Task No :- 1 29/07/25

Title : Conceptual Design using ER Model - Healthcare Management System

Tools Required :-

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

Eample 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 (PK), Appointment ID (FK), Diagnosis, Notes

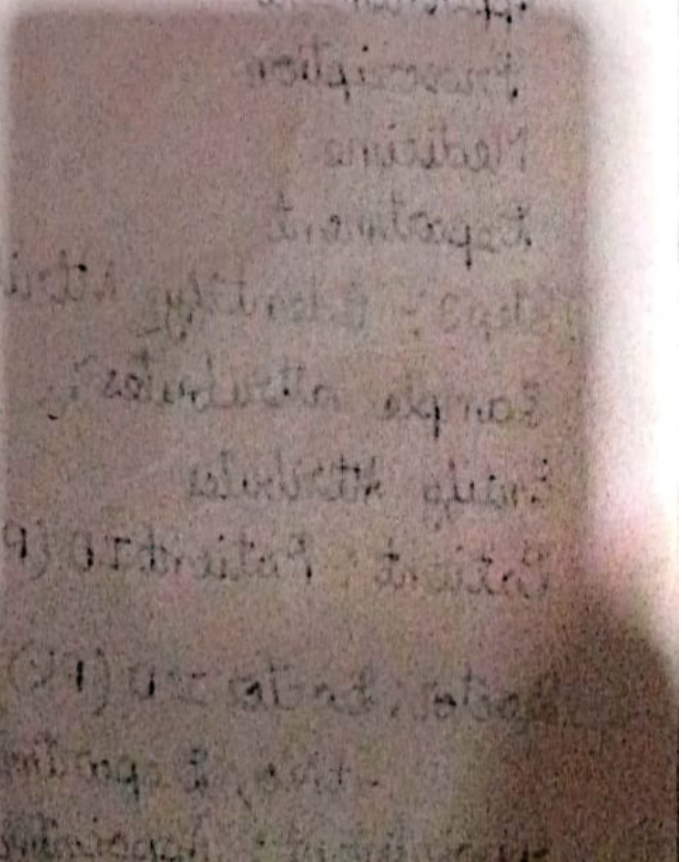
Output :-

Entity Relationship diagram (ERD) that clearly shows:

All identified entities with attributes

All relationship with appropriate coordinalities

Foreign Keys and keys marked appropriately.



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 or more Appointments 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 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.

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 S-eduling, Medical Records)
Database Design Rules (Entity - Attribute - Relation-hip identification.

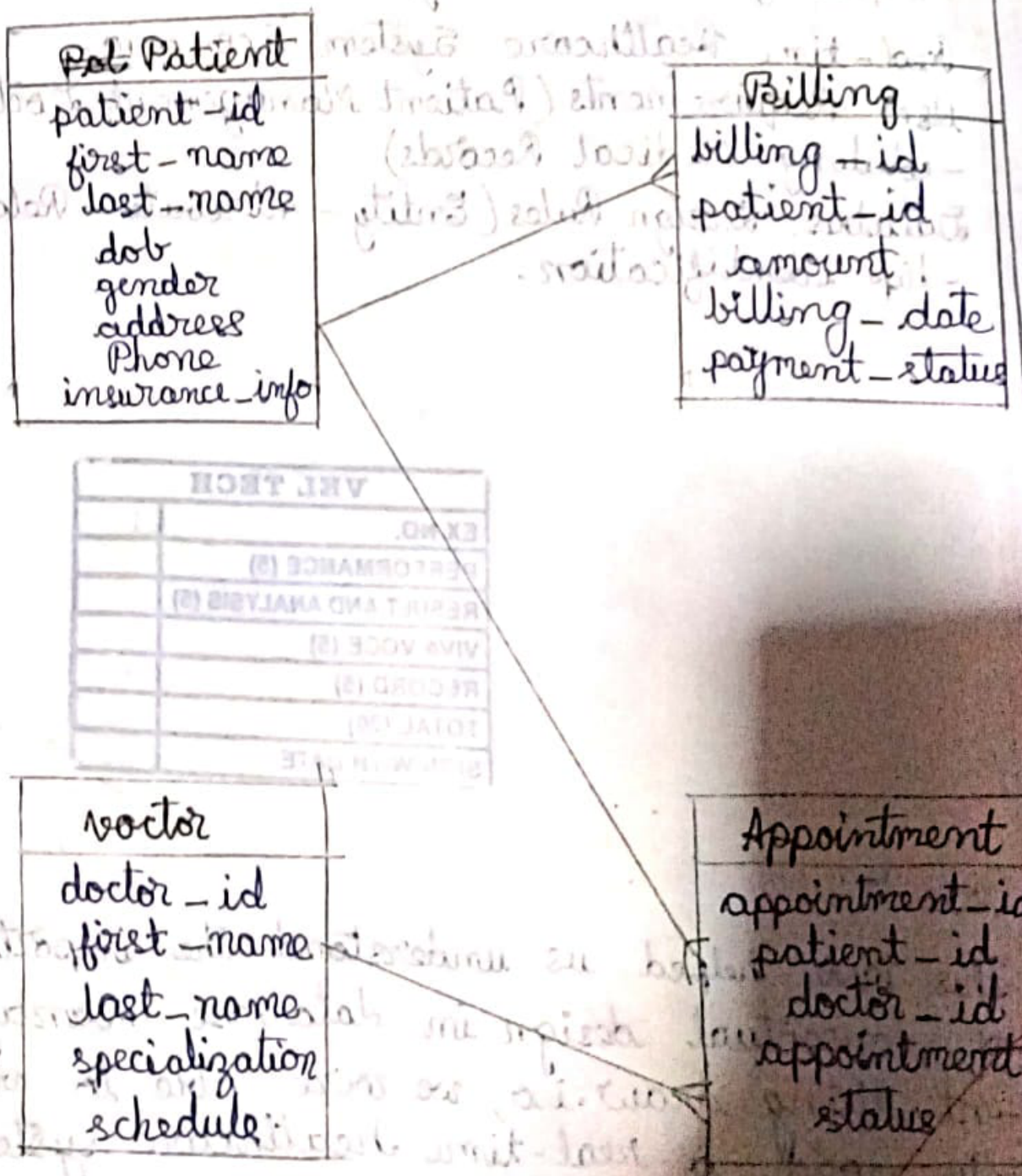
VEL TECH	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	2
RECORD (5)	-
TOTAL (20)	12
SIGN WITH DATE	8/2/25

Result:-

This task helped us understand the importance of conceptual design in database managem-nt. Using draw.io, we were able To visua-ly model a real-time healthcare system into an ER diagram, which forms the fou-dation for relational schema design in the next phase.

⇒ Hence the entity relationship diagram of E-common data base managem-nt system successfully drawn using draw.io.

Task: 14
29/7/25



1.2. Convert ER Diagram into Relational model.

Aim:- Convert ER Diagram into Relational model.

Algorithm:-

1. Entity type becomes a table.
2. All single valued attribute becomes a column for the table.
3. A key attribute of the entity type represented by the primary key.
4. The multivalued attribute represented by a separate table.
5. Composite attribute represented by components.
6. Derived attributes are not considered in the table.
7. Using these rules, you can convert the ER diagram to tables and colums and assign the mapping between the tables.

VEL TECH	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	2
RECORD (5)	—
TOTAL (20)	12
IGN WITH DATE	

28/8/24

Result:-

Thus convert ER diagram into relational model is successfully completed.