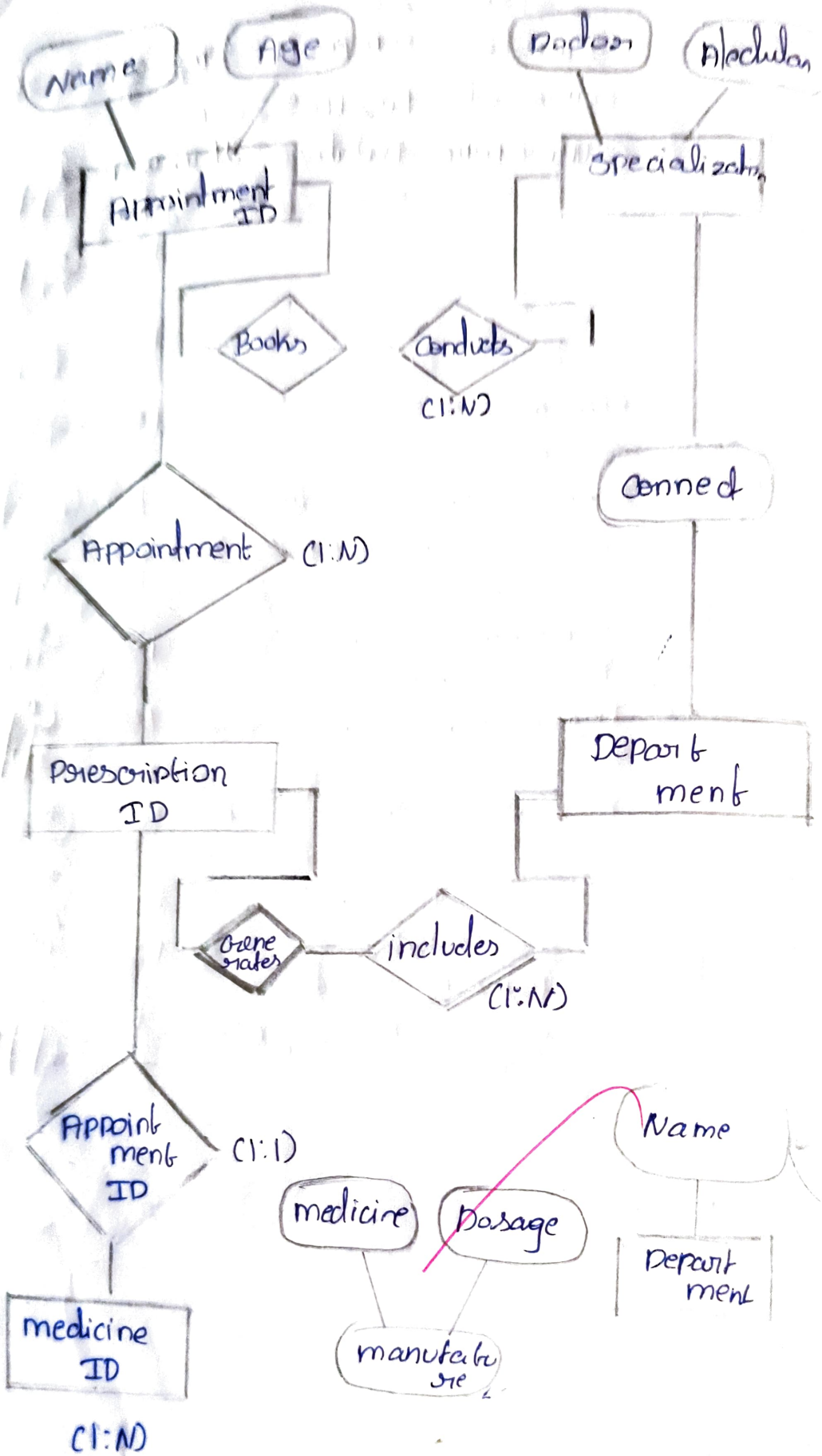
Output Diagram:



28/7/25

Task 1.1 Conceptual design using ER model Healthcare management system

Aim:

To create a conceptual design using ER diagram

Tools Required:

https://draw.io

Steps involved in creating ER diagram:

1.a) Step 1: Problem understanding & requirement Analysis

- Analyze the real-world application: Healthcare management system
- understand the domain: Hospitals, patients, doctors, Appointments, Prescription

1.b) step 2: Identify major entities

Entities are core components representing objects or concepts in the system:

i) Patient
ii) Doctor
iii) Appointment
iv) Prescription
v) medicine
vi) Department

1.c) step 3: Identify Attributes for each Entity

Example attributes: Entity Attributes

i) **Patient:** Patient ID(PK), Name, Age, Gender, Phone, Address

ii) **Doctor:** Doctor ID (PK), Name, specialization, contact No, Department ID (FK)

iii) **Appointment:** Appointment ID (PK), patient ID (FK), Doctor ID (FK), Date, time

iv) **Prescription:** Prescription ID (PK), Appointment ID (FK), Diagnosis, Note

v) **medicine:** medicine ID (PK), Name, Dosage, manufacture

vi) **Department:** Department ID (PK), Name, location

1.d) step 4: Define Relationships between entities

- A patient books one or more Appointment
- A Doctor conducts many Appointments
- An Appointment generates one prescription
- A Prescription includes many medicine

1. Steps: 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 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

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 (ERD) that clearly shows

- All identified entities with attributes
- All relationships with appropriate cardinalities
- Foreign keys and keys marked appropriately

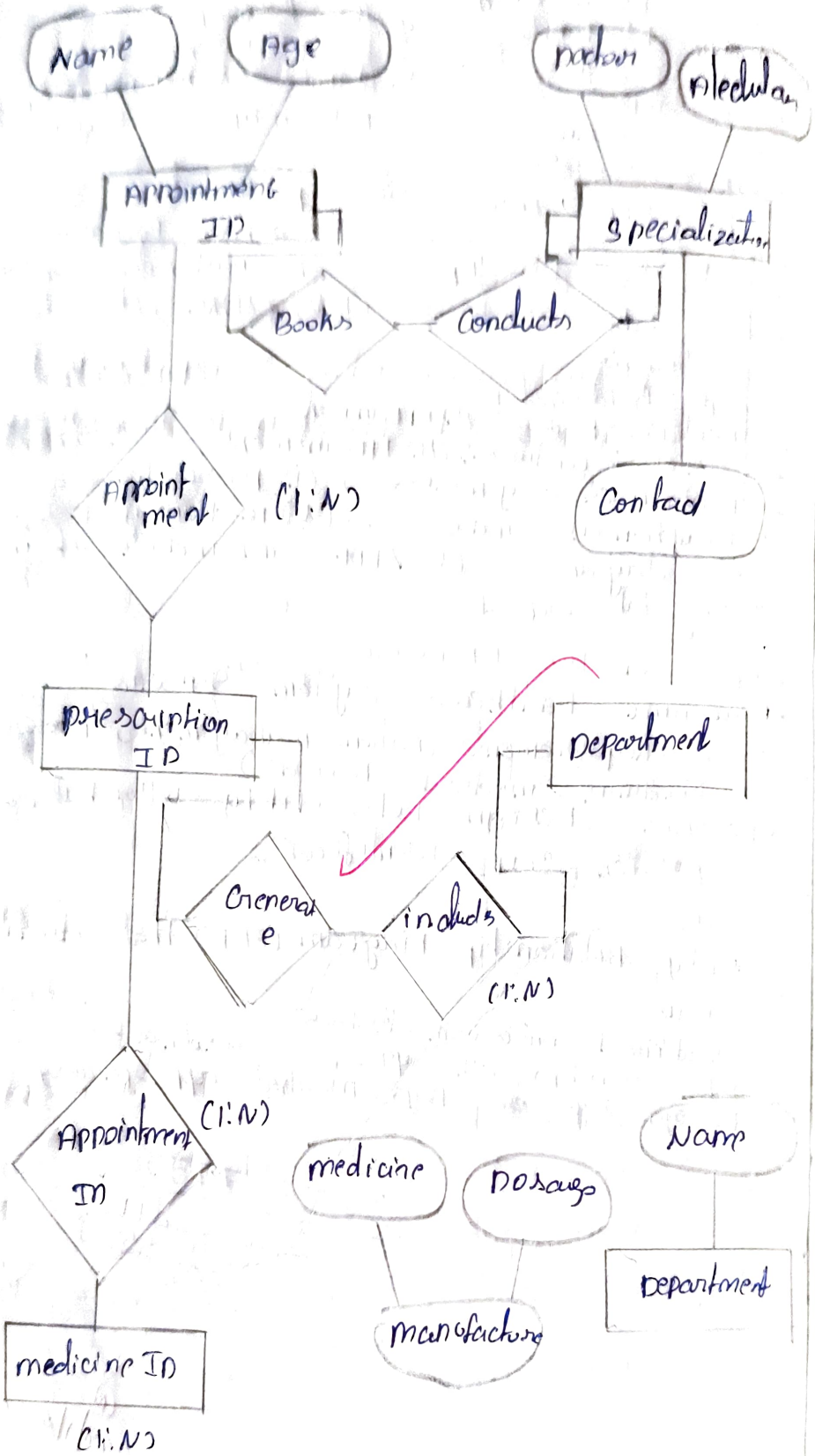
VEL TECH - CSE	
EX NO.	1.1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	-
TOTAL (20)	R
SIGN	A

23/9/25

Result:

The conceptual design using ER model is successfully executed

ER Diagram:


Name
Age
Appointment ID
Books
Conducts
Appoint ment
(1:N)
presoription ID
Appointment ID
(1:N)
medicine ID
(1:N)
Specializat...
Contact
Department
Generat e
includs
(1:N)
medicine
Dosage
manufacture
Name
department

Task: 1.2 Convert ER Diagram into Relational model

Aim:

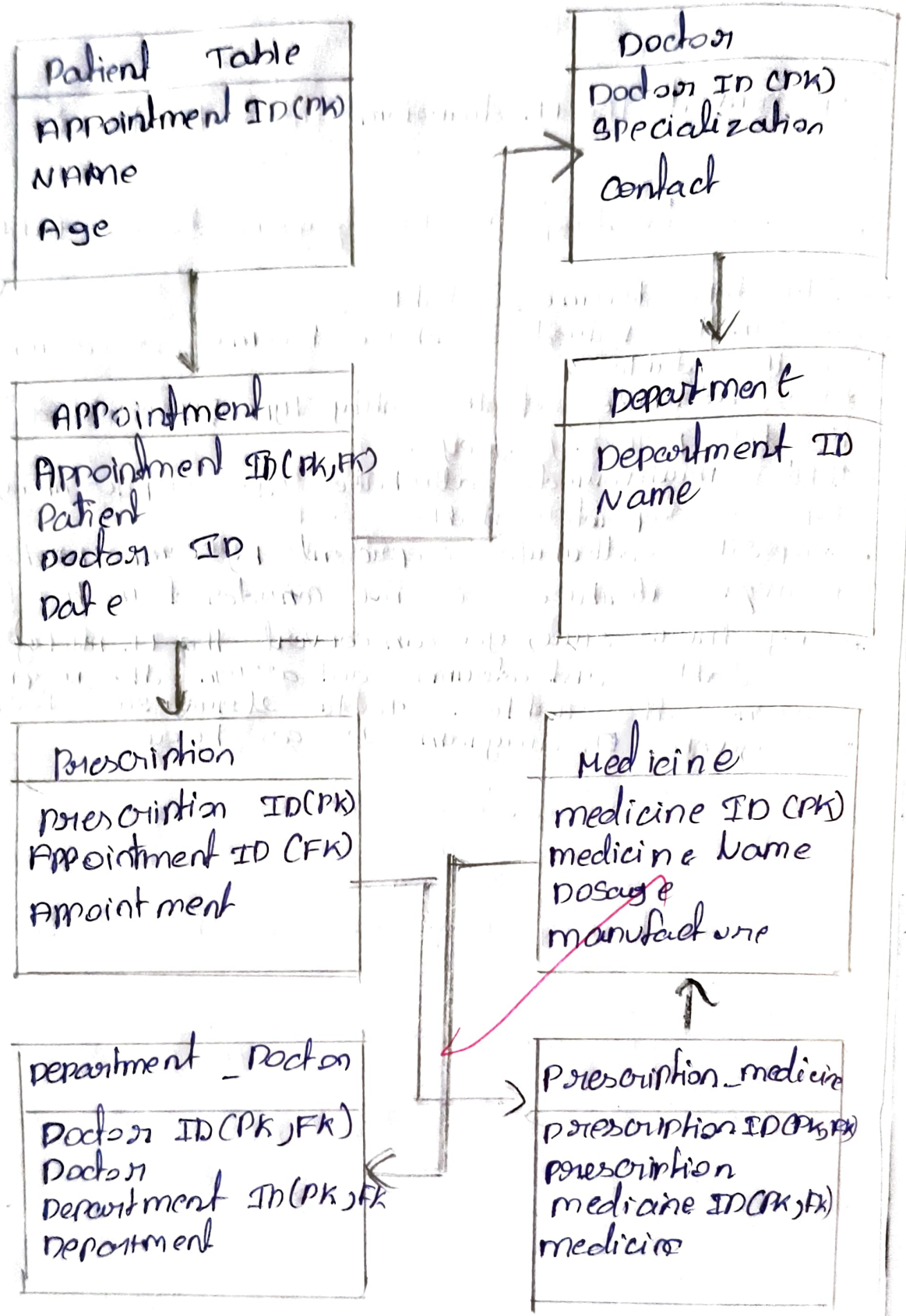
To convert the ER diagram into Relational model

Steps for converting the ER diagram to the table:

- Entity type become a table
- All single-valued attributes becomes a column for the table
- A key attribute of the entity type represented by the primary key
- The multivalued attributes is representing by a seperate table
- composite attribute represent by components
- Derived attributes are not considered in the table

using these rule, you can convert the ER diagram to tables and columns and assign the mapping between the tables. Table structure for the given ER diagram is as below

Relational model:



VEL TECH - CSE	
EX NO.	1.2
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	-
TOTAL (20)	15
SIGN WITH DATE	28/8/24

Result:

Thus the Relational model for the given ER diagram was successfully converted