**Title: Conceptual Design using ER Model – Healthcare Management System**

**Tools Required:**

**https://draw.io (or Creately/ERDPlus)**

**Steps Involved in Creating ER Diagram**

**Step 1: Problem Understanding & Requirement Analysis**

* Analyze the real-world application: Healthcare Management System
* Understand the domain: Hospitals, Patients, Doctors, Appointments, Prescriptions

**Step 2: Identify Major Entities**

Entities are core components representing objects or concepts in the system:

Patient

Doctor

Appointment

Prescription

Medicine

Department

**Step 3: Identify Attributes for Each Entity**

Example attributes:

Entity Attributes

Patient:PatientID (PK), Name, Age, Gender, Phone, Address

Doctor :DoctorID (PK), Name, Specialization, ContactNo, DepartmentID (FK)

Appointment :AppointmentID (PK), PatientID (FK), DoctorID (FK), Date, Time

Prescription:PrescriptionID (PK), AppointmentID (FK), Diagnosis, Notes

Medicine:MedicineID (PK), Name, Dosage, Manufacturer

Department:DepartmentID (PK), Name, Location

Step 4: Define Relationships between Entities

* A Patient books one or more Appointments
* A Doctor conducts many Appointments
* An Appointment generates one Prescription
* A Prescription includes many Medicines
* A Doctor belongs to one Department

**Step 5: Draw ER Diagram using draw.io**

**Instructions:**

* Open https://draw.io
* Choose Blank Diagram → Click Create
* From left panel, drag the following:
* Use rectangles for Entities (Patient, Doctor)
* Use ellipses for Attributes (Name, Age, etc.)
* Use diamonds for Relationships (Books, Conducts)
* Connect using lines:
* Solid lines for relationship connectors
* Use PK or underline to denote Primary Key
* Use double ellipse for multivalued attributes (if any)
* Use labels such as (1:N), (M:N), etc., to show cardinalities

**Example relationships:**

* Patient (1) — books —> (M) Appointment
* Doctor (1) — conducts —> (M) Appointment
* Appointment (1) — generates —> (1) Prescription
* Prescription (1) — includes —> (M) Medicine
* Save diagram as PNG/PDF and include it in your lab report.

**Input for the ER Design**

Real-time Healthcare System Scenario

User Requirements (Patient Management, Doctor Scheduling, Medical Records)

Database Design Rules (Entity-Attribute-Relationship identification)

**Output**

Entity Relationship Diagram (ERD) that clearly shows:

All identified entities with attributes

All relationships with appropriate cardinalities

Foreign keys and keys marked appropriately

**Result:**

This task helped us understand the importance of conceptual design in database management. Using draw.io, we were able to visually model a real-time healthcare system into an ER diagram, which forms the foundation for relational schema design in the next phase.

**Output Diagram**

