**Project Report: Hospital Management System Database**

**1. Project Overview**

The Hospital Management System (HMS) is designed to efficiently manage hospital operations, patient information, staff details, appointments, inpatient records, lab tests, medications, prescriptions, billing, and payments. The system ensures the seamless handling of data relationships among these entities.

**2. Database Design**

**2.1 Database: HospitalManagementSystem**

The database consists of several interrelated tables:

* **Patients**: Stores patient information including their medical history, contact details, and personal information.
* **Staff**: Contains details of hospital staff, including doctors, nurses, and administrative staff, along with their roles, specialties, and contact information.
* **Appointments**: Manages patient appointments with doctors, including appointment dates, times, and status.
* **Inpatients**: Records details of patients admitted to the hospital, their admission and discharge dates, wards, bed numbers, and attending doctors.
* **LabTests**: Keeps track of lab tests conducted on patients, test names, dates, results, and the staff who ordered the tests.
* **Medications**: Manages medication inventory, including medication names, stock quantities, expiry dates, and reorder levels.
* **Prescriptions**: Documents prescriptions given to patients, including medication details, dosages, quantities, and prescribing doctors.
* **Billing**: Handles billing information for patients, including amounts, billing dates, and statuses.
* **Payments**: Tracks payments made against bills, including payment amounts, dates, and methods.

**2.2 Data Relationships**

* **Patients and Appointments**: Each appointment is linked to a patient.
* **Staff and Appointments**: Each appointment is linked to a doctor from the staff.
* **Patients and Inpatients**: Inpatient records are linked to patients and their attending doctors.
* **Patients and LabTests**: Lab tests are linked to patients and the staff who ordered them.
* **Prescriptions and Patients/Medications/Doctors**: Prescriptions link patients to medications prescribed by doctors.
* **Billing and Patients**: Billing records are linked to patients.
* **Payments and Billing**: Payments are linked to specific billing records.

**3. Sample Data**

Sample data has been inserted into the tables to demonstrate the relationships and functionality of the system. For example, the **Patients** table includes patients with their personal and medical history details, while the **Staff** table includes doctors and other hospital staff. Appointments are scheduled between patients and doctors, inpatients have records of their hospital stays, lab tests are logged with results, medications are tracked in inventory, prescriptions are recorded for patients, and billing and payments are managed for financial records.

**4. Data Verification**

Data verification queries have been executed to ensure the integrity and correctness of the relationships between the tables. These queries include checking patient and appointment relationships, verifying doctor appointments, linking inpatients with attending doctors, validating lab test records for patients, confirming prescription details, and verifying billing and payment connections.

**5. Conclusion**

The Hospital Management System database has been successfully designed and implemented to handle various hospital operations and patient management tasks. The system ensures efficient data management, integrity, and relationships among different entities, providing a comprehensive solution for hospital administration.