Software Engineering
Name: Aliza Yasin
ID: F2024065281
Section: W4
Ma'am Kinza Sardar
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
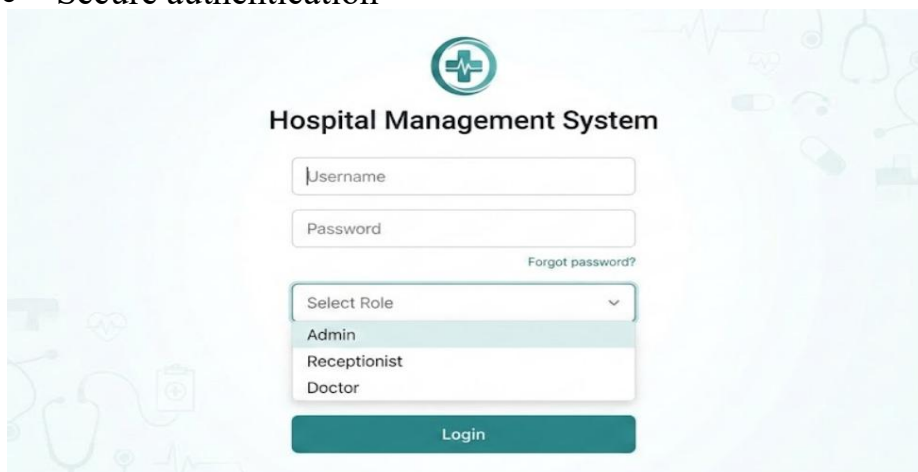.

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

A pictorial prototype of a multi-role 'Dashboard' for a Hospital Management System
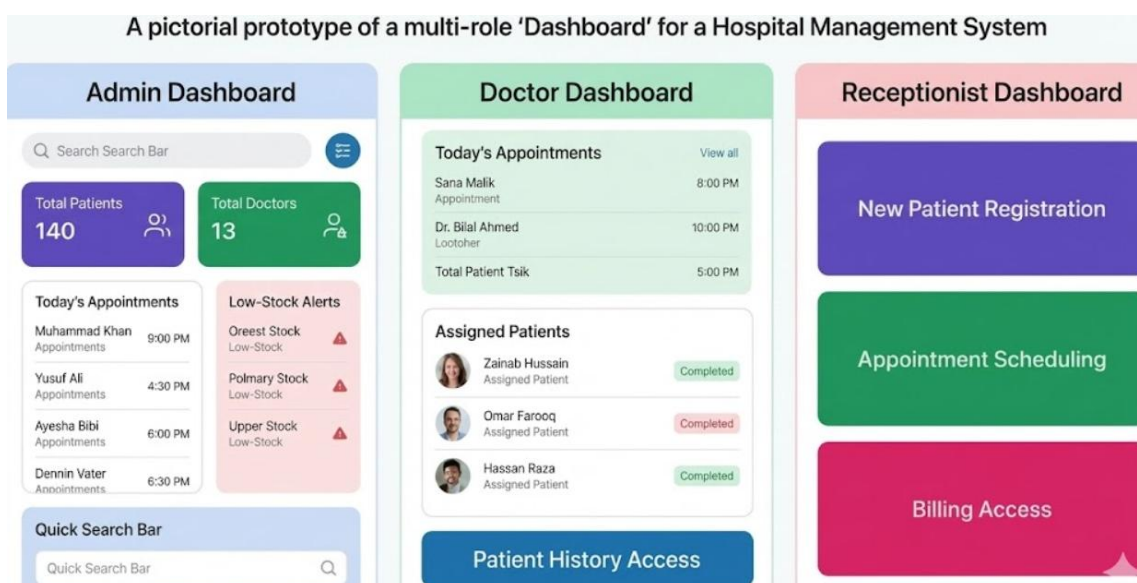
Prototype 3 — Patient Registration Form

Fields:

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

Actions:

- Save / Clear
- Auto-generated Patient ID

Prototype 4 -Patient Search & Profile

Search By:

- Patient ID
- Name

Profile Sections:

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

Prototype 5 — Doctor Management

Doctor List:

- Name
- Specialization
- Contact
- Availability

Actions:

- Add Doctor
- Edit Details
- Delete Doctor

Prototype 6 — Appointment Scheduling

Fields:

- Select Patient
- Select Doctor
- Date
- Time

Features:

- Doctor availability indicator
- Prevent overlapping appointments
- "Reschedule" and "Cancel" options
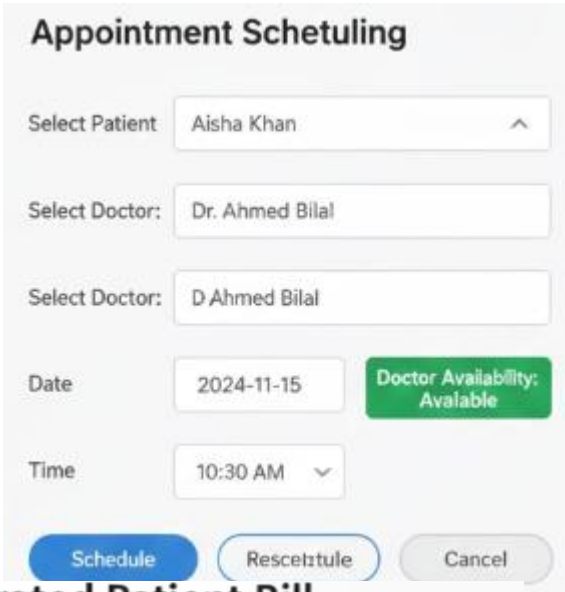
Prototype 7 — Billing Module

Bill Includes:

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

Actions:

- Generate Bill

Generated Patient Bill

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, Antibotics)	1	700.00
Private Room (2 Days)	2	3,000.00

Total Amount: ₹6,150.00

Print Bill   Generate PDF   View Payment History
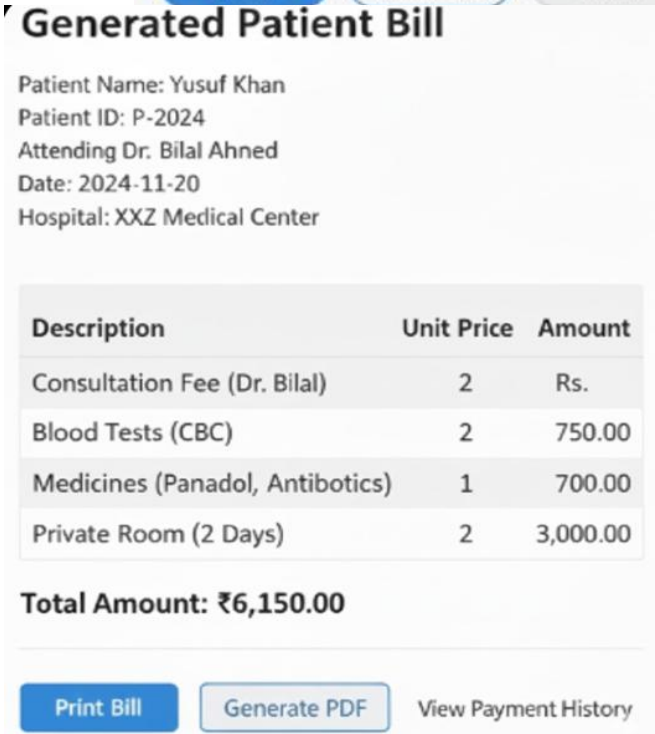
- Print Bill
- View Payment History

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

ROOM VIEW

AVAILABLE BEDS	OCCUPIED BEDS	UNDER MAINTENANCE
15	22	3

ACTIONS

ALLOCATE ROOM TO PATIENT

UPDATE ROOM STATUS

DISCHARGE → FREE ROOM AUTOMATICELLY

DETAILED ROOM / BED LIST

ROOM NO.	BED ID	STATUS	STATUS	PATIENT NAME	ALLOCATION DATE
101	B101-A		AVAILABLE	Faisal Khan	2025-11-28
102	B102-A		OCCOIPED	Ayesha Malik	(N/A)
102	B102-B		OCCOIPED	Ayssha Malik	2025-11-30
103	Zainab Ali		Zainab Ali		
203	B103-A		MAINTENANCE	(N/A)	(N/A)

Prototype 9 — Pharmacy Dashboard

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

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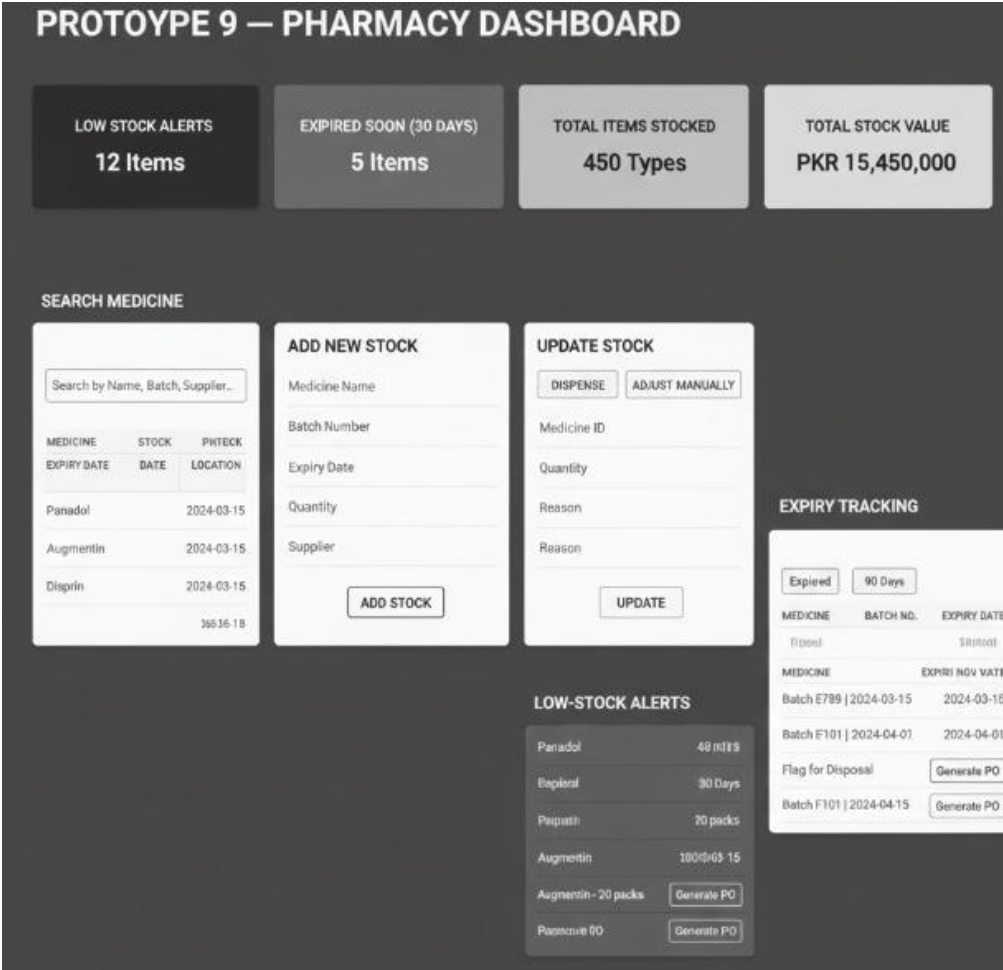
Prototype 10 — Patient Discharge

Fields:

- Discharge Notes
- Final Bill
- Treatment Summary

Actions:

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

- Mark Patient as

Patient Discharge Summary

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

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

Name:Aliza Yasin

Id: F2024065281

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.

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.