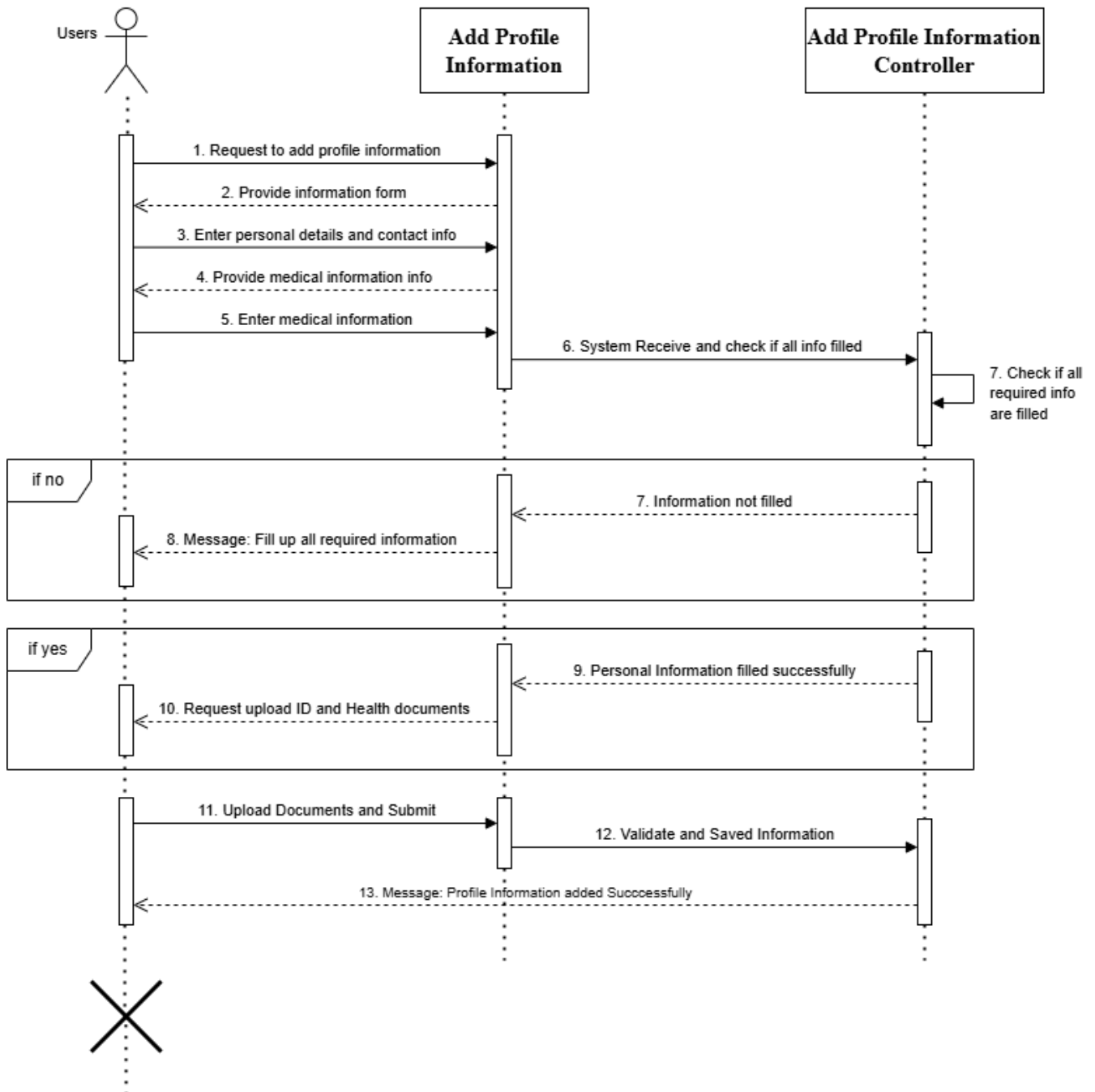


Figure-18: Sequence Diagram for Add Profile Information

Sequence Diagram-4: Book Consultation

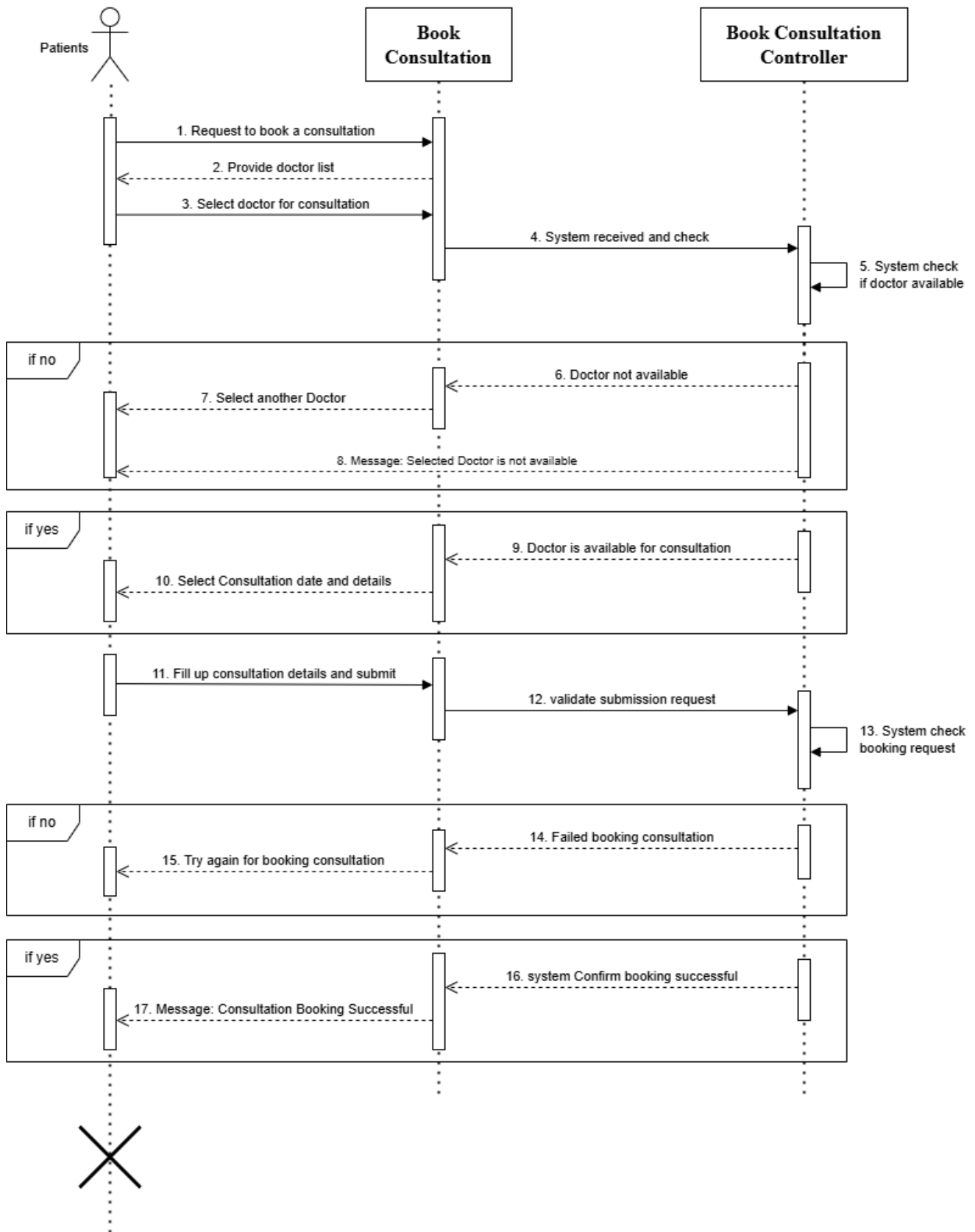


Figure-19: Sequence Diagram for Book Consultation

Sequence Diagram-6: View Medical Reports

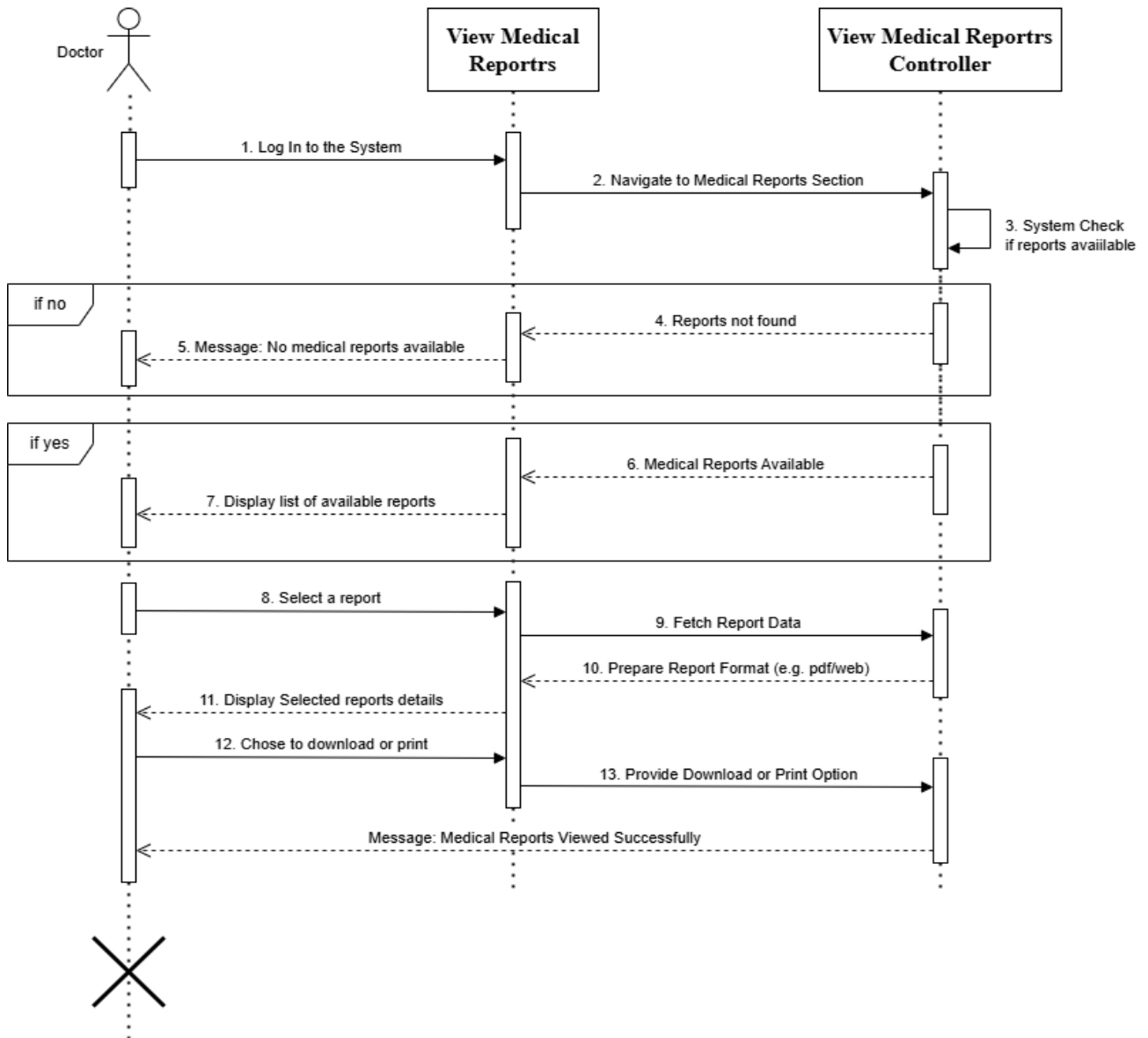


Figure-20: Sequence Diagram for View Medical Reports

Sequence Diagram-7: Make Payment

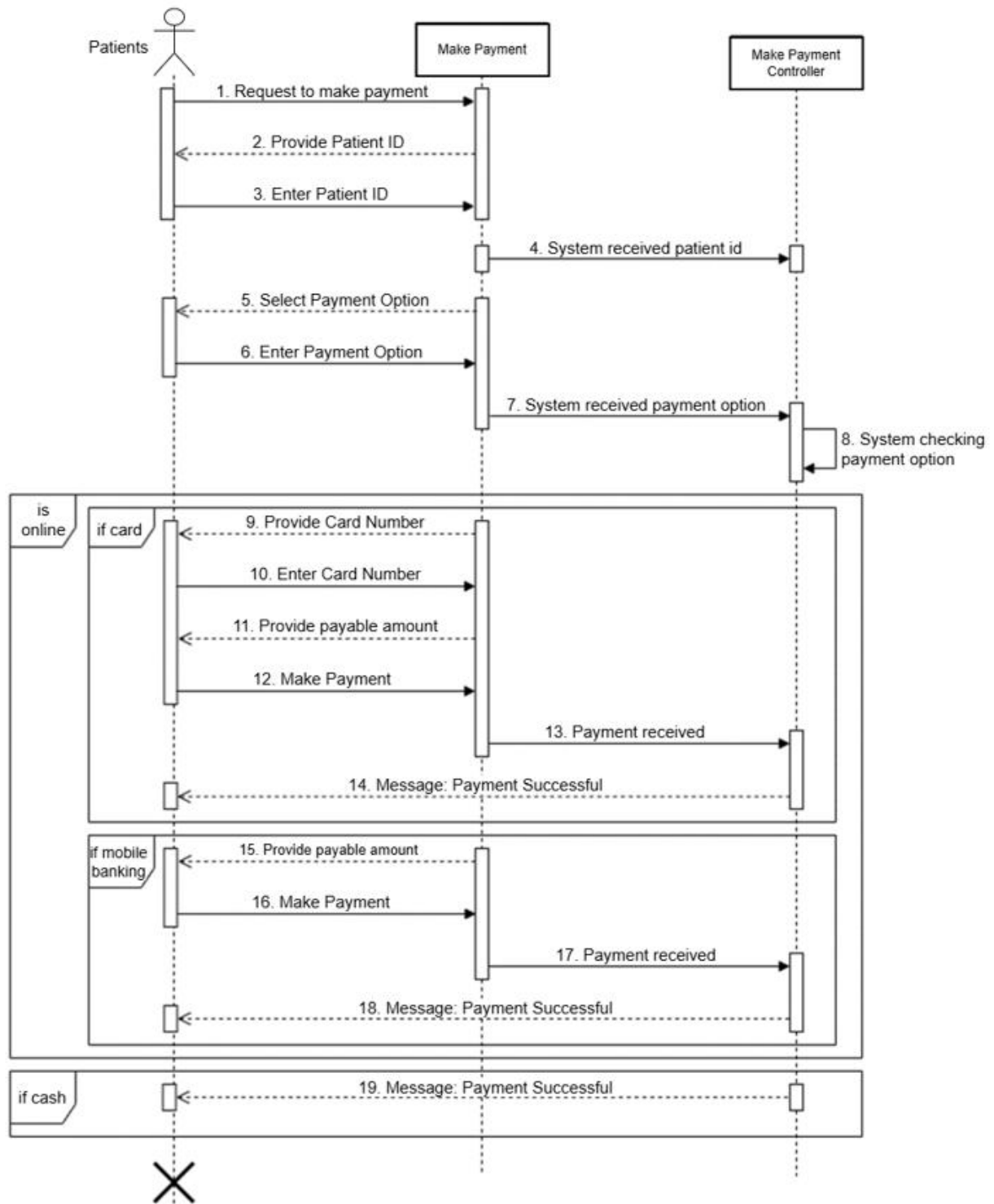


Figure-21: Sequence Diagram for Make Payment

Sequence Diagram-8: View Schedules

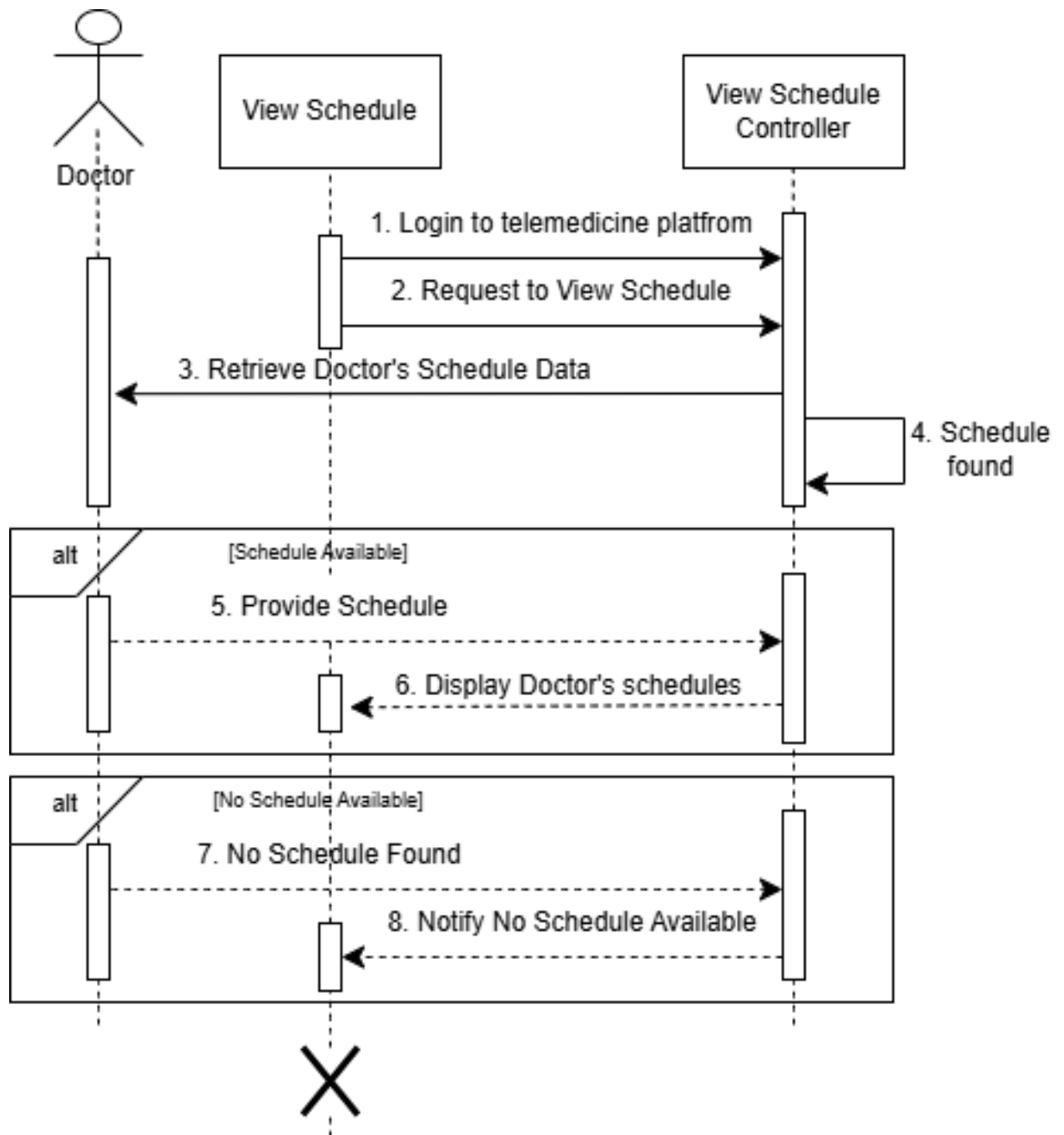


Figure-22: Sequence Diagram for View Schedule

Sequence Diagram-9: Consult Patients

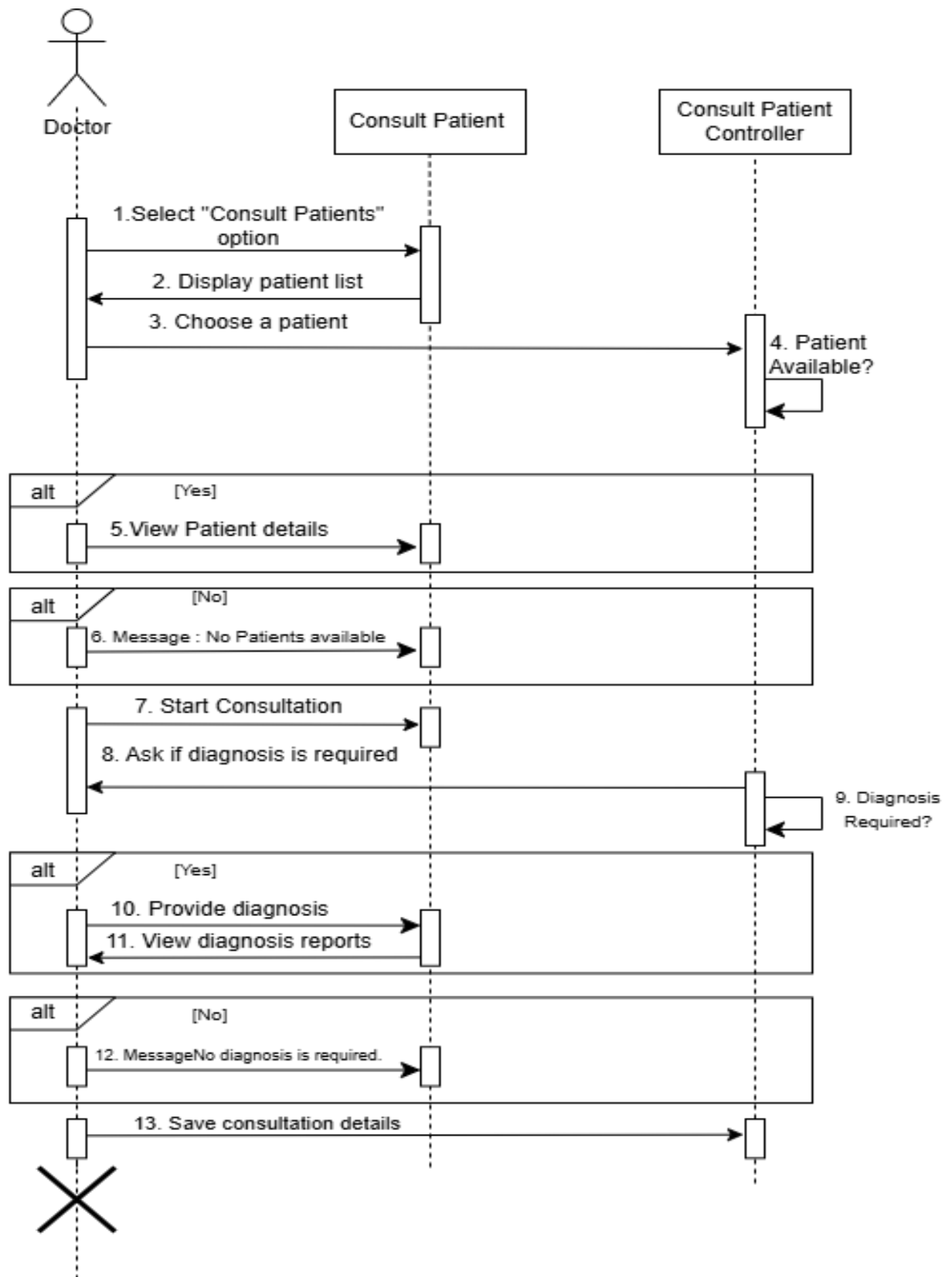


Figure-23: Sequence Diagram for Consult Patients

Sequence Diagram-10: Prescribe Medicine

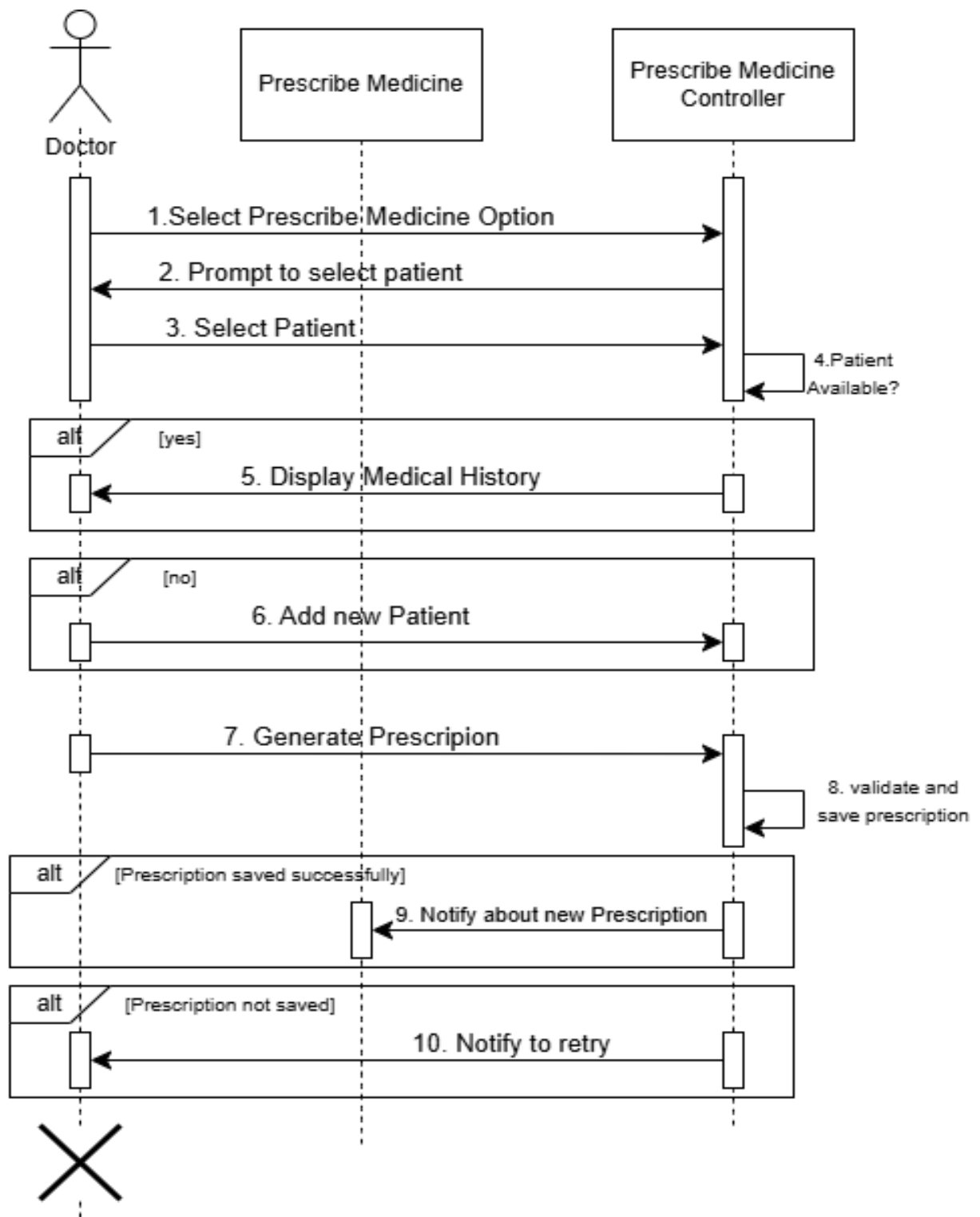


Figure-24: Sequence Diagram for Prescribe Medicine

Sequence Diagram-11: Forget Password

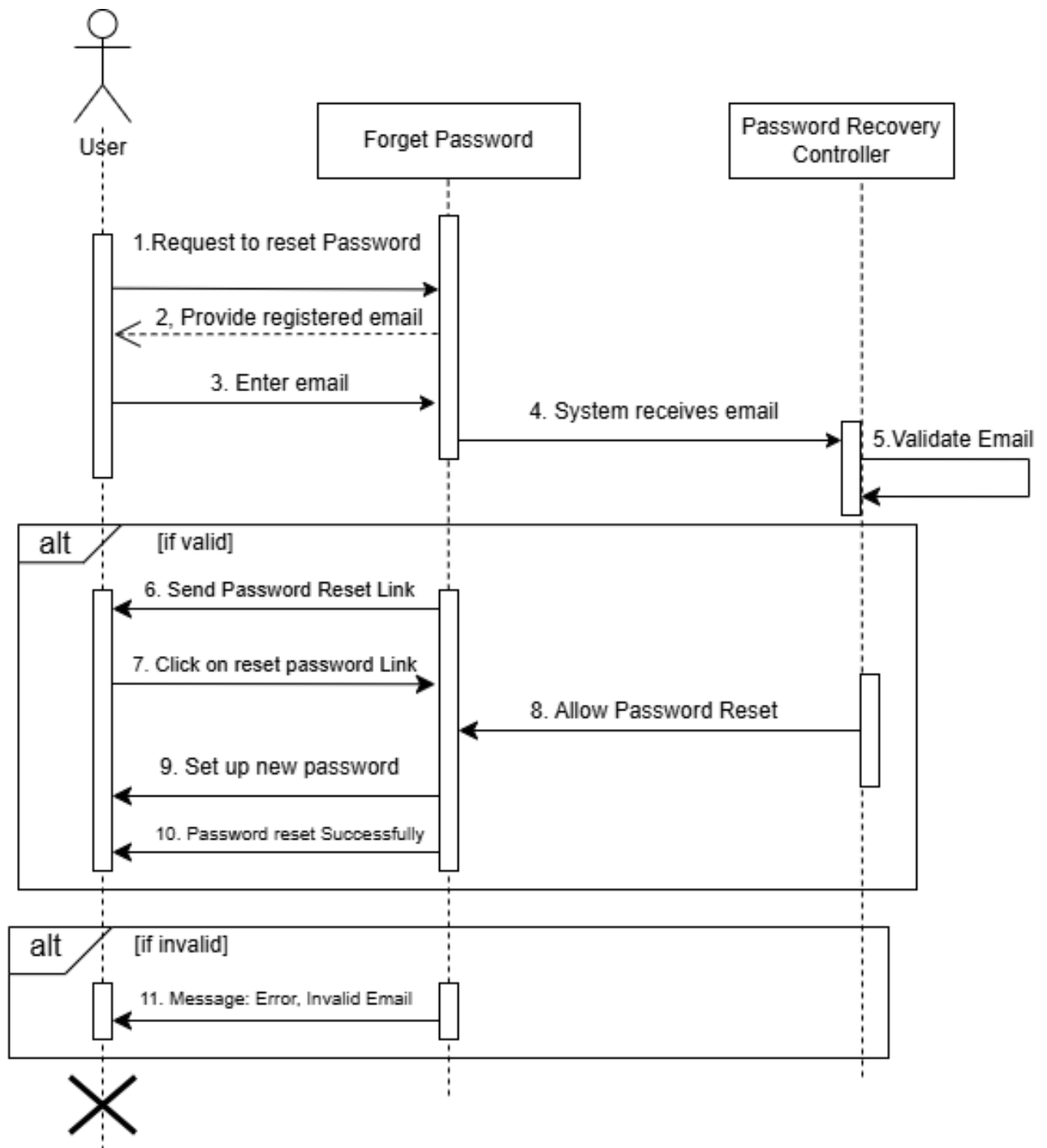


Figure-25: Sequence Diagram for Forget Password

Sequence Diagram-12: Log Out

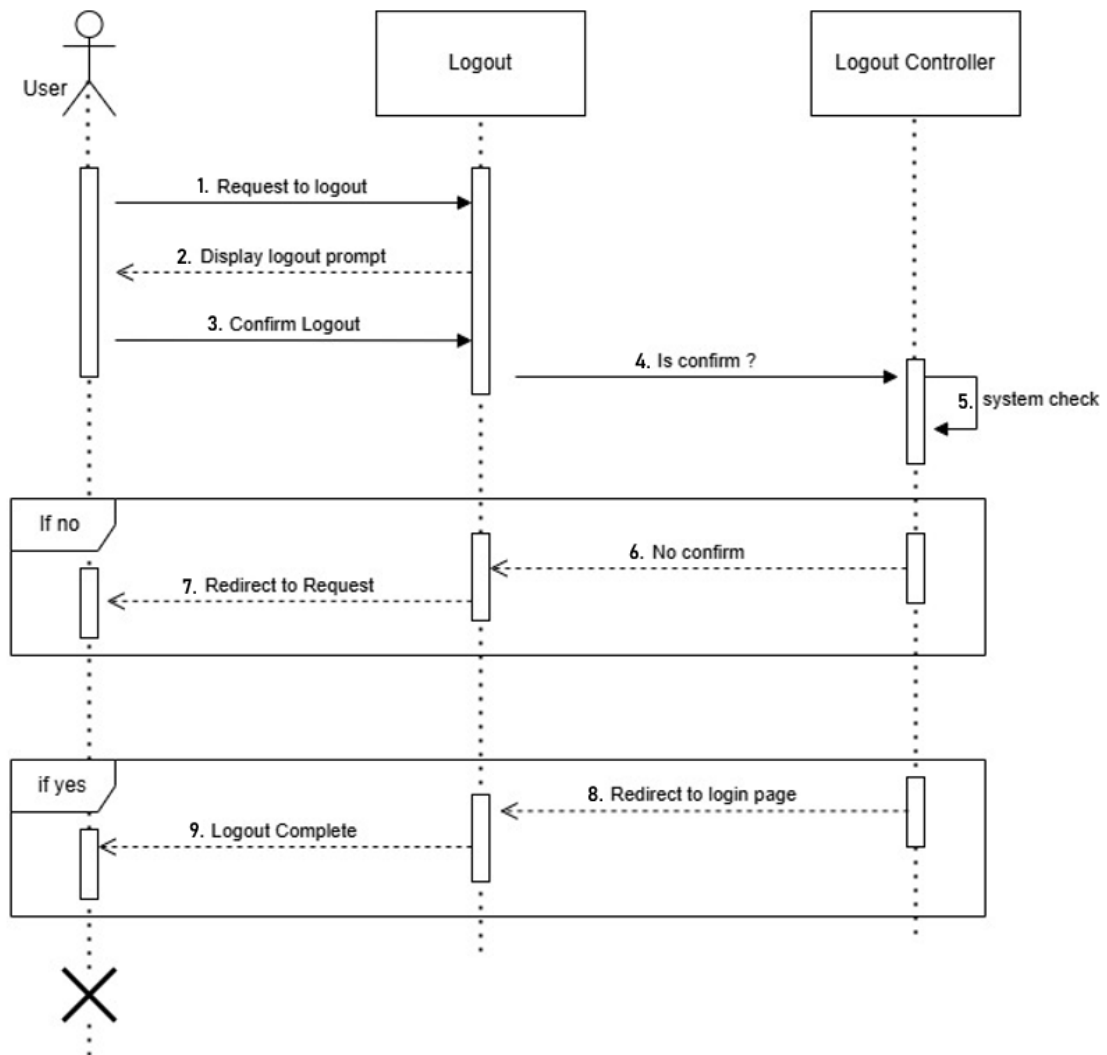


Figure-26: Sequence Diagram for Log Out

Class Diagram

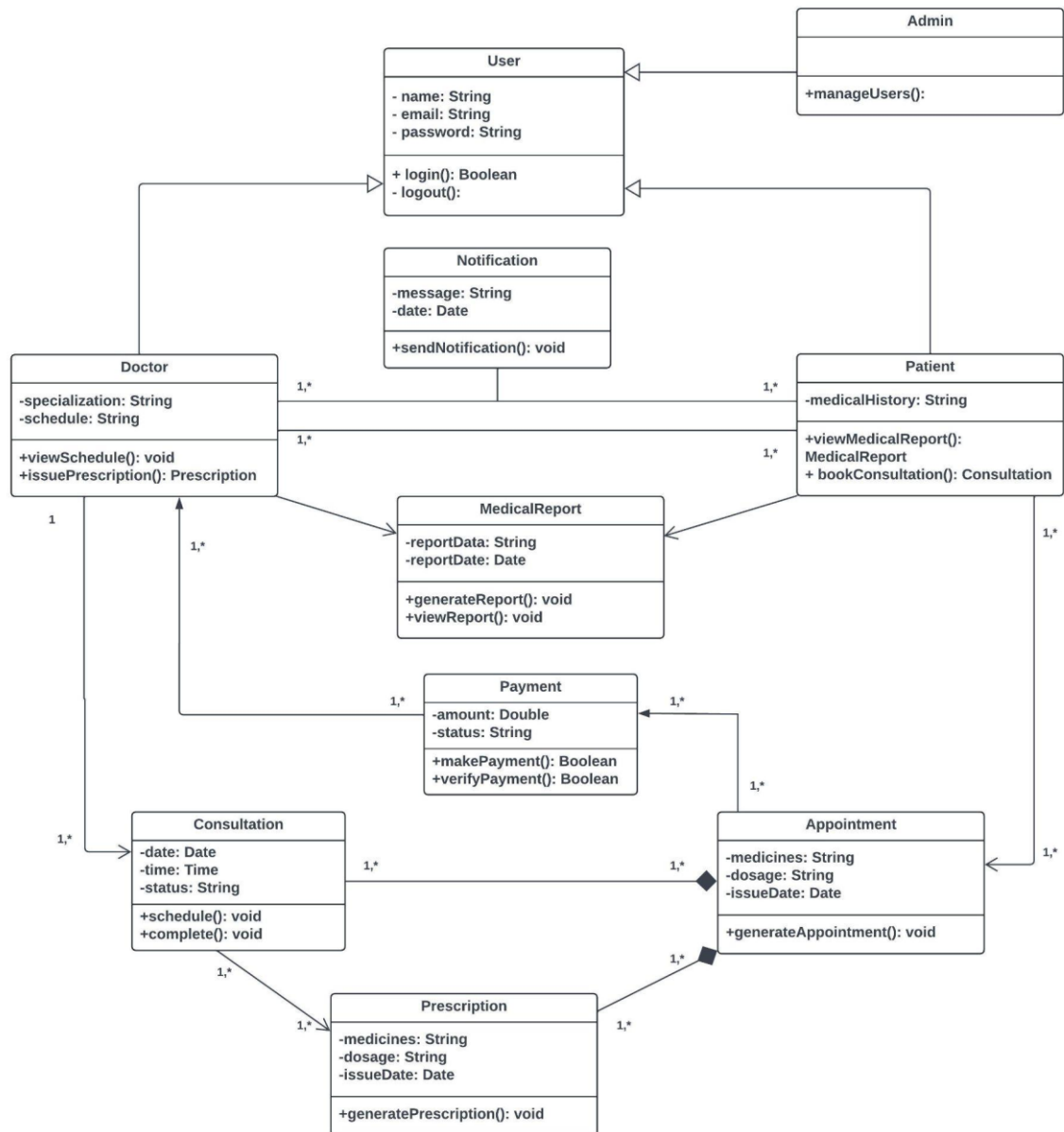


Figure-27: Class Diagram for Telemedicine Platform

ER Diagram

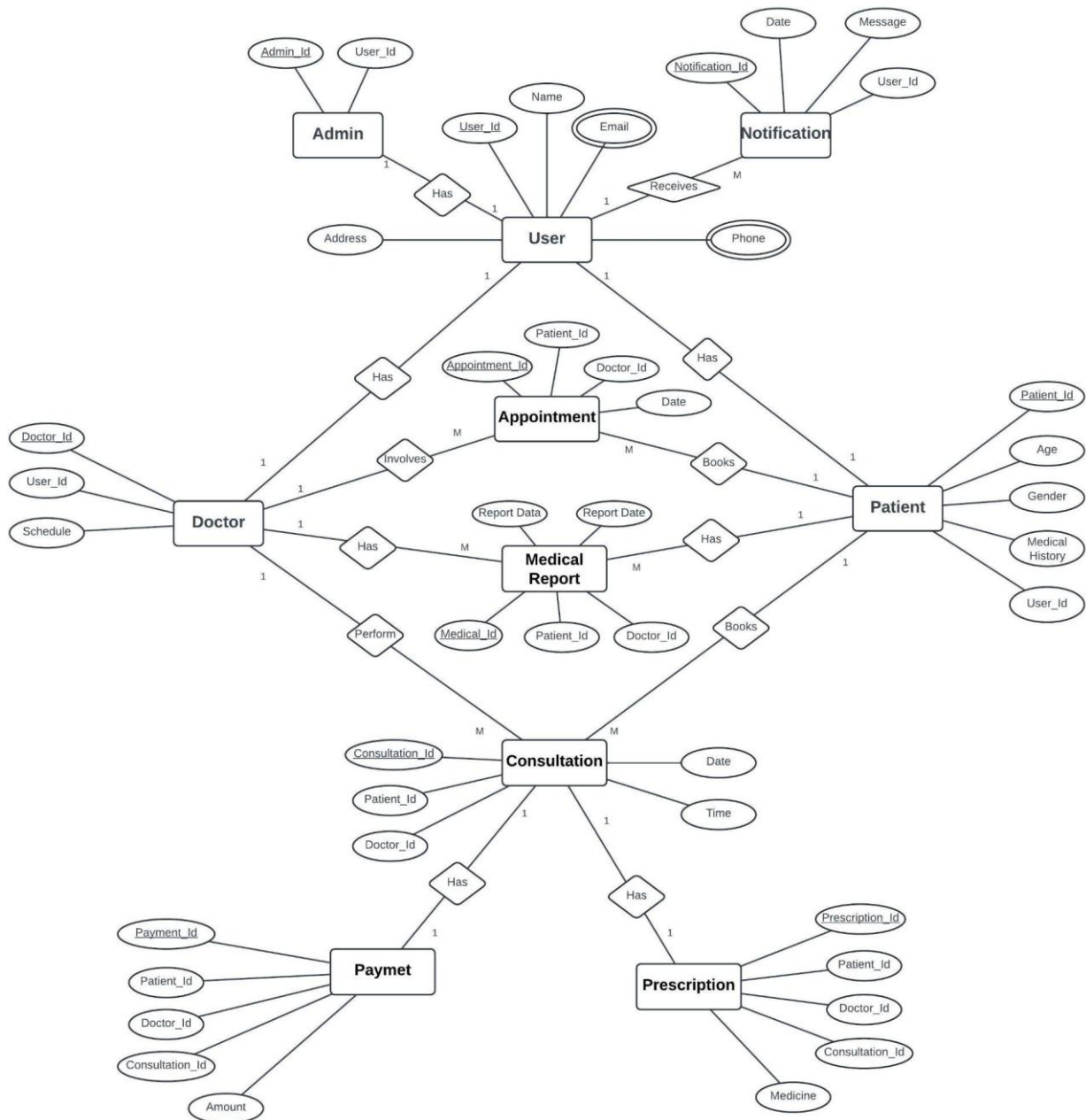


Figure-28: ER Diagram for Telemedicine Platform