

# TASK (1A). Conceptual Design using ER Model.

28/7/25

## Step 1: Problem understanding & Requirement Analysis

- ✓ Analyse the real-world application: Healthcare management system.
- ✓ understand domain: Hospitals, Patients, Doctors, Appointments, prescriptions.

## Step 2: Identify Major Entities.

Entities are core components representing objects or concepts in system:

Patient, Doctor, Appointment, Prescription, Medicine

## Step 3: Identify Attributes for each Entity.

Example attributes:

Entity Attributes

Patient: Patient (Pk), Name, Age, gender, phone

Doctor: Doctor (Pk), Name, Specialization, contact no.

Appointment: prescription (Pk), Appointment (Fk), Notes.

Medicine: Medicine (Pk), Name, Dosage, manufacture.

## Step 4: Define Relationships b/w Entities.

- ✓ A patient books one or more Appointments.
- ✓ A doctor conducts many Appointments.
- ✓ An Appointment generates one prescription.

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

Instructions:-

- ✓ open <https://draw.io>.
- ✓ Choose Blank Diagram → click create.
- ✓ From left panel, drag following.
- ✓ use rectangles for Entities (Patient, Doctor).
- ✓ use diamonds for Relationships (Books, conducts).
- ✓ use PK or underline to denote primary key.
- ✓ use double ellipse for multivalued attributes.
- ✓ use tables such as (1:M), (M:N) etc. to show cardinalities.



output).

Entity relationship diagram (ERD) that clearly shows:

All identified entities with attributes.

All relationships with appropriate cardinalities.

step 1: Identify major entities.  
Entities are core components representing objects or concepts in system:  
Patient, Doctor, Appointment, Prescription, Medication.

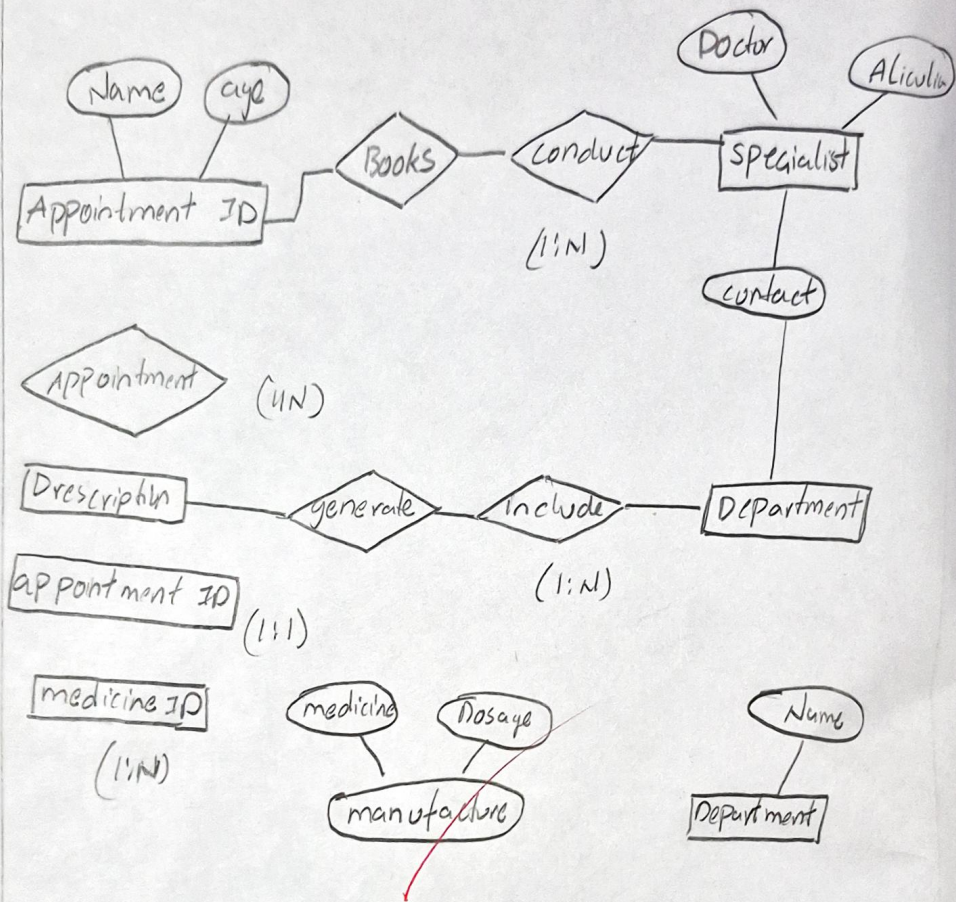
step 2: Identify attributes for each entity.  
Example attributes:  
Entity attributes:  
Patient: Patient ID, Name, Age, Gender, Phone  
Doctor: Doctor ID, Name, Specialization, Contact No.  
Appointment: Appointment ID, Date, Time, Location  
Medication: Medication ID, Name, Dosage, Manufacturer

step 3: Define Relationships between entities.  
A patient books one or more appointments.  
A doctor conducts many appointments.  
An appointment generates one prescription.

step 4: Draw ER diagram using norms.  
Instructions:  
✓ use double ellipse for multivalued attributes  
✓ use underbar to denote primary key  
✓ use diamonds for relationships (books, conducts)  
✓ use rectangles for entities (Patient, Doctor)  
✓ From left panel, drag following:  
✓ Choose Blank diagram -> click create  
✓ open https://erdbuilder.io.



## output diagrams



to summarize all information as best as possible  
 extracted data is organized into a table  
 and a new table is created for each table

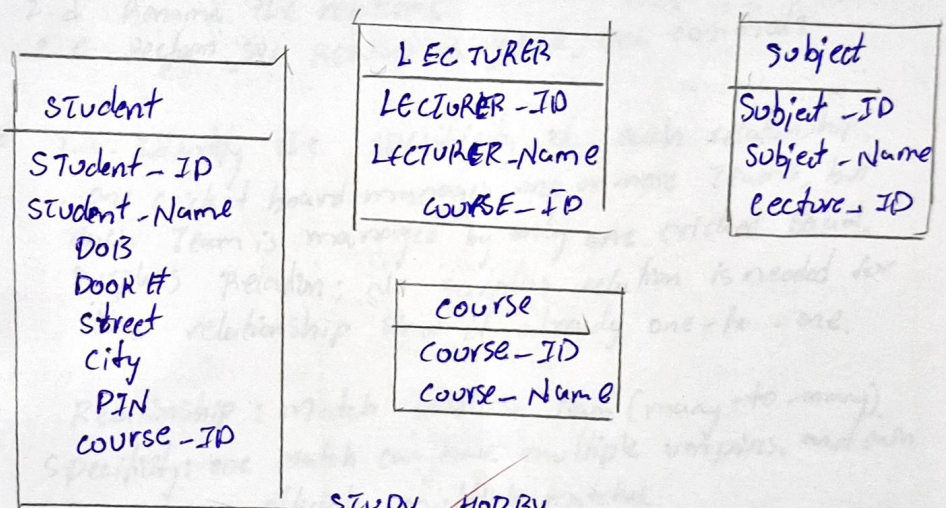


## 1.2 Convert ER Diagram into Relational model.

Steps for converting ER diagram to table.

- Entity type becomes a table
- A key attribute of Entity type represents the key
- The multivalued attribute is represented by separate table.
- Derived attributes are not considered in tables

using three rules you can convert ER diagram to tables and columns & assign mapping.



STUDY - HOBBY

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HOBBY

| VEL TECH - CSE          |    |
|-------------------------|----|
| EX NO.                  | 1  |
| PERFORMANCE (5)         | 5  |
| RESULT AND ANALYSIS (5) | 5  |
| VIVA VOCE (5)           | 0  |
| RECORD (5)              | 5  |
| TOTAL (20)              | 15 |

Result: This task helped me understand the importance of Conceptual design in database management. I used to draw model a real-time healthcare system in ER diagram.