

Software Engineering
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Section: W4
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Assignment 2 Deliverable 2
Group Project
Project's Name:
“Hospital Management System.”

Scope:

The Hospital Management System (HMS) aims to computerize and streamline all major hospital operations, including patient registration, doctor management, appointment scheduling, billing, room allocation, and record keeping. The system will reduce manual workload, minimize errors, and improve efficiency in hospital administration.

Prototypes:

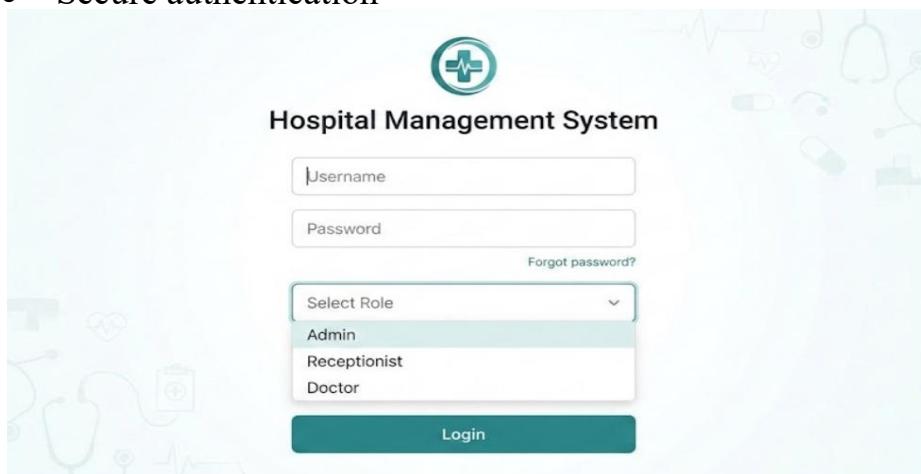
Prototype 01 — Login screen:

Fields:

- Username
- Password

Features

- Role-based login (Admin, Receptionist, Doctor)
- Forgot password option
- Secure authentication



Prototype 02- Dashboard

Admin Dashboard Includes:

- Total Patients
- Total Doctors
- Today's Appointments

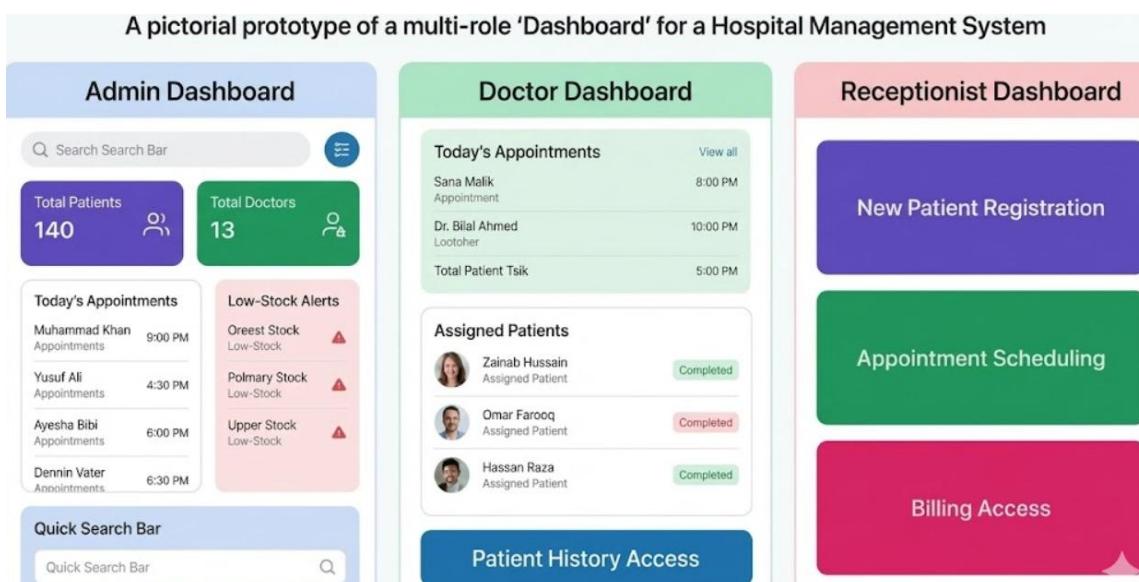
- Low-Stock Alerts
- Quick Search Bar

Doctor Dashboard Includes:

- Today's Appointments
- Assigned Patients
- Patient History Access

Receptionist Dashboard Includes:

- New Patient Registration
- Appointment Scheduling
- Billing Access



Prototype 3 — Patient Registration Form

Fields:

- Name
- Age / Date of Birth
- Gender
- CNIC
- Phone Number
- Address
- Allergies / Conditions
- Emergency Contact

Actions:

- Save / Clear
- Auto-generated Patient ID

Patient Registration Form

Auto-generated Patient ID: [Pending]

Name	Age / Date of Birth
<input type="text"/>	Date / Birth <input type="date"/>
Gender <input type="text"/>	
CNIC	Phone Number
<input type="text"/>	<input type="text"/>
Address	
<input type="text"/>	
Allergies / Conditions	
<input type="text"/>	
Emergency Contact	
Name <input type="text"/>	Phone <input type="text"/>
<input type="button" value="Save"/> <input type="button" value="Clear"/>	

Prototype 4 -Patient Search & Profile

Search By:

- Patient ID
- Name

Profile Sections:

- Personal Details
- Medical History
- Appointments
- Billing
- Room Allocation

The screenshot shows a web-based hospital management system interface. At the top, a blue header bar reads "Hospital Management System". Below it, the main content area is divided into two main sections: "Patient Search" on the left and "Patient Profile" on the right.

Patient Search: This section contains a search input field labeled "Search" and a radio button group for selecting "Patient ID" or "Name". A scrollable list displays patient records:

- Ali Fahad, Patient ID: P-12345
- Fatima Khan, Patient ID: P-12345
- Ahmed Tariq, Patient ID: P-12345
- Sara Ali, Patient ID: P-12346
- Omar Farooq, Patient ID: P-12345

Patient Profile: This section shows the profile of a selected patient. At the top, there is a navigation bar with tabs: "Personal Details", "Medical History", "Appointments", "Billing", and "Room Allocation". The "Personal Details" tab is active, showing the patient's details:

Fatima Khan, D: P-12345

Summary

Patient ID:	P-12345
Patient Name:	Female
Patient Aged:	32 years
Date of date:	04/08/2016
Patient:	Karachi, Pavkisan, Home
Weight:	10 hrs
Patient irinvoce Date:	01/01/2026

Prototype 5 — Doctor Management

Doctor List:

- Name
- Specialization
- Contact
- Availability

Actions:

- Add Doctor
- Edit Details
- Delete Doctor

Name	Specialization	Contact	Availability	Actions
Dr. Fatima Zahra	Biottology	+91 123455678	Dummy	<button>Edit</button> <button>Delete</button>
Dr. Fatima Zahra	Metherology	+91 123455679	Availability: Mon, Wed, Fri (9 AM - 5 PM)	
Dr. Ali Hassan	Premical Scientists	+91 123455679	Tue, Thu (10M - 4 PM)	<button>Edit</button> <button>Delete</button>
Dr. Zalma Zahra	Complex	+91 123455679	Daily (10 PM - 7 PM)	<button>Edit</button> <button>Delete</button>
Dr. Zoya Ahmed	Specialization	+91 123 8 9050	Weekends Only	<button>Edit</button> <button>Delete</button>
Dr. Bilal Khan	Specialization	+31 128 C 9050	Mon-Fri (Night Shift)	<button>Edit</button> <button>Delete</button>

Prototype 6 — Appointment Scheduling

Fields:

- Select Patient
- Select Doctor
- Date
- Time

Features:

- Doctor availability indicator
- Prevent overlapping appointments
- “Reschedule” and “Cancel” options

Appointment Scheduling

Select Patient:	Aisha Khan	
Select Doctor:	Dr. Ahmed Bilal	
Select Doctor:	D Ahmed Bilal	
Date:	2024-11-15	Doctor Availability: Available
Time:	10:30 AM	
Schedule		
Reschedule		
Cancel		

Generated Patient Bill

Prototype 7 — Billing Module

Bill Includes:

- Consultation Fee
- Treatment Charges
- Medicines
- Room Charges
- Total Amount

Patient Name: Yusuf Khan
Patient ID: P-2024
Attending Dr. Bilal Ahned
Date: 2024-11-20
Hospital: XXZ Medical Center

Description	Unit Price	Amount
Consultation Fee (Dr. Bilal)	2	Rs.
Blood Tests (CBC)	2	750.00
Medicines (Panadol, Antibiotics)	1	700.00
Private Room (2 Days)	2	3,000.00

Total Amount: ₹6,150.00

Actions:

- Generate Bill

Print Bill **Generate PDF** **View Payment History**

- Print Bill
- View Payment History

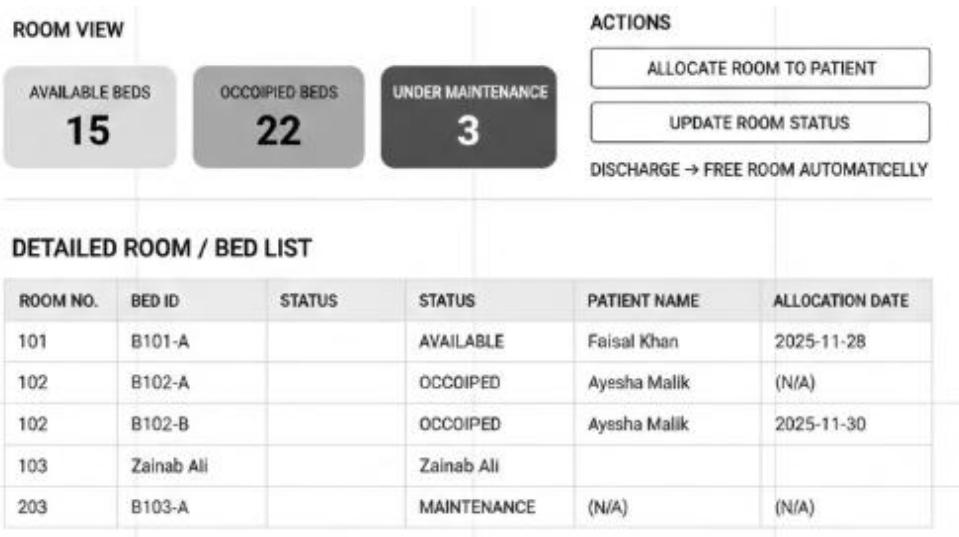
Prototype 8 — Room Management

Room View:

- Available Beds
- Occupied Beds
- Under Maintenance

Actions:

- Allocate Room to Patient
- Update Room Status
- Discharge → Free the room automatically



Prototype 9 — Pharmacy Dashboard

- **Features:**
- Search Medicine
- Add New Stock
- Update Stock
- Expiry Tracking
- Low-Stock Alerts

PROTOTYPE 9 – PHARMACY DASHBOARD

The dashboard features four summary boxes at the top:

- LOW STOCK ALERTS: 12 Items
- EXPIRED SOON (30 DAYS): 5 Items
- TOTAL ITEMS STOCKED: 450 Types
- TOTAL STOCK VALUE: PKR 15,450,000

Below these are several functional sections:

- SEARCH MEDICINE:** A search bar and a table showing medicine details like Paracetamol, Expiry Date (2024-03-15), and Stock (36636-1B).
- ADD NEW STOCK:** Fields for Medicine Name, Batch Number, Expiry Date, Quantity, Supplier, and a **ADD STOCK** button.
- UPDATE STOCK:** Buttons for DISPENSE or ADJUST MANUALLY, followed by fields for Medicine ID, Quantity, Reason, and a **UPDATE** button.
- EXPIRY TRACKING:** A table showing medicine batches with Expiry Dates: Batch E789 (2024-03-15), Batch E101 (2024-04-01), and Batch F101 (2024-04-15). It includes buttons for Flag for Disposal and Generate PO.
- LOW-STOCK ALERTS:** A table showing low-stock items: Paracetamol (40 units), Aspirin (30 Days), Peppermint (20 packs), Augmentin (100 units), and Augmentin - 20 packs. It includes a **Generate PO** button.

Prototype 10 — Patient Discharge

Fields:

- Discharge Notes
- Final Bill
- Treatment Summary

Actions:

- Generate Discharge Report (PDF)
- Update Room Status → Vacant

- Mark Patient as

Patient Discharge Summary

Patient Name Fatima Zahra Khan	Patient Date 23 Year 2023	Status Active State	Date 06/9/2023 7:16 PM
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Discharge Notes

Discharge Notes

Final Bill Summary

Total Amount	\$370.00
Total Amount	\$370.00

Treatment Summary

Treatment Received	-\$30.00
Treatment Received	-\$10.00
Treatment Received	-\$10.00
Bollictanding Received	-\$10.00
Treatment Received	-\$15.00

 Generate Discharge Report (PDF)

 Update Room Status (Vacant)

 Mark Patient as Discharged

“Discharged”

Software engineering

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Section W4.

Assignment 2: Group project's use case diagram

Use Case Diagram Assignment – “Hospital Management System”

1. List of Actors

Primary Actors:

- Patient
- Doctor

Secondary Actors:

- Admin
- Receptionist

External System Actors:

- Payment Gateway
- Laboratory System

2. Use Case Specifications (Table 1.1)

Use Case Name	Register Patient
Use Case ID	UC001
Primary Actor	Patient
Secondary Actor	Admin
Preconditions	Patient is not already registered.

Postconditions	Patient record is created.
Main Flow	Patient provides details → System stores data.
Alternate Flow	If data is invalid, registration fails.
Special Requirements	Secure storage of patient data.
Use Case Name	Login
Use Case ID	UC002
Primary Actor	Patient/Doctor/Admin
Secondary Actor	—
Preconditions	User is registered.
Postconditions	User dashboard opens.
Main Flow	User enters credentials → System verifies.
Alternate Flow	If credentials wrong, error shown.
Special Requirements	Authentication security required.
Use Case Name	Book Appointment
Use Case ID	UC003
Primary Actor	Patient
Secondary Actor	Doctor
Preconditions	Patient logged in.
Postconditions	Appointment is scheduled.
Main Flow	Patient selects doctor/date → System confirms.
Alternate Flow	If slot unavailable, choose another.
Special Requirements	Real-time slot update.
Use Case Name	View Patient Records
Use Case ID	UC004

Primary Actor	Doctor
Secondary Actor	—
Preconditions	Doctor logged in.
Postconditions	Records displayed.
Main Flow	Doctor selects patient → System shows data.
Alternate Flow	If no record, message shown.
Special Requirements	Data privacy enforced.
Use Case Name	Generate Bill
Use Case ID	UC005
Primary Actor	Admin
Secondary Actor	Payment Gateway
Preconditions	Patient treatment completed.
Postconditions	Bill generated.
Main Flow	Admin calculates charges → System generates bill.
Alternate Flow	Payment failure handling.
Special Requirements	Accurate billing required.
Use Case Name	Process Payment
Use Case ID	UC006
Primary Actor	Patient
Secondary Actor	Payment Gateway
Preconditions	Bill generated.
Postconditions	Payment confirmed.
Main Flow	Patient pays → System confirms payment.
Alternate Flow	Payment declined.

Special Requirements	Secure online payment.
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3. Use Case Diagram Description

The Hospital Management System includes actors: Patient, Doctor, Admin, and external systems.

Patients can register, login, book appointments, and make payments.

Doctors can view patient records.

Admin manages records and billing.

Payment Gateway is included for payment processing.