**Assignment 3**

**List out the entities and identify the relationship between them. Also, identify related attributes supposed to be recorded while considering the normalization rule.**

In E\_Hospital, various entities play crucial roles, and understanding their relationships is essential for designing an effective database. These are some entities and their relationships along with attributes:

1. Patient:

- Attributes: Patient\_ID, Name, Gender, Date\_of\_Birth, Address, Phone\_Number,

- Relationships:

- Visits (One-to-Many with Visits entity)

- Admissions (One-to-Many with Admissions entity)

2. Doctor:

- Attributes: Doctor\_ID, Name, Specialization, Contact\_Info

- Relationships:

- Treats (One-to-Many with Patients entity)

3. Nurse:

- Attributes: Nurse\_ID, Name, Contact\_Info

- Relationships:

- Manages (One-to-Many with Patients entity)

4. Visit:

- Attributes: Visit\_ID, Patient\_ID, Doctor\_ID, Date, Symptoms, Diagnosis, Prescription

- Relationships:

- Belongs\_to\_Patient (Many-to-One with Patients entity)

- Belongs\_to\_Doctor (Many-to-One with Doctors entity)

5. Admission:

- Attributes: Admission\_ID, Patient\_ID, Doctor\_ID, Admission\_Date, Discharge\_Date, Ward\_Number, Bed\_Number

- Relationships:

- Belongs\_to\_Patient (Many-to-One with Patients entity)

- Belongs\_to\_Doctor (Many-to-One with Doctors entity)

6. Ward:

- Attributes: Ward\_Number, Ward\_Type, Capacity

- Relationships:

- Contains\_Bed (One-to-Many with Bed entity)

7. Bed:

- Attributes: Bed\_Number, Ward\_Number, Availability

- Relationships:

- Belongs\_to\_Ward (Many-to-One with Ward entity)

- Occupied\_by\_Admission (One-to-One with Admission entity)

8. Medication:

- Attributes: Medication\_ID, Name, Dosage, Cost

- Relationships:

- Prescribed\_in\_Prescription (Many-to-Many with Prescription entity)

9. Prescription:

- Attributes: Prescription\_ID, Visit\_ID, Doctor\_ID, Issue\_Date

- Relationships:

- Contains\_Medication (Many-to-Many with Medication entity)

Normalization is the process of organizing the data in a database to reduce redundancy and dependency. Here are some considerations for normalization:

- Ensure data atomicity by breaking down tables to store information at the most granular level.

- Minimize data redundancy by storing each piece of information in only one place.

- Identify and establish relationships between tables using appropriate keys (primary and foreign keys).

- Apply normalization rules (1NF, 2NF, 3NF, BCNF) to ensure data integrity and eliminate anomalies.