

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

28/7/23

## Step 1: Problem Understanding & Requirement Analysis

- ✓ Analyze 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, manufacturer.

## 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, draw 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 multi-valued 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 cardinality.

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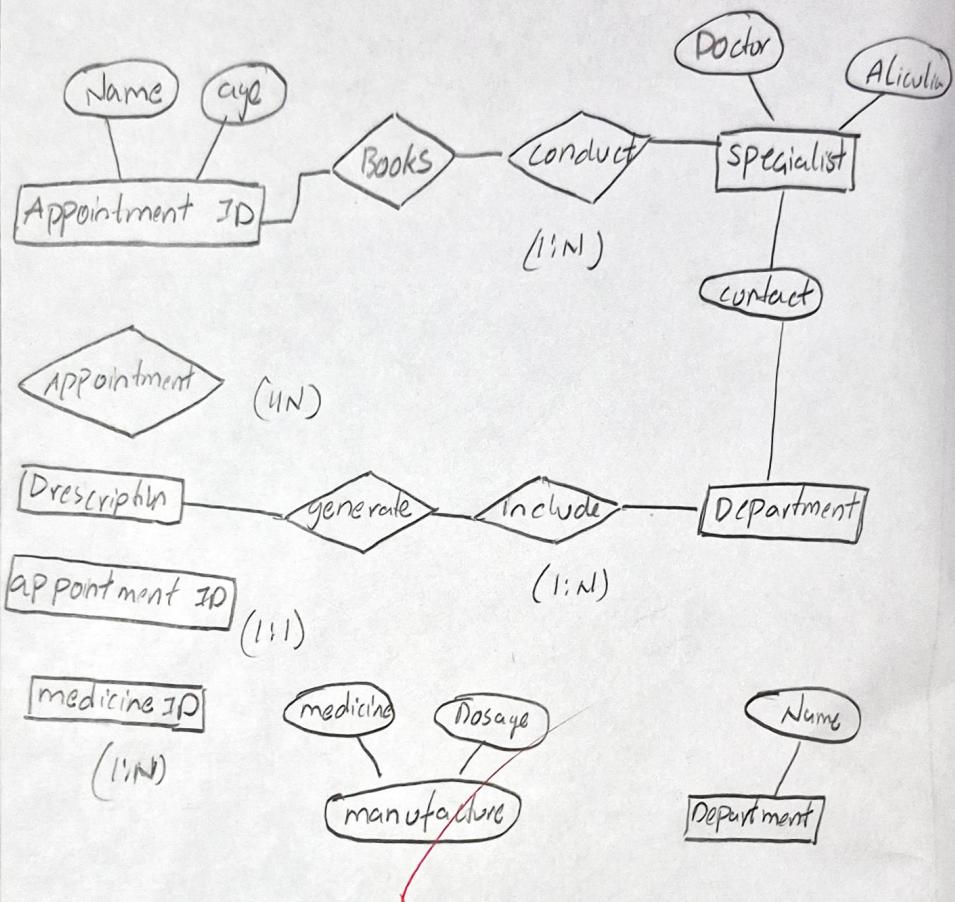
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## output diagram



To understand the relationships in better detail about the **medicine** works fine, transportation wouldn't affect hospital's **medicine** which is no one might think smart. Like to know

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.

Student
Student - ID
Student - Name
DOB
Door #
Street
City
PIN
Course - ID

LECTURER
LECTURER - ID
LECTURER - Name
COURSE - ID

Subject
Subject - ID
Subject - Name
Lecture - ID

COURSE
COURSE - ID
COURSE - Name

STUDY - HOBBY

Student - ID

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 system. I used to draw model of real-time healthcare system in ER diagram.