



## **Sri Lanka Institute of Information Technology**

B.Sc. Honors Degree in Information Technology  
Specialized in Software Engineering

Year 3, Semester 1 (2024) – Case Study 2

SE3070 – Case Studies in Software Engineering

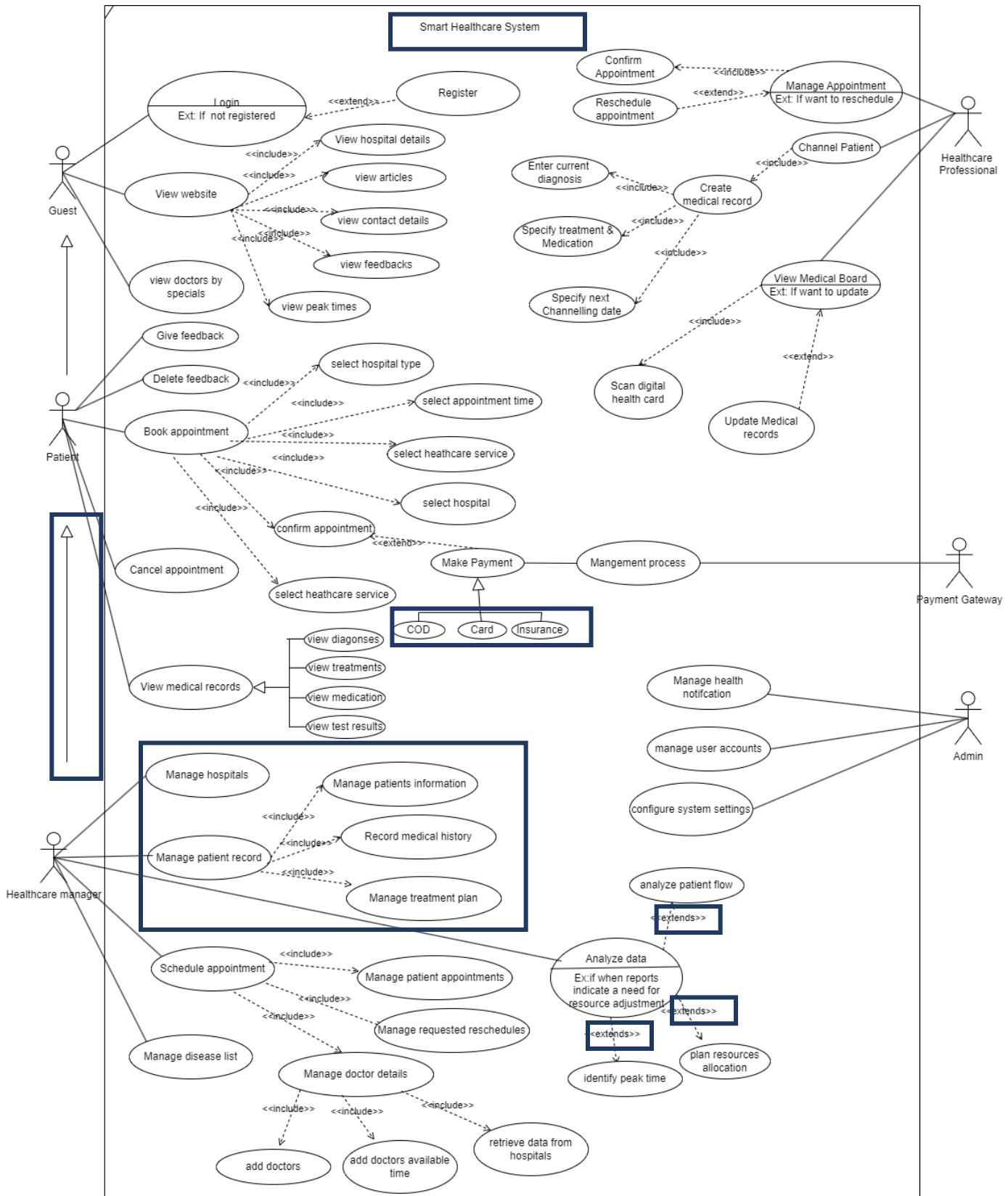
Group ID: SE-S1-WE-48

Student ID	Student Name
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IT22346568	Sangeerthan S
IT22888952	Natheer Hashmath al Hazan
IT22238344	Abishaan T
IT22358820	K.Piruthivi

## Modifications and justifications of the Use case Diagram

1. The use case diagram requires modification to include the system name prominently within the boundary box.
2. The use case diagram currently lacks a heading to identify the system
3. To generalize all tasks in the healthcare system from the patient actor, we can identify and categorize the key interactions and responsibilities associated with the patient.
4. The current payment gateway does not specify a preferred payment method, which is a significant oversight. Including a designated area for the preferred payment method will enhance user experience by allowing patients to select their desired payment options, such as COD, card, or insurance.
5. In the online system, the inclusion of the receptionist as an actor is unnecessary since the tasks they typically perform, such as managing appointments and handling patient inquiries, can be efficiently carried out by the manager. Removing the receptionist actor streamlines the system and reduces redundancy, allowing the manager to take direct responsibility for these tasks.
6. In the current scenario, where the hospital is being registered, the absence of a hospital-related actor is a notable oversight. Including a dedicated hospital actor is essential to accurately represent the hospital's role in the registration process. This actor would facilitate tasks such as submitting registration details, managing facility information, and coordinating with other actors in the system, such as patients or administrators. Adding the hospital actor ensures a more comprehensive and accurate depiction of the registration workflow, reflecting the hospital's integral involvement in the system and enhancing clarity for all stakeholders involved.
7. The current use case diagram lacks the inclusion of <<include>> tags, which are crucial for defining relationships between use cases.
8. The 'View Contact Details' task is not mentioned for the Guest actor.
9. The use case diagram currently does not illustrate that the healthcare manager inherits tasks from the patient actor.

# Updated User case Diagram



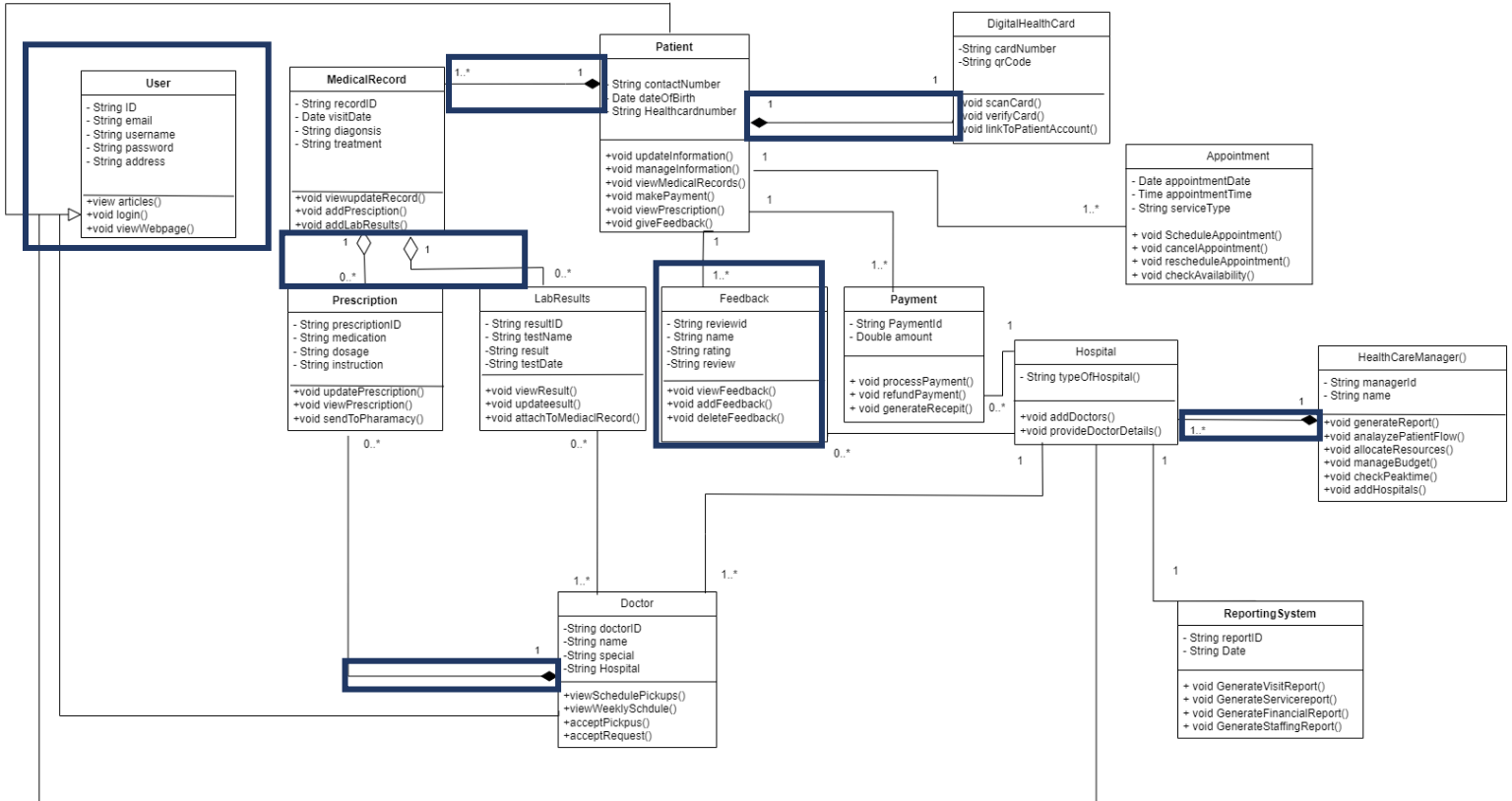
## **Modifications and Justifications of the Class Diagram**

1. The class diagram does not mention any public, private, or relationship elements.
2. The " Patient " and " MedicalRecord " should indeed have a composition relationship, as a MedicalRecord cannot exist without a Patient. However, in the diagram, this relationship is incorrectly depicted as an association relationship in the diagram
3. The relationship between " Patient " and " Prescription " should be expressed as an aggregation, but it is inaccurately displayed as an association in the diagram.
4. The relationship between " MedicalRecord " and " LabResults" should be expressed as an aggregation, but it is inaccurately displayed as an association in the diagram.
5. The "Doctor" and " Prescription " should indeed have a composition relationship, as a Prescription cannot exist without a Doctor. However, in the diagram, this relationship is incorrectly depicted as an association relationship in the diagram
6. The " Patient " and "DegitalHealthCard" should indeed have a composition relationship, as a DegitalHealthCard cannot exist without a Patient. However, in the diagram, this relationship is incorrectly depicted as an association relationship in the diagram.
7. The " Patient " and "DegitalHealthCard" should indeed have a composition relationship, as a DegitalHealthCard cannot exist without a Patient. However, in the diagram, this relationship is incorrectly depicted as an association relationship in the diagram.
8. The " Hospital" and "HealthCareManager" should indeed have a composition relationship, as a Hospital cannot exist without a HealthCareManager. However, in the diagram, this relationship is incorrectly depicted as an association relationship in the diagram.

## **Additional Improvements**

- Introduced a new class called Feedback in the class diagram
- Removed unwanted attributes and methods from the classes and included needed attributes and methods.
- We are adding a User class that inherits from the Hospital, Patient, and Doctor classes, improving the organization and reuse of shared properties and methods between these entities

# Updated Class Diagram

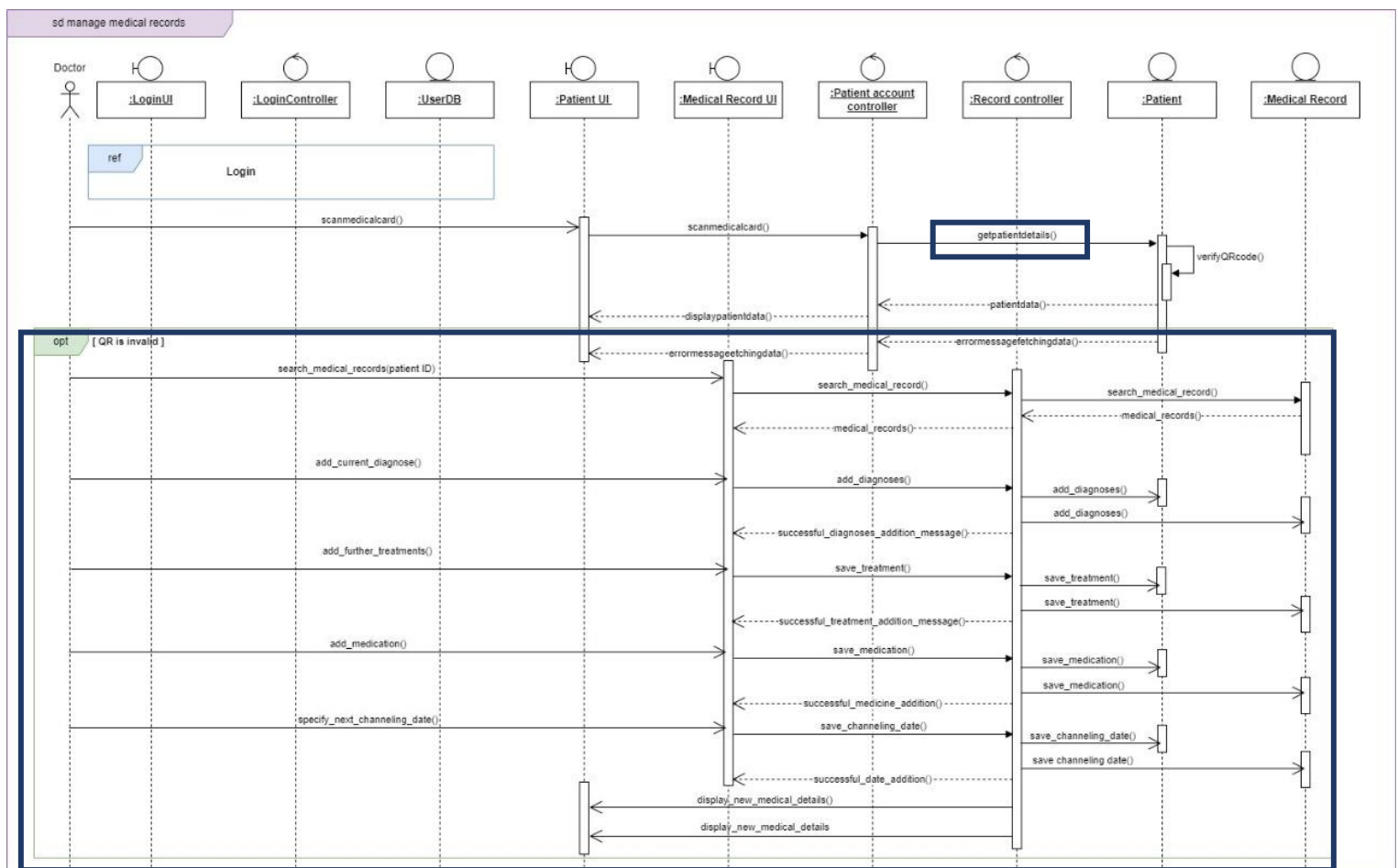


## Sequence Diagram Critical Reflection

### Modifications and Justifications

- Space Removal in Labels: The labels in the diagram contained spaces that needed to be removed or replaced with underscores for consistency and correctness in notation.
- Handling Non-Unique Patient Name : This issue was annotated, ensuring that patient identification should use a unique key such as a patient ID or QR code, instead of just the patient name.
- Optional Flow: diagram (searching medical records, adding diagnoses, adding treatments, and specifying next channeling date) were correctly enclosed in an optional fragment labeled "opt" with the condition QR . This ensures that the sequence of events happens only when the given condition is met.

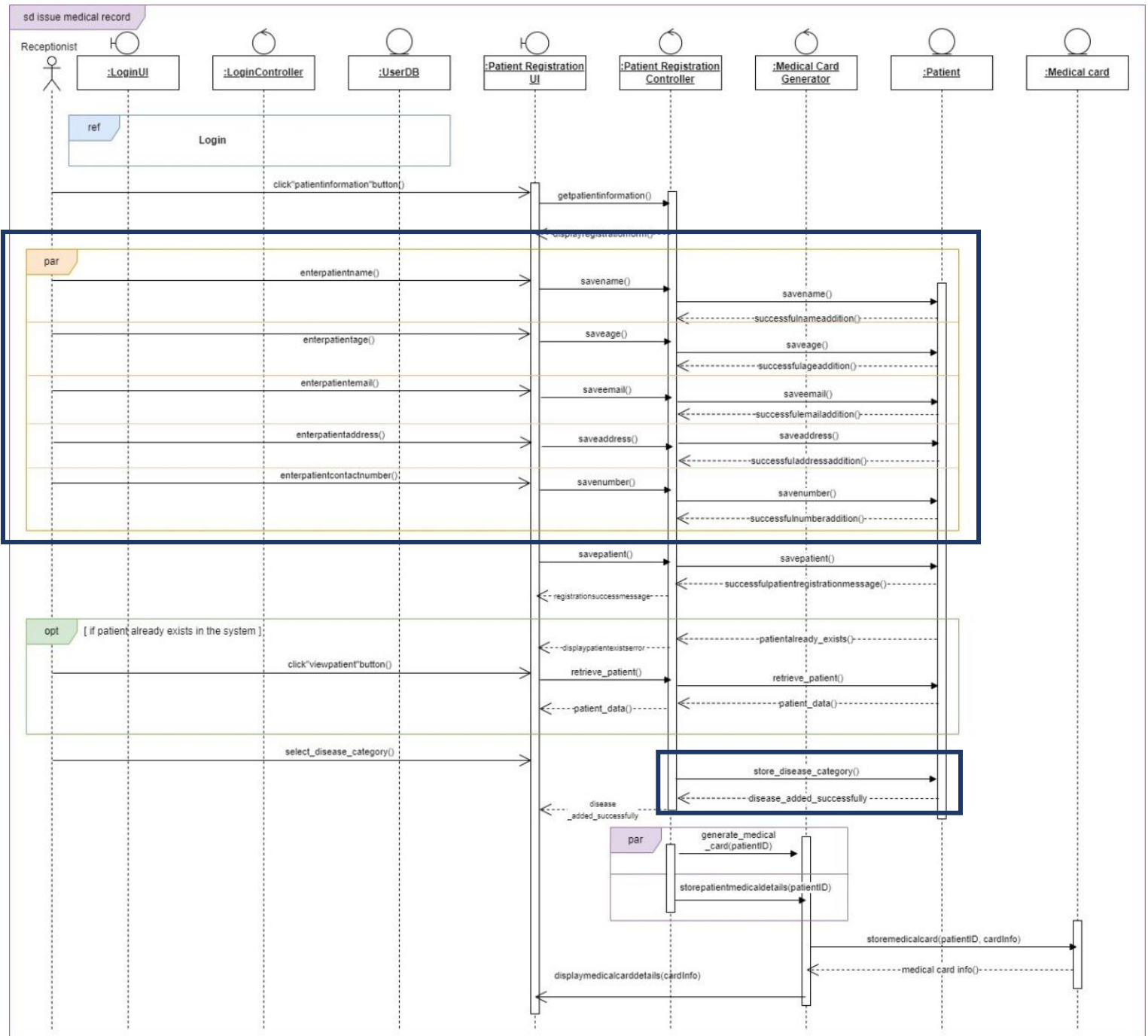
### Updated sequence diagram



## **Modifications and Justifications**

- It has been observed that the divider in the PAR section is currently missing, which may impact the clarity and separation of content within that section
- Space Removal in Labels: The labels in the diagram contained spaces that needed to be removed or replaced with underscores for consistency and correctness in notation.
- the activation bar appears to be absent, which could potentially affect functionality or user interaction. It is recommended to address these issues to ensure optimal performance and user experience.

## Updated sequence diagram

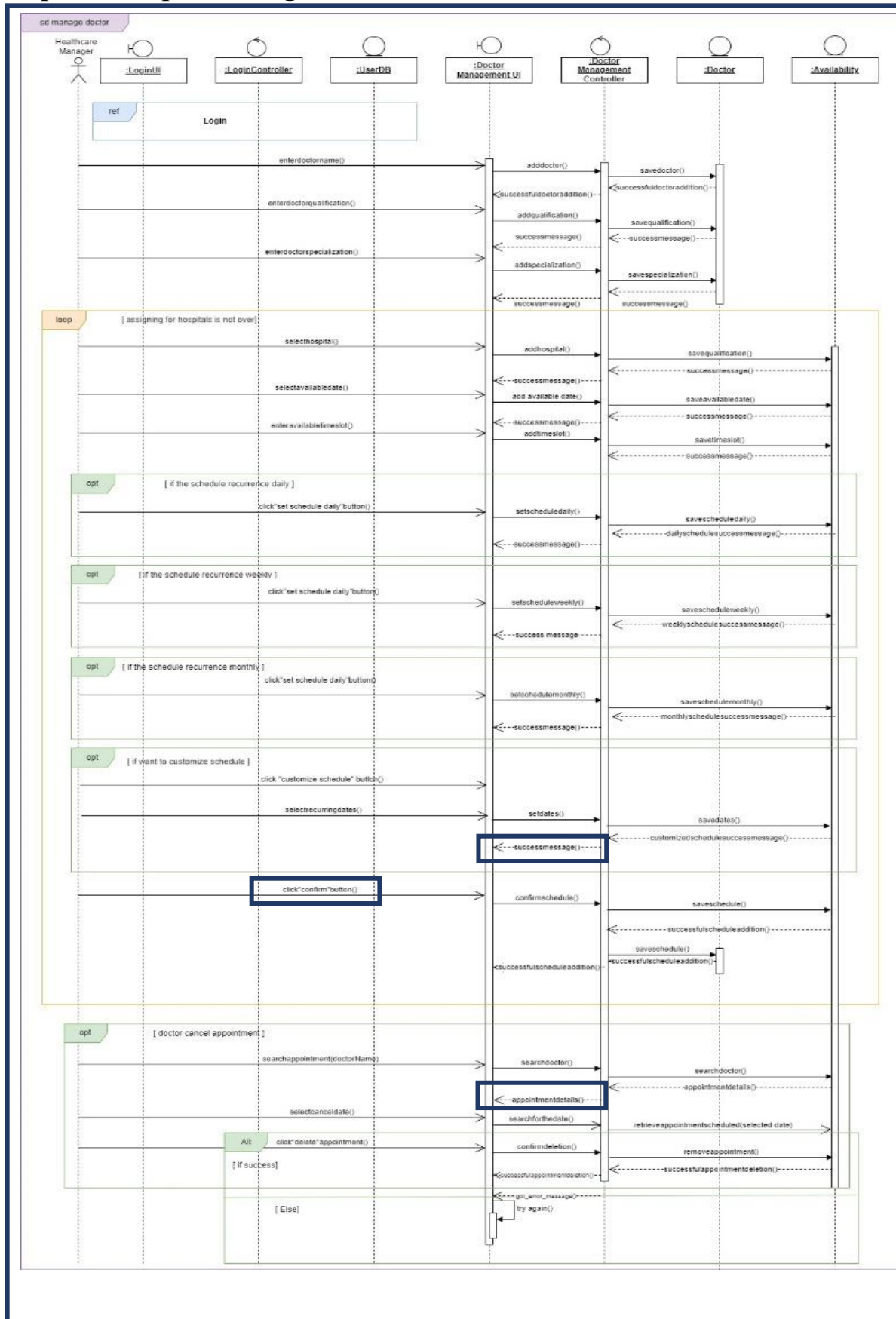




## **Modifications and Justifications**

- Space Removal in Labels: The labels in the diagram contained spaces that needed to be removed or replaced with underscores for consistency and correctness in notation.
- The sequence diagram is missing error handling, which is essential to account for potential exceptions or failures during interaction between components. Adding error handling will help represent a more realistic flow, ensuring robustness in the system's behavior
- The brackets are absent in the sequence diagram, which are typically used to group or represent conditional logic, loops, or other control structures. Including these brackets is important for accurately depicting the flow of operations and the logical structure.

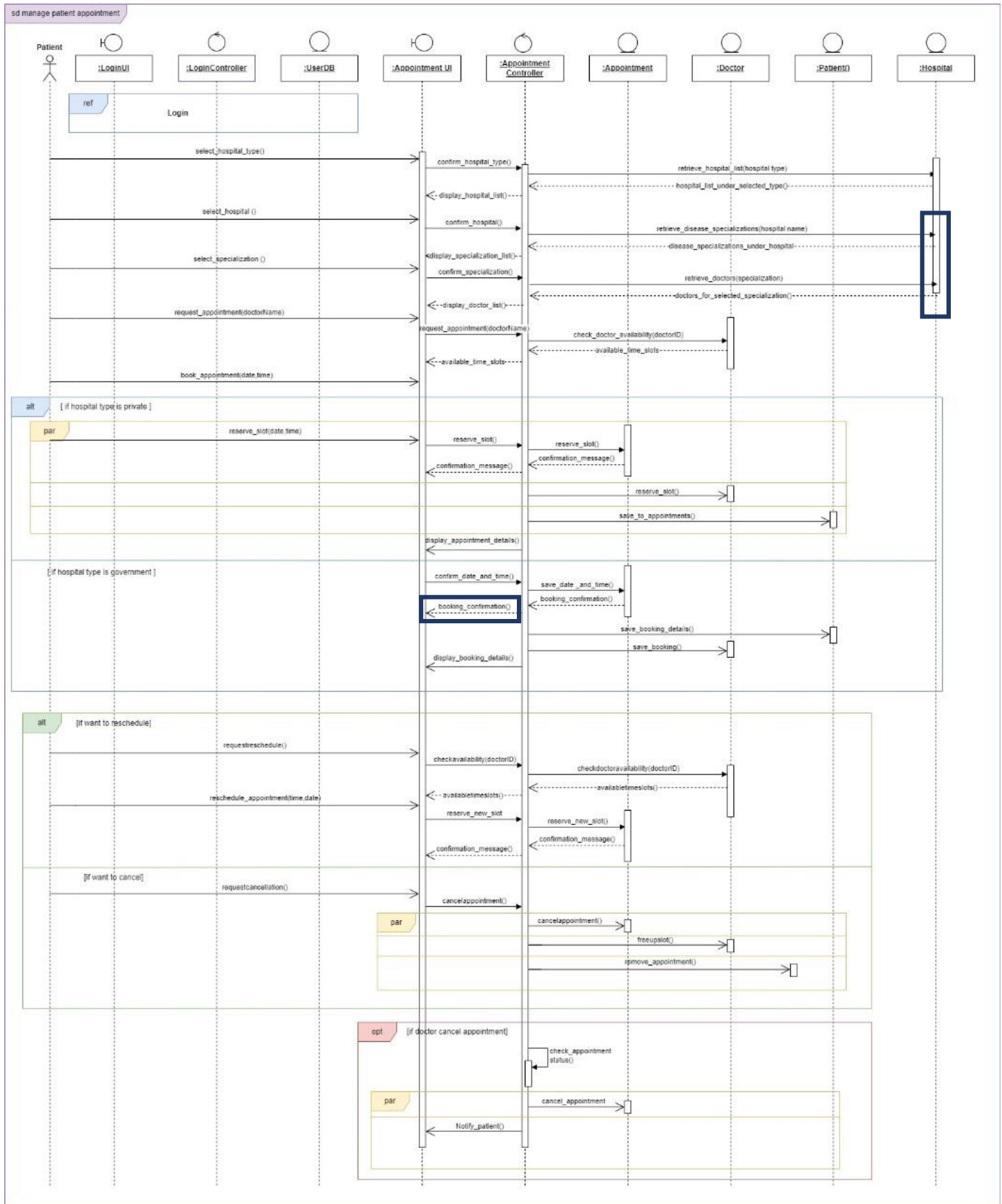
## Updated sequence diagram



## **Modifications and Justifications**

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## Updated sequence diagram



## User Story Critical Reflection

User story is not included in the previous report.

### IT22232090

- As a healthcare manager,  
I want to manage hospital registrations and updates effectively,  
So that I can ensure accurate information is available for patients and staff, facilitating smooth operations and compliance with regulations.
- As a healthcare manager,  
I want to analyze patient feedback and satisfaction surveys,  
So that I can identify trends and implement changes to enhance the patient experience.
- As a healthcare provider (doctor or healthcare manager),  
I want to schedule appointments for patients efficiently,  
So that I can ensure timely access to care and optimize my daily workflow.
- As a healthcare manager,  
I want to manage the disease list within the healthcare system,  
So that I can ensure that healthcare providers have access to up-to-date information on diseases for diagnosis and treatment.
- As a patient,  
I want to view a list of hospitals,  
So that I can find a suitable facility for my healthcare needs.

### IT22346568

- As a Hospital Admin ,  
I want to add doctor details ,  
So that I can provide details to user patient the details.
- As a Hospital Admin ,  
I can access patient appointment details  
So I can view the application and make a schedule.
- As a Hospital Admin ,  
I want to data to be stored securely,  
So that the doctors and patient details remain confidential and protected from unauthorized access.

## **IT22888952**

- As a Guest user,  
I can visit the hospital website and view general information without needing to log in. If I am not a registered user, I should be prompted to register for an account when trying to access restricted areas  
So that I can familiarize myself with the hospital's offerings before deciding to engage further.
- As a Guest user,  
I can view Articles such as medical or health-related articles provided by the hospitals  
So that I can stay informed about health topics relevant to my situation
- As a Guest user,  
I can view the peak times of hospital services to help me decide the best time for a visit So that I can minimize waiting time and have a more efficient experience.
- As a Guest user,  
I want to view Hospital details, Doctor details and patient Feedbacks  
So that I can understand the facilities, find relevant medical professionals, and make informed decisions based on others' experiences.

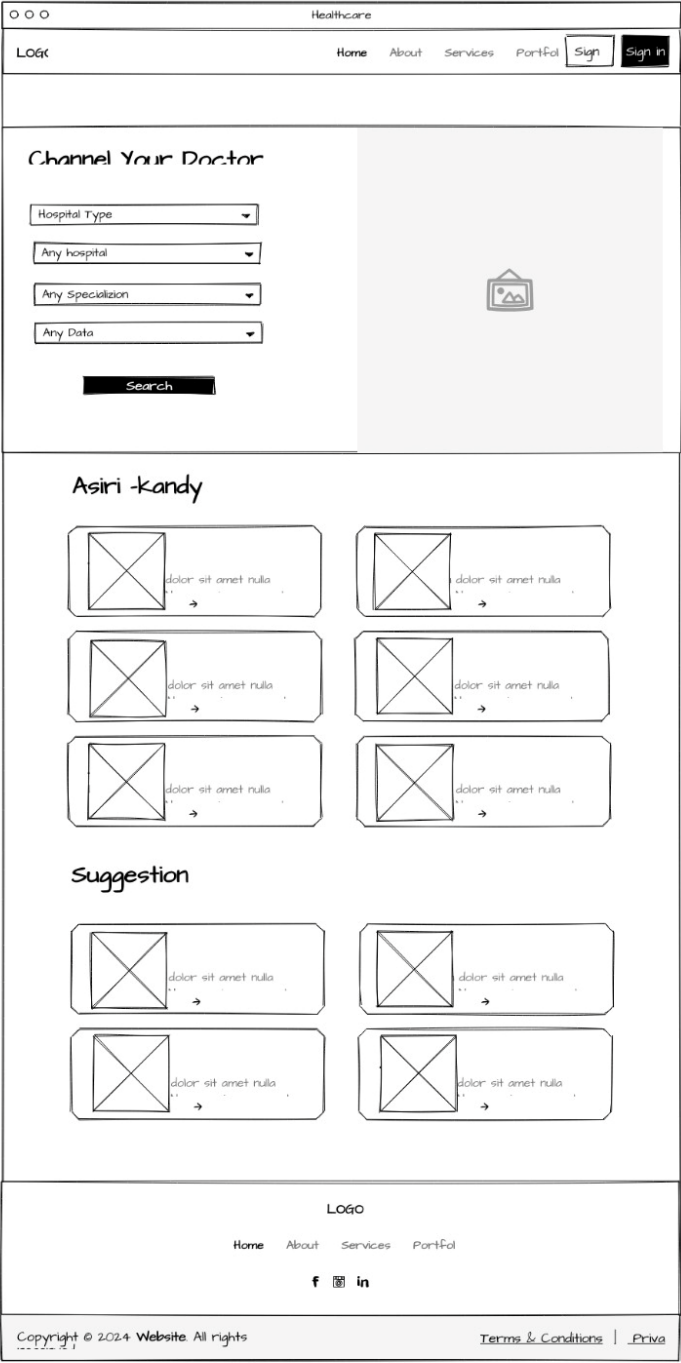
## **IT22238344**

- As a doctor,  
I want to efficiently manage my patient appointments,  
So that I can provide timely care and improve patient outcomes.
- As a doctor,  
I want to view the medical board,  
So that I can stay informed about patient cases, treatment plans, and important updates from my colleagues.
- As a doctor,  
I want to channel patients efficiently,  
So that I can manage my appointments and provide timely care to those in need.
- As a doctor  
I want to create a medical record for each patient,  
So that I can maintain comprehensive and accurate information about their health history, treatments, and care plans.

## IT22358820

- As a patient,  
I can access my medical history and demographic information through a digital health card (QR code or barcode),  
So that I can retrieve my records quickly and conveniently.
- As a patient,  
I want to pay securely for services at private hospitals using my choice of payment methods, such as credit cards or health insurance,  
So that I can ensure a smooth transaction without delays.
- As a patient,  
I want my data to be stored securely,  
So that my personal information and medical records remain confidential and protected from unauthorized access.

# Wire Frame Critical Reflection







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Healthcare

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**Implementation Git Repository Link:** [https://github.com/sathu0622/Health\\_Care](https://github.com/sathu0622/Health_Care)