28/7/25

TASK-1

conceptual Design using ER-Model - Healthcare management system :-

TOOLS Required :-

https://draw.io (or creately ERD plug)

Aim: To design the ER Diagram for the hospital management database using draw.io

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(a) :- Identify major Entities :-

Entities are core components representing objects (or) concepts in the system.

patient
Doctor
Appointment
prescription
medicine
Department.

Step 3(b) :- 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 (PK), patient ID (FK), Doctor ID (FK), Date, Time.

prescription : prisoription ID (PK), Diagnosis, notes.

medicine : medicine (ID) (PK), Name, Dosage, manufactur

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

Step (c): Define Relationships b/w Entities:-

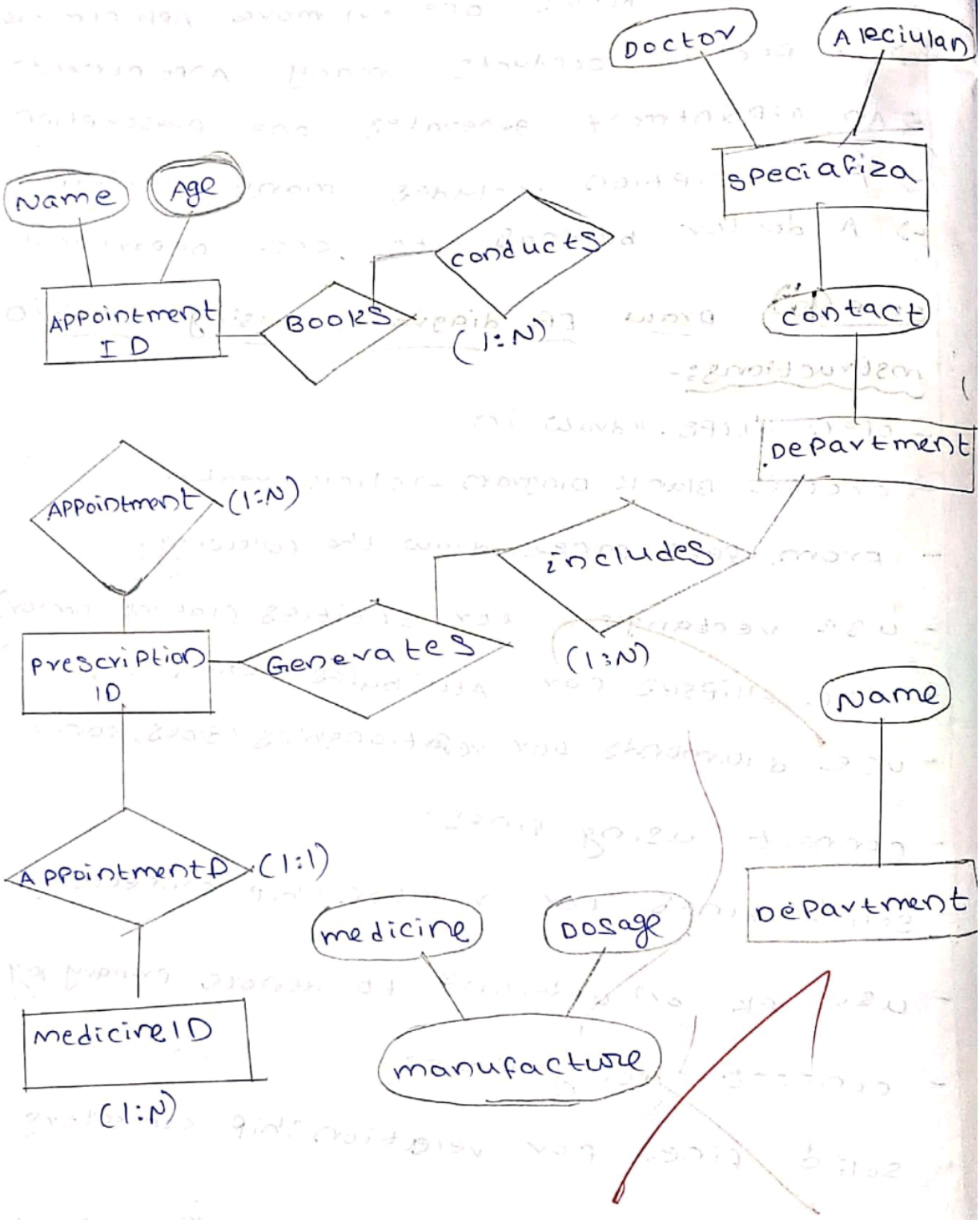
→ A patient books one (or) more Appointments
→ A Doctor conducts many Appointments
→ An Appointment generates one prescription
→ A prescription includes many medicines
→ A doctor belongs to one department

Step (d) Draw ER diagram using draw.io

instructions:-

- open https://draw.io
- choose Blank diagram → click create
- From left panel, draw the following:
- use rectangles for Entities (patient, Doctor)
- use ellipses for Attributes (Names, Age, etc...)
- use diamonds for relationships (Books, conducts)
- connect using lines:
- solid lines for relationship connectors
- use PK (or) underline to denote primary key
- connect using lines:
- solid lines for relationship connectors
- use PK (or) underline to denote primary key
- use double ellipse for multivalued attributes
- use labels such as (1:N), (M:N), etc, ... to show cardinalities.

ER Diagram:-


Doctor
Alecialan
Speciafiza
Name
Age
Appointment ID
Books
conducts
(1:N)
contact
department
Appointment
(1:N)
includes
prescription ID
Generates
(1:N)
Name
AppointmentD
(1:1)
medicine
Dosage
department
medicineID
(1:N)
manufacture

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 - relation ship identification).

output:-

Entity Relationship diagram 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 schema design in the next phase.

VEL TECH	
Ex No.	
PERFORMANCE (5)	
RESULT AND ANALYSIS (5)	
VIVA VOCE (5)	
RECORD (5)	
TOTAL (20)	
SIGN WITH DATE	

1.1 Convert ER diagram into relational model

Aim:

To convert the ER diagram into Relational model

→ Steps for converting the ER diagram to the table.

→ Entity type become a table

→ All single-valued attributes becomes a coloumn for the table

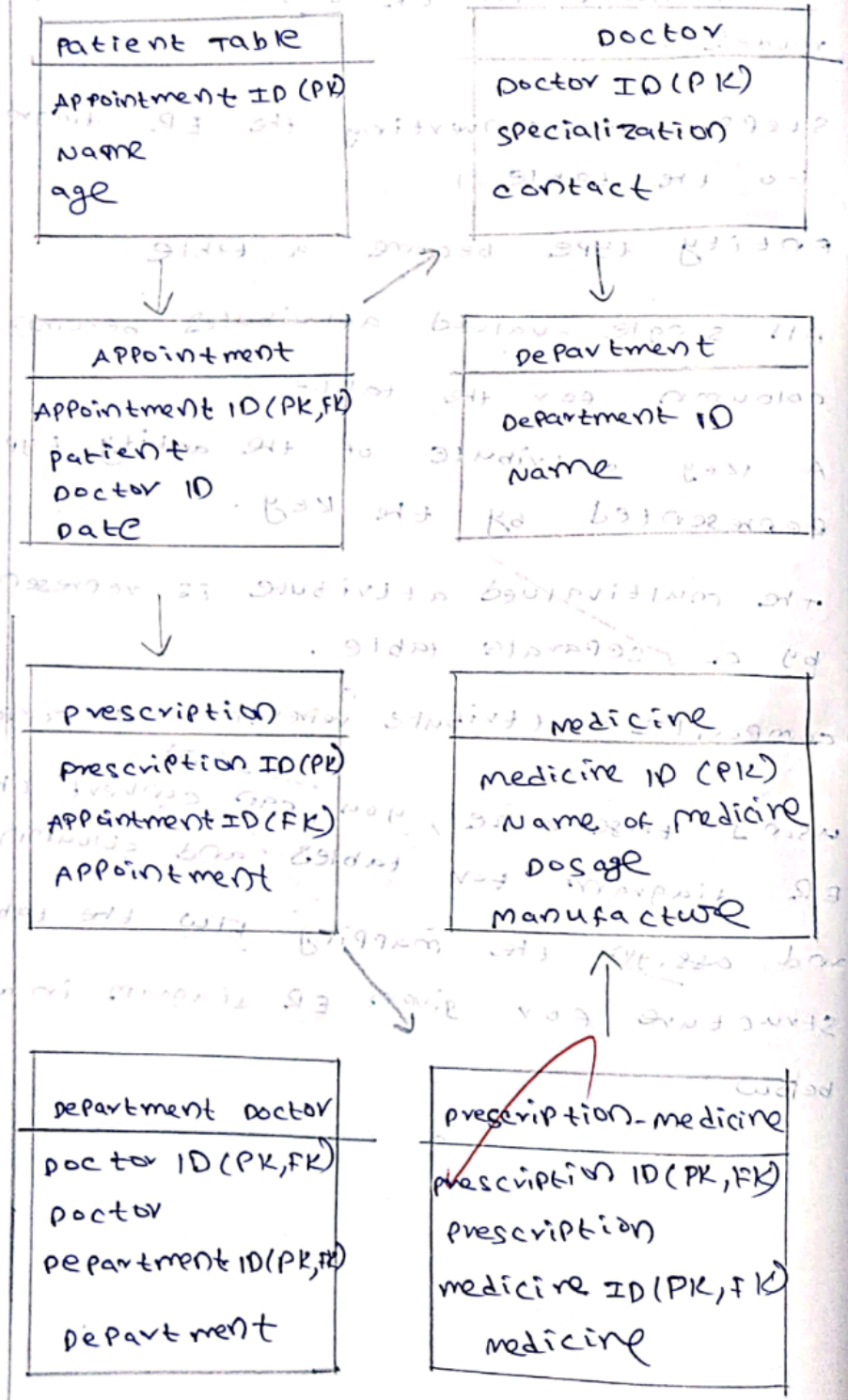
→ A key attribute of the entity type represented by the key.

→ The multivalued attribute is represent by a separate table.

→ composite attribute represent by components

→ using these rule, you can convert the ER diagram for tables and coloumn and assign the mapping blw the tables structure for given ER diagram in as below

Relational model:



Result: The Relat
given ER diagra
converted

VELTECH	
EX No.	1-1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
CORD (5)	-
TAL (20)	15
N WITH DATE	28/9/15

Result: the Relational model for the given ER diagram was successfully converted