

# Lab Exercise 1

## Domain

Hospital System

## Entities

1. Patient
2. Doctor
3. Nurse
4. Address
5. Appointment
6. Room
7. Patient Medical Record
8. Prescription
9. Billing
10. Lab Test
11. Surgery

## Attributes

### Patient

1. Patient ID (Integer): Unique identifier of the patient
2. Patient Name (String): Name of the patient
3. Patient DOB (Date/Time): Patient Date of Birth
4. Patient Age (Integer): Age of Patient
5. Address ID (Integer): Foreign Key referencing the Address entity
6. Patient Gender (String): Gender of the patient
7. Patient Contact Number (String): Phone number of the patient
8. Patient Email (String): Email address of the patient
9. Patient Emergency Number (String): Emergency contact of the patient
10. Record ID (Integer): Foreign key referencing the Medical Record Entity

### Doctor

1. Doctor ID (Integer): Unique identifier of the doctor
2. Doctor Name (String): Name of the doctor
3. Doctor DOB (Date/Time): Doctor Date of Birth
4. Doctor Age (Integer): Age of the doctor
5. Address ID (Integer): Foreign key referencing the Address entity
6. Doctor Gender (String): Gender of the doctor

7. Doctor Contact Number (String): Phone number of the doctor
8. Doctor Email (String): Email address of the doctor
9. Doctor Medical License Number (Integer): License Number of the doctor
10. Years of Experience (Integer): Number of years of experience for the doctor

## Nurse

1. Nurse ID (Integer): Unique identifier of the nurse
2. Nurse Name (String): Name of the nurse
3. Nurse DOB (Date/Time): Date of birth of the nurse
4. Nurse Age (Integer): Age of the nurse
5. Address ID (Integer): Foreign key referencing the Address entity
6. Nurse Gender (String): Gender of the nurse
7. Nurse Contact Number (String): Phone number of the nurse
8. Nurse Email (String): Email address of the nurse
9. Nurse Medical License Number (Integer): License Number of the nurse
10. Nurse Type (String): Type of nurse (e.g. Nurse Practitioner, Nurse Critical Care etc.)

## Address

1. Address ID (Integer): Unique identifier of the address
2. Address Line 1 (String): First line of the address
3. Address Line 2 (String): Second line of the address (optional)
4. Address Line 3 (String): Third line of the address (optional)
5. Landmark (String): Landmark nearby to the address (optional)
6. City (String): City of the address
7. State (String): State of the address
8. Country (String): Country of the address
9. Postal Code (Integer): Postal code of the address
10. Contact Number (String): Phone number for the address

## Appointment

1. Appointment ID (Integer): Unique identifier of the appointment
2. Patient ID (Integer): Foreign key referencing the Patient entity
3. Doctor ID (Integer): Foreign key referencing the Doctor entity
4. Nurse ID (Integer): Foreign key referencing the Nurse entity
5. Room ID (Integer): Foreign key referencing the Room entity
6. Appointment Reason (String): Reason for booking the appointment
7. Booking Type (String): Method used for booking the appointment
8. Booking Date (Date/Time): Date the appointment was booked
9. Appointment Date (Date/Time): Date of the appointment
10. Appointment Confirmation (String): Confirmation that patient will come to the appointment

## 11. Appointment Status (String): Status of the appointment

### Room

1. Room ID (Integer): Unique identifier of the room
2. Room Name (String): Name of the room
3. Room Type (String): Type of room (e.g. Surgery, Consultation etc.)
4. Room Location (String): Location of the room in the building
5. Capacity (Integer): Capacity of the room
6. Availability (String): Availability of the room for reservation
7. Reserved Date (Date/Time): Date of reservation
8. Assigned Doctor ID (Integer): Foreign key referencing the Doctor entity
9. Assigned Nurse ID (Integer): Foreign key referencing the Nurse entity
10. Room Equipment (String): Equipment available in the room

### Medical Record

1. Record ID (Integer): Unique identifier of the record
2. Patient ID (Integer): Foreign key referencing the Patient entity
3. Doctor ID (Integer): Foreign key referencing the Doctor entity
4. Record Start Date (Date/Time): Date the patient record was made
5. Record Type (String): Type of medical record (e.g. Treatment, Surgery etc.)
6. Medical History (String): Patient history to be recorded
7. Treatment History (String): Patient treatments to be recorded
8. Lab Test ID (Integer): Foreign key referencing the Lab Test entity
9. Prescription ID (Integer): Foreign key referencing the Prescription entity
10. Important Notes (String): Additional notes

### Prescription

1. Prescription ID (Integer): Unique identifier of the prescription
2. Patient ID (Integer): Foreign key referencing the Patient entity
3. Doctor ID (Integer): Foreign key referencing the Doctor entity
4. Prescription Date (Date/Time): Date the prescription is made
5. Medicine Name (String): Name of the medicine
6. Medicine Type (String): Type of the medicine (e.g. Tablet, Capsule etc.)
7. Dosage Instructions (String): Instructions for dosage to be taken
8. Prescription Bill ID (Integer): Foreign key referencing the Bill entity
9. Duration (String): Duration of medicine to be consumed
10. Important Notes (String): Extra additional notes

### Billing

1. Bill ID (Integer): Unique identifier of the bill
2. Patient ID (Integer): Foreign key referencing the Patient entity

3. Doctor ID (Integer): Foreign key referencing the Doctor entity
4. Bill Date (Date/Time): Date of bill issue
5. Bill Description (String): Items and cost included in the bill
6. Bill Amount (Float): Amount to be paid
7. Payment Type (String): Type of payment method (e.g. Cash, Credit Card etc.)
8. Payment Due Date (Date/Time): Last date of payment
9. Payment Status (String): Status of payment made or not
10. Billing Address ID (Integer): Foreign key referencing the Address entity

#### Lab Test

1. Test ID (Integer): Unique identifier of the lab test
2. Patient ID (Integer): Foreign key referencing the Patient entity
3. Doctor ID (Integer): Foreign key referencing the Doctor entity
4. Nurse ID (Integer): Foreign key referencing the Nurse entity
5. Test Type (String): Type of test being done
6. Test Date (Date/Time): Date for test being done
7. Test Bill ID (Integer): Foreign key referencing the Bill entity
8. Test Room ID (Integer): Foreign key referencing the Room entity
9. Test Results (String): Results of the test
10. Test Status (String): Status of completion of the test
11. Important Notes (String): Extra additional notes

#### Surgery

1. Surgery ID (Integer): Unique identifier of the surgery
2. Patient ID (Integer): Foreign key referencing the Patient entity
3. Doctor ID (Integer): Foreign key referencing the Doctor entity
4. Nurse ID (Integer): Foreign key referencing the Nurse entity
5. Surgery Name (String): Name of the surgery being done
6. Surgery Type (String): Type of surgery (e.g. Orthopaedic, Cataract etc.)
7. Surgery Date (Date/Time): Date of the surgery being done
8. Surgery Duration (String) Duration of surgery
9. Surgery Bill ID (Integer): Foreign key referencing the Bill entity
10. Surgery Room ID (Integer): Foreign key referencing the Room entity
11. Important Notes (String): Extra additional notes

# ER Diagram

