🏥 Hospital Database Management System

1️⃣ Project Idea

Design a database to manage hospital operations. It handles patients, doctors, appointments, departments, and invoices.

2️⃣ System Requirements

- Store patient and doctor information.
- Schedule appointments.
- Assign doctors to departments.
- Create and track invoices.

-Track invoices

3️⃣ Users Roles - Responsibilities

Admin – Manage all data.
Receptionist – Register patients and manage appointments.
Doctor – View patient info and add diagnoses.
Pharmacist – View prescriptions (optional).
Accountant – Manage invoices and payments.

4️⃣ Database Design Entities (Tables)

1. Patient
- Patient_ID (Primary Key)
- Name
- Gender
- Date_of_Birth
- Contact_Info

2. Doctor
- Doctor_ID (Primary Key)
- Name
- Specialty
- Contact_Info
- Department_ID (Foreign Key)

3. Appointment
- Appointment_ID (Primary Key)
- Patient_ID (Foreign Key)
- Doctor_ID (Foreign Key)
- Date
- Time
- Status

4. Department
- Department_ID (Primary Key)
- Name
- Floor

5. Invoice
- Invoice_ID (Primary Key)
- Patient_ID (Foreign Key)
- Amount
- Date
- Payment_Status

5️⃣ Normalization

✅ 1NF: All values are atomic.
✅ 2NF: All fields depend on the full primary key.
✅ 3NF: No transitive dependencies.

🗒️ SQL Queries

SELECT count(appointment_time) from appointments;

➡️ Counts total appointment times.

SELECT sum(amount) from invoices;

➡️ Calculates total money from invoices.

SELECT * FROM doctors;

➡️ Displays all doctor information.

SELECT * FROM Appointments ORDER BY appointment_date asc;

➡️ Lists all appointments sorted by date.

SELECT * FROM Patients WHERE Name LIKE '%john%';

➡️ Finds patients whose names include 'john'.

SELECT SUM(Amount) FROM Invoice WHERE Payment_Status = 'Paid' ;

➡️ Aggregate Function

7. Conclusion

The Hospital Database Management System provides a structured approach to managing hospital

operations. With user-specific access, automated invoicing, and appointment tracking, it improves hospital efficiency and patient care.

This foundation supports further features like prescriptions and integration with

labs or pharmacies.