Task-1

Date :- 29/07/2025

Conceptual Design using ER Model – Health care Management System.

Tools Required :-

https://draw.io (or creately (ERDplus)

Steps involved in creating ER Diagram

Step-1 :- problem Understanding Requirement Analysis

- ✓ Analyze the real-world application: Health care 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
precription
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 (PK), Patient ID (FK), Doctor ID (FK), Date, Time.

Prescription : Prescription ID (PK), Appointment ID (FK), Diagnosis Notes.

Medicine: Medicine ID (PK), Name, Dosage, Manufacture

Department: Department ID (PK), Name, Location.

Step 4:- Define Relationships between Entities.

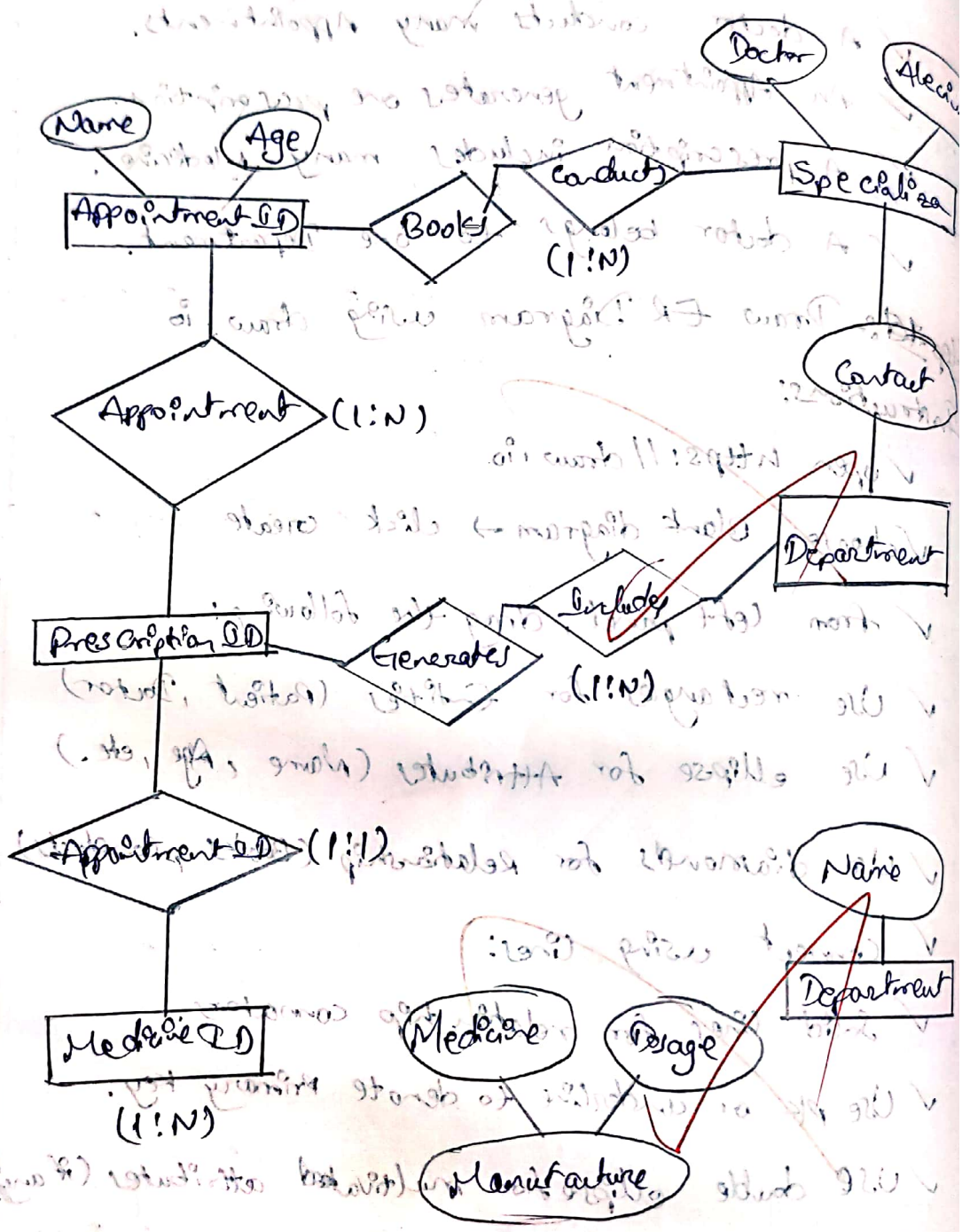
- ✓ A patient books one or more Appointments.
- ✓ A doctor conducts many Appointments.
- ✓ An Appointment generates one prescription.
- ✓ A prescription includes many Medicines.
- ✓ A doctor belongs to one Department.

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 ellipse for Attributes (Name, Age, etc.)
- ✓ Use diamonds for Relationship (Books, Conducts)
- ✓ Connect using lines:
- ✓ Solid lines for relationship connectors.
- ✓ Use PK or underline to denote Primary key.
- ✓ Use double ellipse for multivalued attributes (if any)
- ✓ Use labels such as (1:N), (M:N), etc. to show cardinalities.

ER Diagram:


Name
Age
Appointment ID
Books
Conducts
(1:N)
Doctor
Specialization
Appointment
(1:N)
Contact
Department
Prescription ID
Generates
Includes
(1:N)
Appointment ID
(1:1)
Name
Department
Medicine ID
(1:N)
Medicine
Dosage
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 Relationship identification)

Output

Entity Relationship Diagram (ERD) that clearly shows:

All identified entities with attributes.

All relationships with appropriate cardinality.

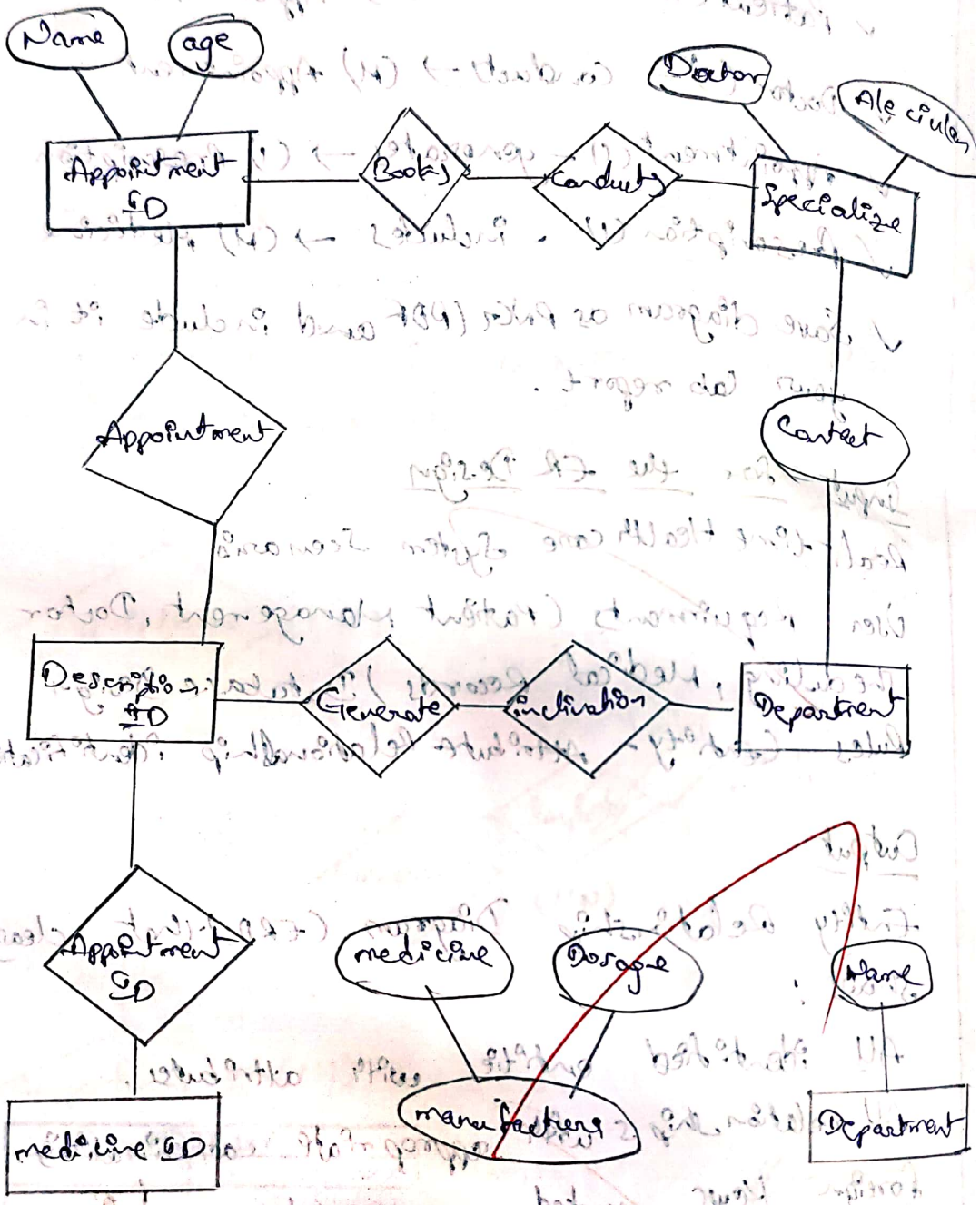
Foreign Keys marked appropriately

PX No.	VEL TECH
ERFORMANCE (5)	15
CT ANALYSIS (5)	5
VA VOCE (5)	5
Other (5)	5
Total (30)	15

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 relational schema design in the next phase.

ER – Diagram:


Name
age
Appointment
ID
Books
Conducts
Doctor
Specialize
Specialization
Appointment
Contact
Description
ID
Generate
Inclination
Department
Appointment
ID
medicine
Dosage
Name
manufactures
medicine ID
Department

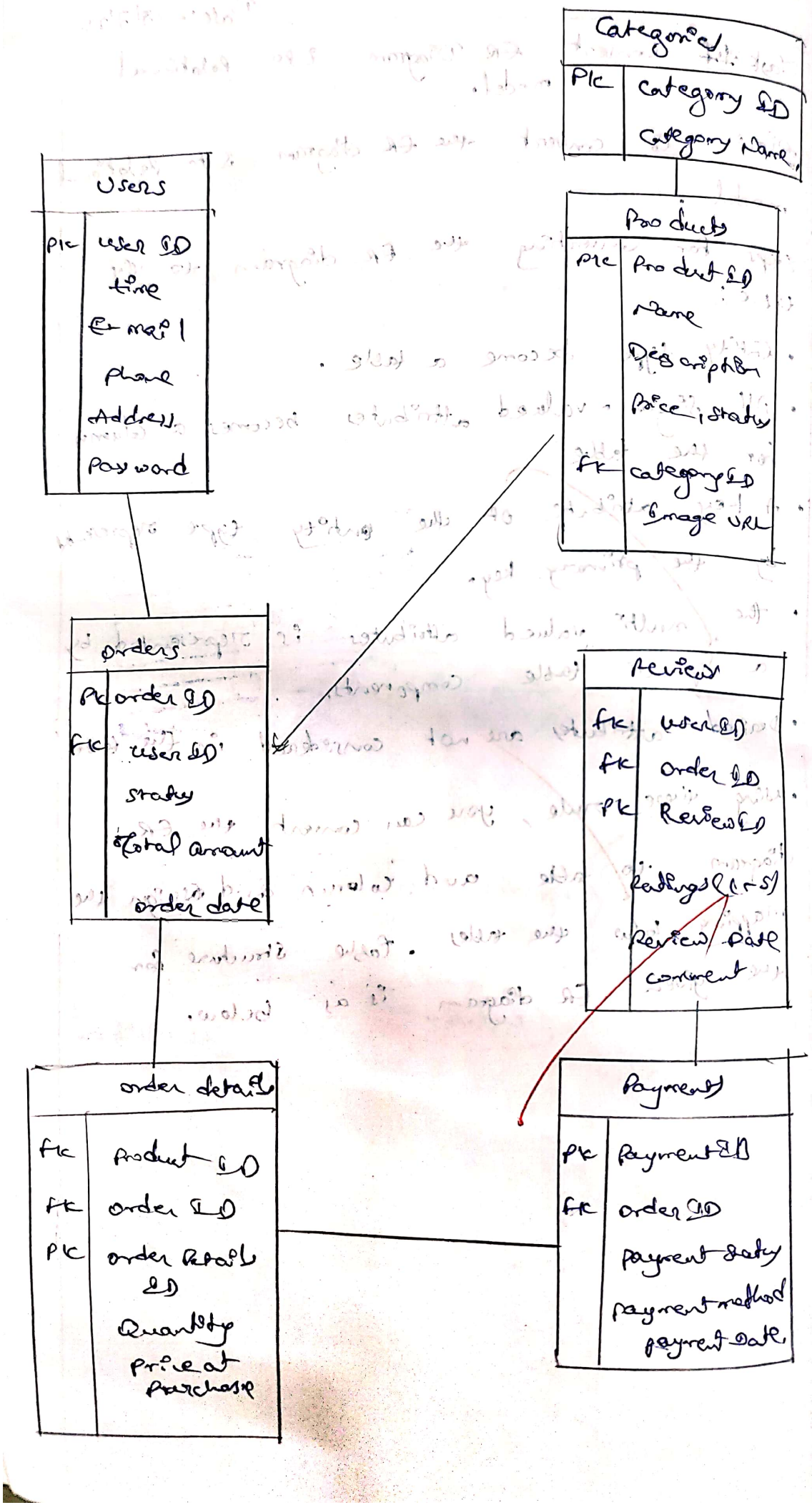
Date:- 28/7/25

Task-11 - 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 multi valued attributes is represented by a seperate table components.
- Derived attributes are not considered in the tables
- using these rule, you can convert the ER diagram to table and column and assign the mapping b/w the tables. Table structure for the given ER diagram is as below.



VEL TECH	
EX NO	1.1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	—
TOTAL (30)	15
SIGN WITH DATE	28/8/15

VEL TECH	
EX No.	
PERFORMANCE (5)	
RESULT AND ANALYSIS (3)	
VIVA VOCE (3)	
RECORD (4)	
TOTAL (15)	
SIGN WITH DATE	

Result:- The relational model for the given ER diagram was successfully converted.