BANGLADESH UNIVERSITY OF PROFESSIONALS

FACULTY OF SCIENCE AND TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING (CSE)

Use Case Diagram + UI

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Signature of Teacher

Overview

The Hospital Management System is designed to streamline healthcare operations by integrating patient management, clinical services, logistics, and administrative tasks into a unified platform. The use case diagrams serve as a visual blueprint that maps out all major functionalities and interactions between the system and its key external actors. Together, the diagrams emphasize both high-level system requirements and the nuanced relationships between various processes.

Use Case Diagram

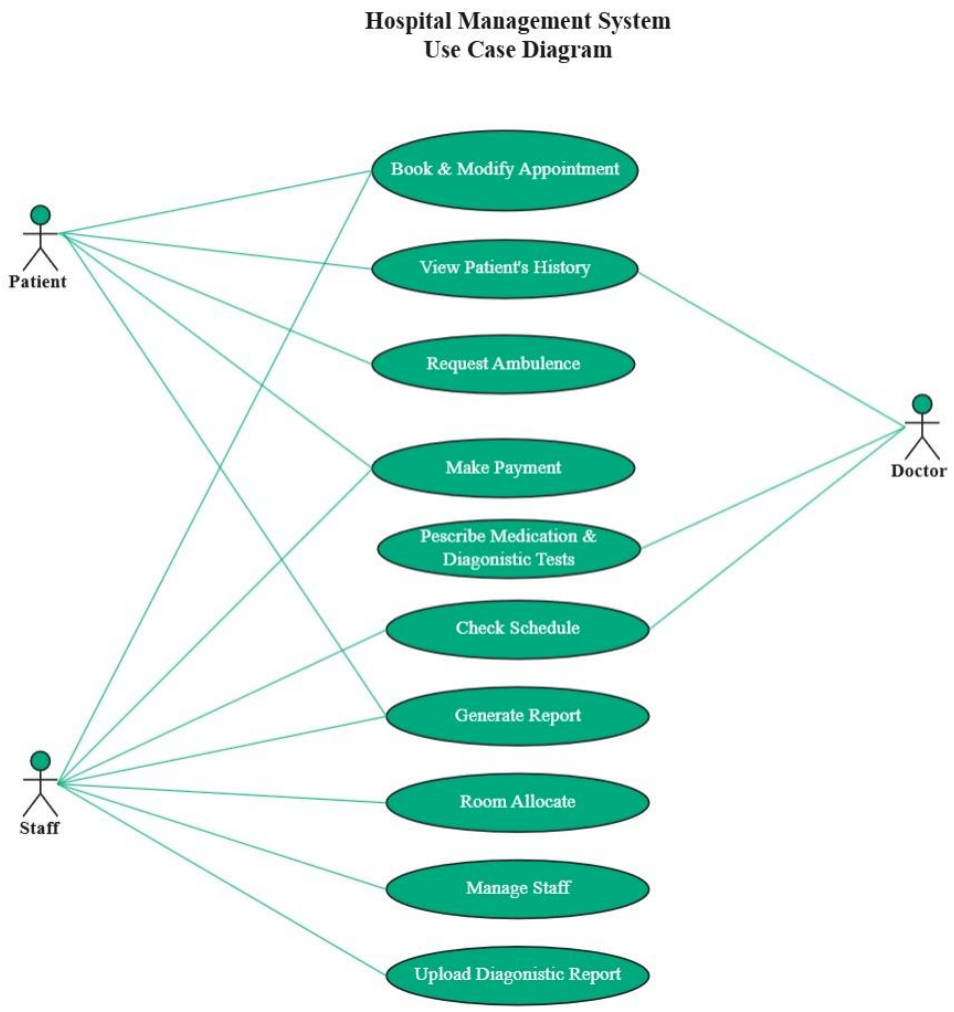


Fig 1: Use Case Diagram

Extended Use Case Diagram

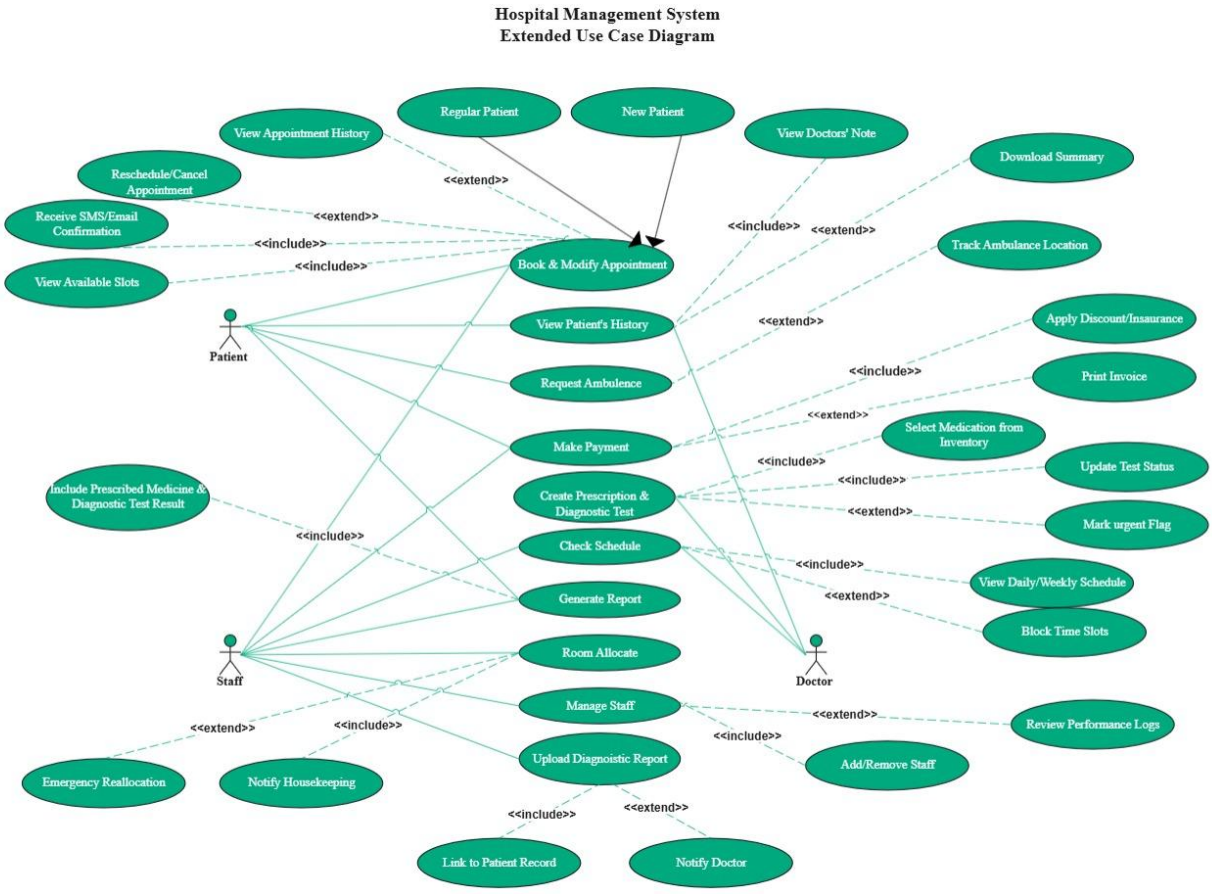


Fig 2: Extended Use Case Diagram

Actors and Their Roles

1. **Patient** Patients interact with the system predominantly to manage their care. They are able to:
    - Book, modify, and cancel appointments.
    - View and update their appointment history.
    - Request emergency services such as ambulance support.
    - Make payments for services rendered.

    - Access scheduled treatment plans and generate reports related to their medical records.

2. **Doctor** Doctors are central to clinical operations and use the system to:
    - Access detailed patient histories and monitoring notes.
    - Prescribe medications and diagnostic tests.
    - Check and block time slots for consultations.
    - Download summary reports of patient visits and treatment outcomes.
    - Apply discounts or insurance adjustments as necessary.
    - Coordinate with medical teams through system notifications.
3. **Staff** Staff members, including administrative personnel and medical technicians, interact with the system by:
    - Allocating rooms and scheduling patient admissions.
    - Uploading and linking diagnostic reports to patient profiles.
    - Managing hospital staff and overseeing room availability.
    - Reallocating resources in emergency situations.
    - Overseeing overall scheduling and report generation for hospital operations.

Functional Components and Use Cases

Both diagrams collectively provide a thorough representation of the system's capabilities:

- **Appointment Management:** The system allows patients to schedule, view, modify, and cancel appointments. This functionality is crucial for coordinating visits and ensuring that both doctors and patients have access to updated schedules.
- **Emergency Services:** Patients can request ambulance services directly through the system, and staff can track the real-time status of ambulances. This extends the system's role from routine care to urgent, life-saving intervention.
- **Medical Documentation and Reporting:** Doctors and staff can generate comprehensive reports, manage treatment histories, and update diagnostic records. The process is facilitated by include and extend relationships that ensure all essential information is captured and readily available for decision-making.

- **Financial Transactions:** Integrated payment functionalities streamline billing processes. Patients can make payments online, while staff and doctors can apply and monitor discounts or insurance details when processing transactions.
- **Scheduling and Resource Allocation:** Beyond appointment management, the system is designed to support staff in allocating rooms, managing hospital resources, and ensuring efficient emergency reallocation during critical moments.

Relationships and Process Dependencies

A key aspect of the diagrams is the depiction of relationships among various use cases:

- **Include Relationships:** Some use cases automatically invoke subsidiary processes. For instance, generating a report might include steps such as verifying patient details, updating medical histories, and linking diagnostic records.
- **Extend Relationships:** Optional processes or enhanced functionalities are depicted as extensions of a primary action. For example, while booking an appointment is the core function, the system may extend this process to include real-time notification of the doctor or automated reminders for the patient.

These relationships help in differentiating between the essential requirements and the optional enhancements of the system, ensuring that system designers and stakeholders have a clear framework to guide both development and future maintenance.

Conclusion

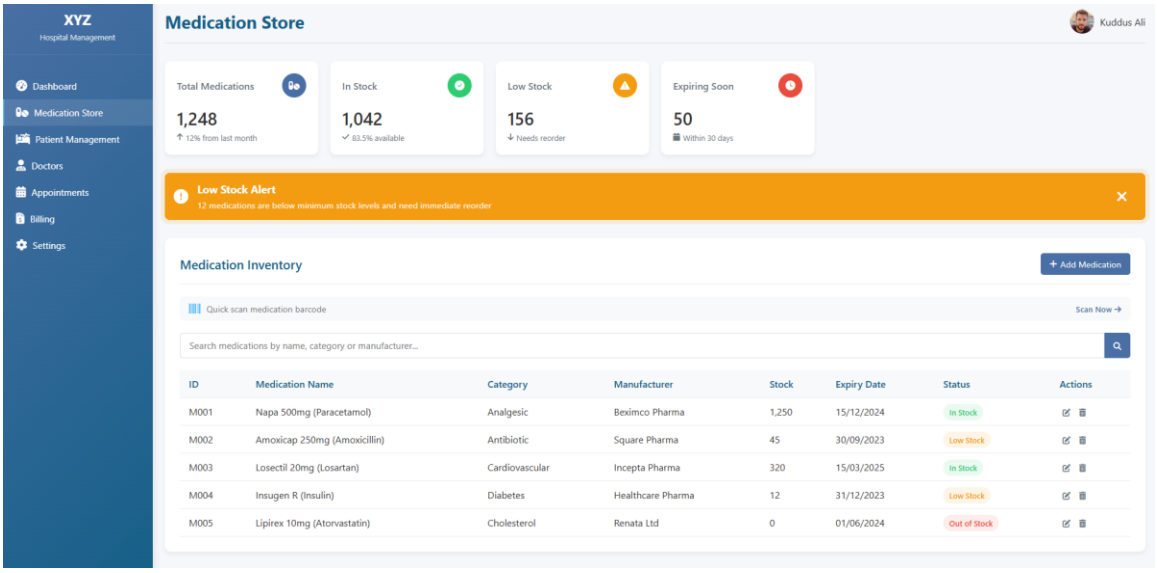
The integrated use case diagrams provide a cohesive view of the Hospital Management System by highlighting all major interactions and the dependencies between processes. They illustrate a structured pathway for enhancing patient care, optimizing resource allocation, and ensuring efficient communication among all actors involved. By clearly delineating the responsibilities of patients, doctors, and staff, the diagrams support the objective of a responsive, reliable, and comprehensive healthcare management solution.

This documentation is intended to serve as a reference for developers, system architects, and hospital administrators, ensuring that every component of the system is designed, implemented, and maintained with a clear understanding of its role in the overall operational framework.

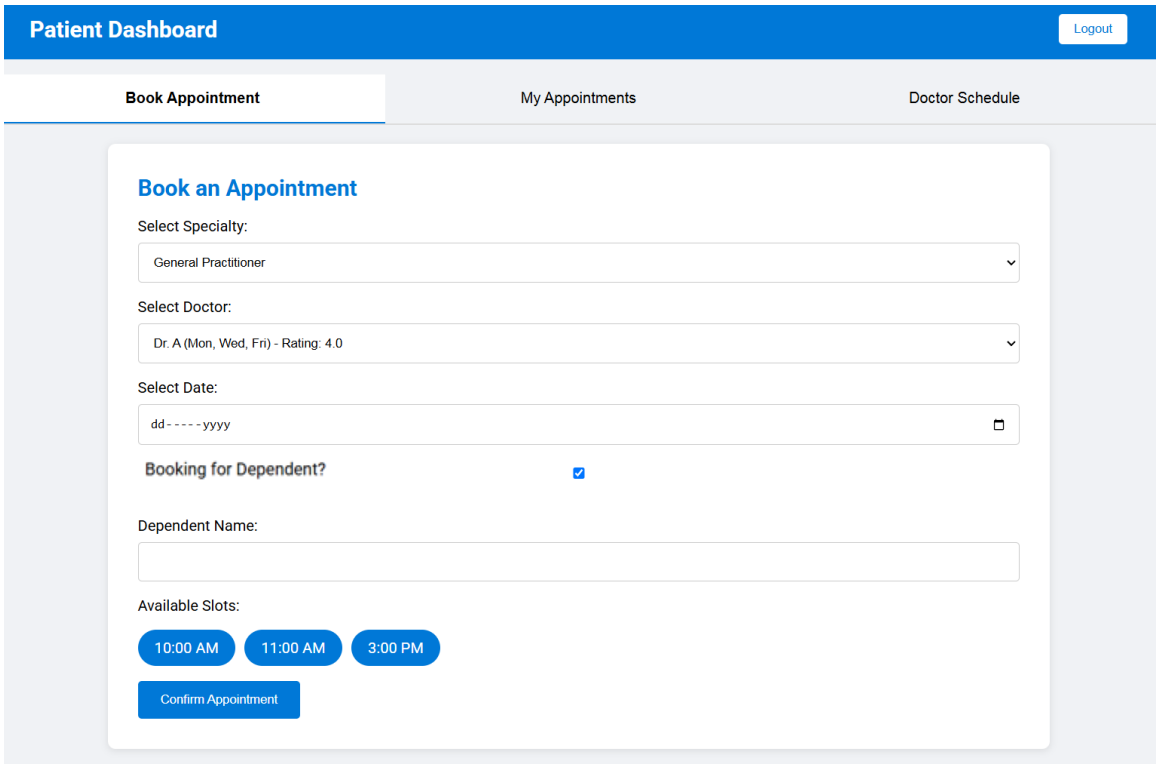
UI Design

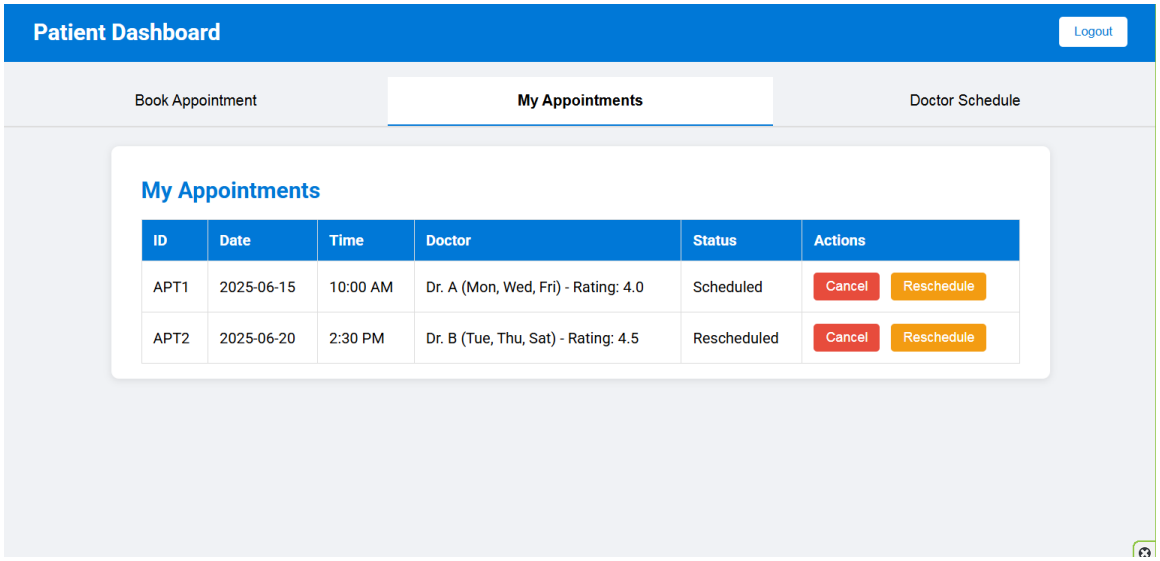
1. Billing & Payment System (Mohaiminul Raju, 2252421020)

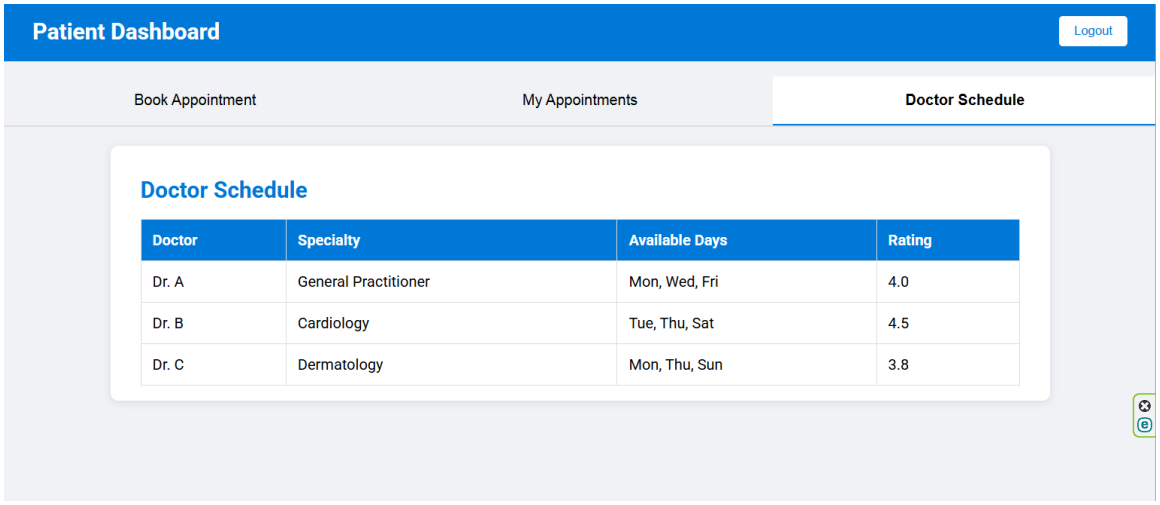
2. Medication Store (Shamoyeta Mourin Mouly, 2252421036)



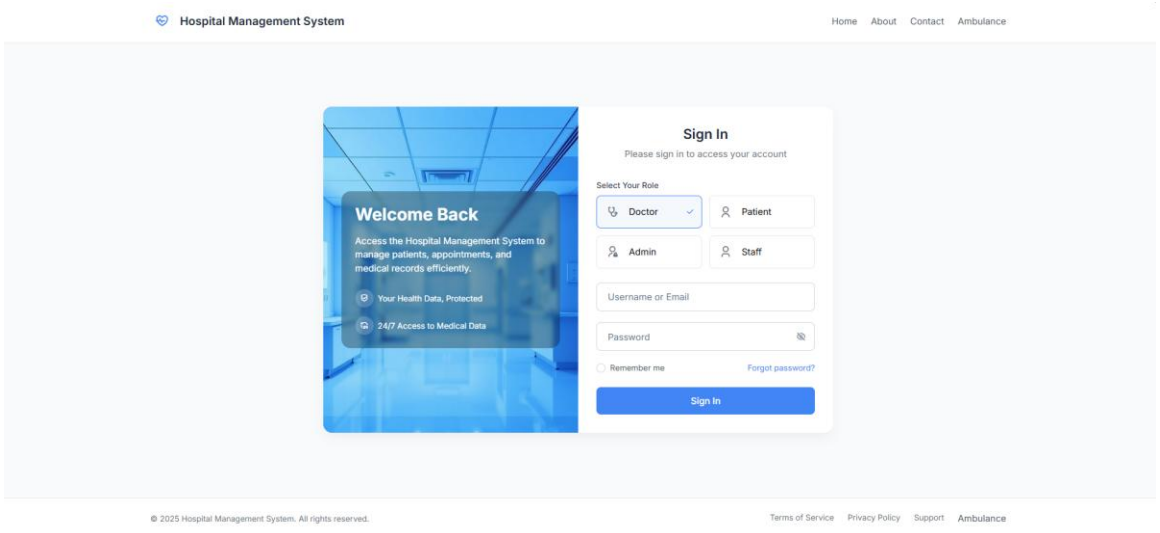
3. Appointment Booking (Latifa Nishat Nishi, 2252421062)

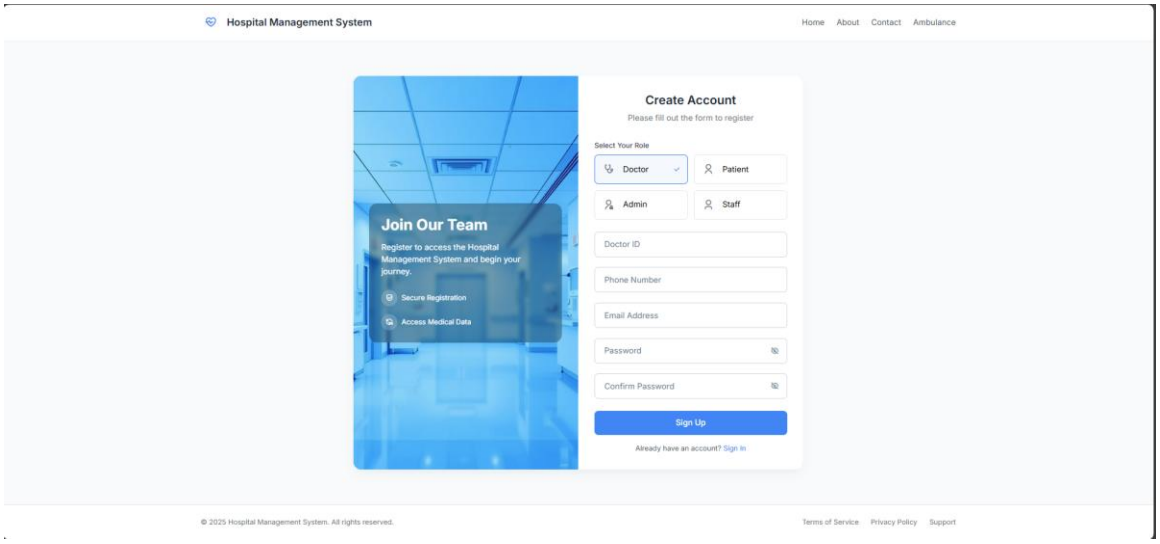






4. Role Based LogIn (Tahsina Tabassum Roza, 2252421084)





5. Staff Management (Raiyan Bin Sarwar, 2252421096)