

# 8/12/23 Task 1: 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: Patient ID (PK), Name, Age, Gender, Phone, Address

Doctor: Doctor ID (PK), name, specialization, contact no., Department ID (FK)

Appointment: Appointment (PK), Patient ID (FK), Doctor ID (FK), Date, Time

Prescription: Prescription ID (PK), Appointment ID (FK), Diagnosis, Notes

Medicine: Medicine ID (PK), Name, Dosage, manufacturer

Department: Department ID (PK), Name, location.

~~Step 4: Define Relationships between Entities~~

✓ A patient books one or more appointments

✓ A doctor conducts many appointments

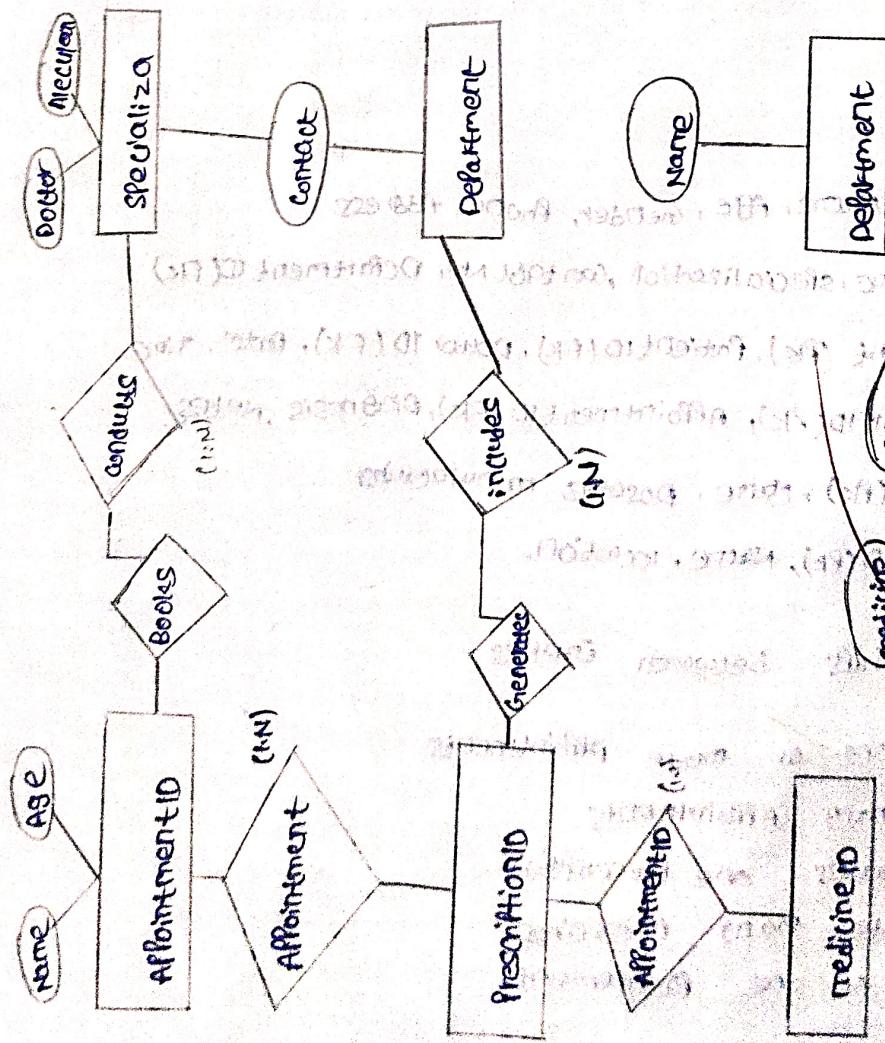
✓ An appointment generates one prescription

✓ A prescription includes many medicines

✓ A doctor belongs to one department.

Output:-

Entity relationship diagram (ERD) that clearly shows:  
All identified entities with attributes  
All relationships with appropriate cardinalities  
Foreign keys and keys marked appropriately.



## 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 for Relationship connectors
  - ✓ use solid lines for Relationship connectors
  - ✓ use PK or underline to denote Primary key.
  - ✓ use double ellipse for multi valued 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:N) 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 health care system scenario

User Requirements (Patient management, Doctor scheduling, medical records)

Database Design Rules (Entity - Attribute - Relationship identification)

VEL TECH - CSE	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5):	1
Total (20)	15
DATE	11/11/2023

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 health care system into an ER diagram, which forms the foundation for relational schema design.