Date:

Software engineering

Name : Aliza Yasin
ID : F2024065281
Section W4

Assignment 01
Project 1st Milestone

Project Name:

Hospital Management system.

Scope

The main goal of Hospital management System (HMS) is to computerize and streamline hospital operations such as patient registeration, doctor scheduling, appointment managements, billing and record keeping.

Functional Scope:

1) Patient Management

- Register new patients (name, age, gender, disease, contact info)
- Store and retrieve patient medical history.
- Search patients by records by ID or name
- Discharge patient and generate report.

2) Doctor Management

- Add or remove doctors
- store doctor details (specialization, availability, schedule)
- Assign doctors to patients.

(3) Appointment Management

- Schedule new appointments.
- View, update, or cancel appointment
- Prevent overlapping booking

(4) Billing System

- Generate patient bills (consultation, treatment, medicine, room charges)
- View and print bill reports
- Maintains payment history

5) Room and Ward Management

- Track available rooms / beds
- Assign rooms to admitted patients
- Update status when discharged.

6) Pharmacy / Inventory (Optional Advanced module)

- Manages medicines stock
- Track expiry dates
- Update when medicine is sold or restocked.

Software Engineering

Name: Aliza Yasin
Id: f2024065281
Section: W4

Teacher's name: Ma'am Kinza Sardar
Assignment 1+ Deliverable 2

Group Project's first milestone

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.

Functional Requirements:

1.Patient management:

- Register new patients (name, age, gender, disease, contact details).
- Maintain patient medical history.
- Search patient records by ID or name.
- Discharge patient and generate report.

2.Doctor management:

- Add, update, or remove doctor details.
- Store doctor specialization, schedule, and availability.
- Assign doctors to patients.

3. Appointment management:

- Schedule new appointments.
- Update or cancel existing appointments.
- Prevent overlapping appointments.

4. Billing system:

- Generate patient bills (consultation, treatment, medicine, room charges).
- Print/view bill reports.
- Maintain payment history.

5. Room and ward management:

- Track room/bed availability.
- Assign rooms to admitted patients.
- Update status on discharge.

6.Pharmacy/Inventory:

- Maintain medicine stock records.
- Update stock when medicines are added or sold.
- Track medicine expiry dates.
- Search medicines by name or ID.
- Generate low-stock alerts.

Non-Functional requirements:

1.Performance

- System should respond within 2–3 seconds for major operations.
- File-handling operations must be optimized for large datasets.

2. Reliability:

- System must save all updated records without failure.
- Data backup files should be created regularly.

3. Usability

- Menu-driven interface must be easy to navigate.
- Prompts and error messages should be clear and understandable.

4. Security:

- Sensitive patient and doctor data must remain confidential.
- Only authorized users should access restricted functions (optional if no login module, but still acceptable).

5. Maintainability:

- Code should be modular, using separate classes for each module.
- Future changes should be easy due to OOP structure.

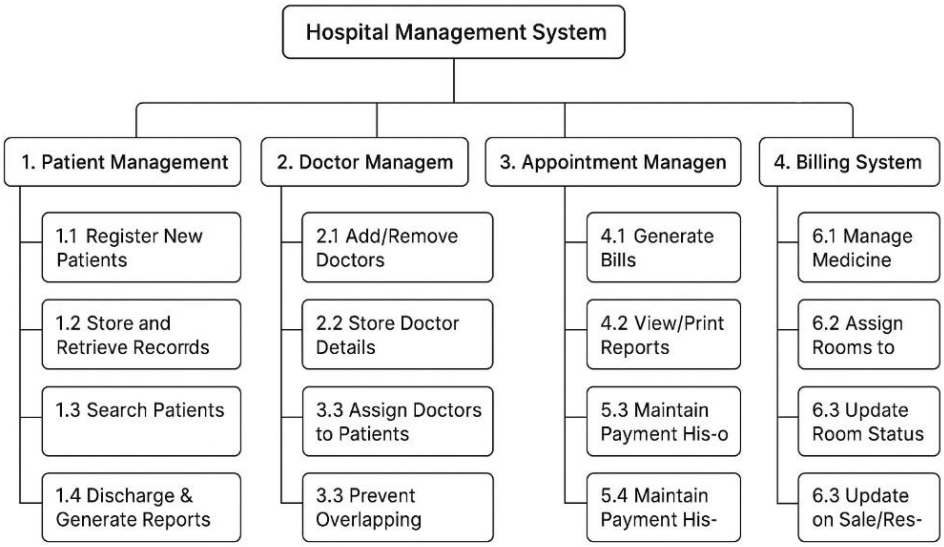
6. Portability:

- System must run on any OS that supports C++ (Windows/Linux).

7. Scalability

- System should allow adding new modules without redesigning the entire structure.

WBS :



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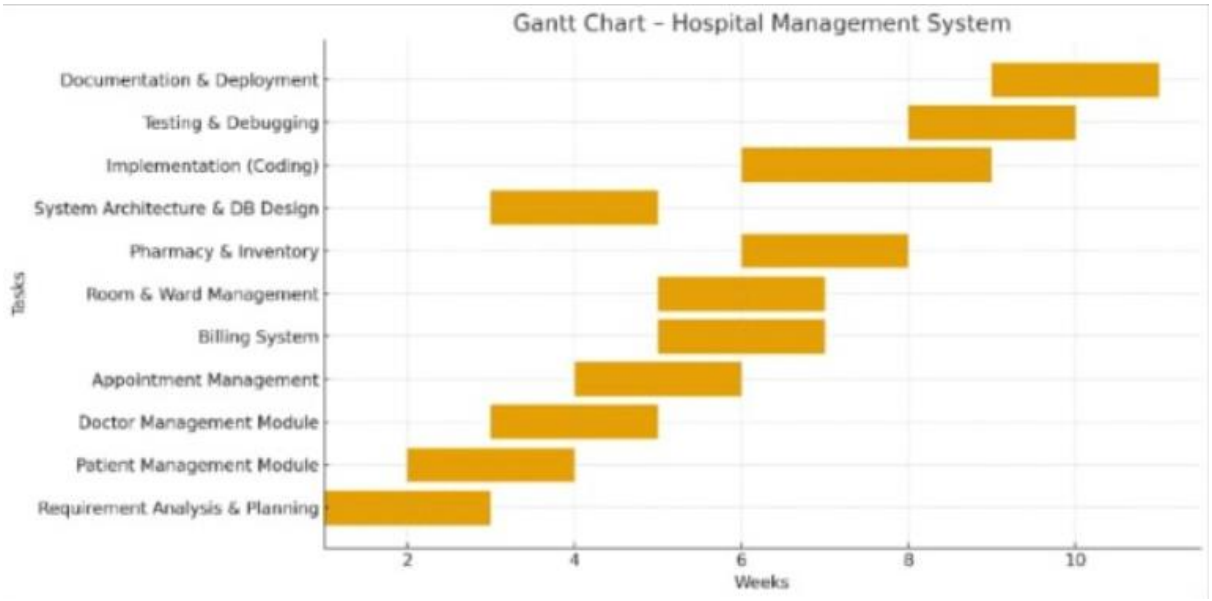

SOFTWARE ENGINEERING

NAME: Aliza Yasin

ID: F2024065281

Section: W4

Group Project

Assignment 1 deliverable 3

Teacher's name: Ma'am Kinza Sardar

PROJECT'S NAME:

"Hospital Management System."

SCOPE:

The Hospital Management System (HMS) aims to digitalize and streamline major hospital operations, including patient registration, doctor management, appointment scheduling, billing, room allocation, and medical record keeping. The system reduces manual workload, minimizes errors, and improves hospital efficiency.

Functional Requirements (FRs):

FR01 Patient Registration:

The system shall register new patients with required details.

FR02 Medical History:

The system shall store and maintain patient medical history.

FR03 Patient Search:

The system shall allow searching for patient records using Patient ID or name.

FR04 Discharge Patient:

The system shall discharge a patient and generate a detailed discharged report.

FR05 Add Doctor:

The system shall allow the admin to add new doctor details.

FR06 Update/Delete Doctor:

The system shall allow updating or deleting doctor details.

FR07 Doctor Schedule:

The system shall store doctor specialization, schedule, and availability.

FR08 Assign Doctor:

The system shall assign a doctor to a patient based on Specialization or availability.

FR09 Schedule Appointment:

The system shall schedule new appointments for patients.

FR10 Update/Cancel Appointment:

The system shall allow updating or canceling appointments.

FR11 Prevent Overlapping Appointments:

The system shall prevent overlapping appointments for the same doctor.

FR12 Generate Bill:

The system shall generate patient bills including consultation, treatment, room charges, and medicine.

FR13 Bill Report:

The system shall print or display patient bill reports.

FR14 Payment History:

The system shall maintain payment history of each patient.

FR15 Room Availability:

The system shall track room/bed availability in the hospital.

FR16 Allocate Room:

The system shall allocate rooms/wards to admitted patients.

FR17 Update Room Status:

The system shall update room/ward status after patient discharge.

FR18 Medicine Stock:

The system shall maintain pharmacy medicine stock records.

FR19 Update Medicine Stock:

The system shall update medicine stock when medicines are added or sold.

FR20 Medicine Expiry:

The system shall track medicine expiry dates.

FR21 Search Medicine:

The system shall allow searching medicines by name or ID.

FR22 Low-Stock Alert:

The system shall generate low-stock alerts for medicines.

Total Functional Requirements: 22

Non-Functional Requirements (NFRs):

NFR01 Performance:

The system should handle at least 100 concurrent users without performance degradation.

NFR02 Response Time:

The system should load patient records within 2 seconds.

NFR03 Scalability:

The system should scale to accommodate future expansions.

NFR04 Usability:

The system should have an intuitive UI for hospital staff with minimal training.

NFR05 Accessibility:

The system should comply with accessibility standards.

NFR06 Security:

The system should encrypt patient data (at rest and in transit).

NFR07 Authentication & Authorization:

The system should implement role-based access control.

NFR08 Data Backup & Recovery:

The system should have automated daily backups and disaster recovery mechanisms.

NFR09 Compliance:

The system should comply with local regulations (e.g., HIPAA, GDPR).

NFR10 Reliability:

The system should have 99.5% uptime (allowing for scheduled maintenance).

NFR11 Audit Logs:

The system should maintain logs of all critical operations.

NFR12 Interoperability:

The system should support integration with lab systems, insurance providers, etc.

NFR13 Localization:

The system should support Urdu and English languages.

NFR14 Maintainability:

The system should be modular for easy updates and bug fixes.

Total Non-Functional Requirements: 14