

21-9-25

Task - 1.1.

Aim

Title: conceptual Design using ER model - Healthcare management system

<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

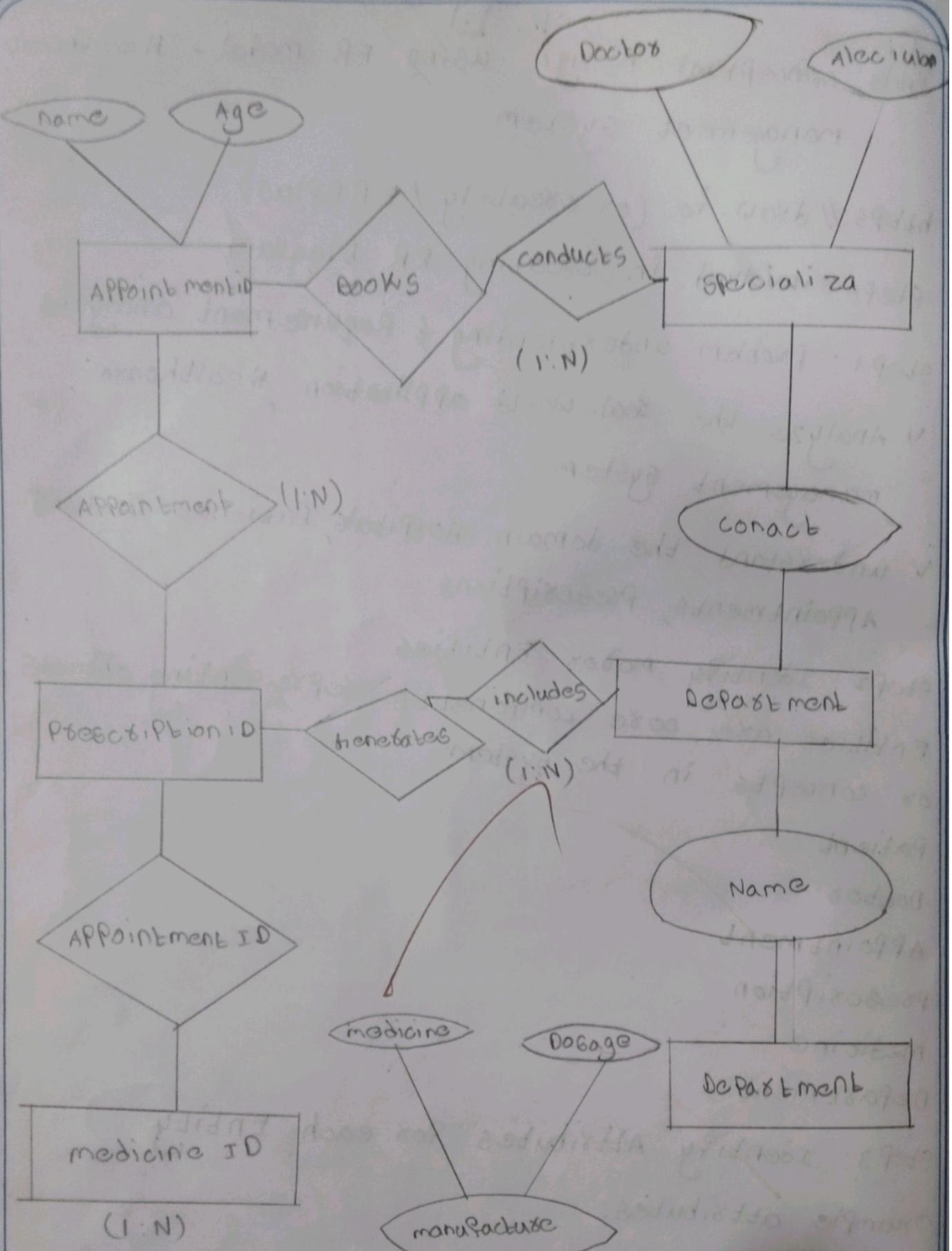
Department

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 ID, Patient (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.

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 relationships

✓ use PK or underline to denote primary key

✓ use double ellipses for multivalued attributes

✓ use labels such as (1:N), (M:N), etc., to show cardinalities

Input for the ER Diagram

Real-time healthcare system scenario

User Requirements (Patient management, Doctor

Scheduling, medical Records)

Database Design Rules (Entity - Attribute - Relationship

Identification)

VEL TECH	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	3
RECORD (5)	—
TOTAL (20)	13
SIGN WITH DATE	29/7/20

~~Result: This task helped understand the importance of conceptual design in database management. Using draw.io, we were able to visually model a real time healthcare system into a ER Diagram.~~

Patient	
Patient - id	int
first - name	varchar
last - name	varchar
dob	Date
gender	varchar
address	text
phone	varchar
insurance - info	text

Billing	
billing - id	int
Patient - id	int
amount	decimal
billing - date	date
Payment - status	varchar

Doctors	
doctor - id	int
first - name	varchar
last - name	varchar
specialization	varchar
schedule	text

appointment	
appointment - id	int
Patient - id	int
doctor - id	int
appointment - d -	datetime
status	varchar

29-7-25

Task 1.1

Convert ER Diagram into Relation model

Aim: To convert ER Diagram into Relational model

Algorithm

- * Entity type becomes a table
- * all single-valued attribute becomes a column for the table
- * A key attribute of the entity type is presented by the primary key
- * The multivalued attribute is represented by a separate table
- * Composite attribute is represented by components
- * Derived attribute are not considered in the table.

VEL TECH	
EX NO.	5
PERFORMANCE (5)	3
RESULT AND ANALYSIS (5)	3
VIVA VOCE (5)	13
RECORD (5)	13
TOTAL (20)	25/10/19
SIGN WITH DATE	

Result: Thus we converted ER Diagram into Relation model successfully.