

TASK = NO. 1

DATE: - 29/04/2025

Conceptual design using ER Model -
Health care management system - tools
tools required:

<https://drawio.io> (or coreldraw / ERD plus)

Steps involved in creating ER diagram

Step 1:- problem understanding & requirement analysis.

* Analyze the real-world application:
Healthcare management system.

* Understand the domain: Hospitals, the patients, doctors, appointments.

Step 2: Identify major entities.

Entities are Core Components, the 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 (PK), patient ID (FK), doctor ID (FK), Date, Time

prescription : Prescription ID (PK), Appointment (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 drawio

Instructions:

- * open <https://drawio.id>
- * 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 relationships (books, Conducts)
- * connect using lines.
- * 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 PNT/PDF and includes in your lab report.

Input for the ER diagram.

Real-time Healthcare System Scenario
 User Requirements (Patient Manager, Doctor Scheduling, Medical Records)
 Database design rules (Entity - attribute - relationship identification).

out put:

Entity-relationship diagram (ERD) that clearly shows:

All identified entities with attributes

All relationships with appropriate

cardinalities

- foreign keys and keys marked appropriately

to show cardinality

of each relationship

Example with attributes:

Customer (M) → Employee (U) ~~Employee~~ → Doctor (U)

Customer (M) → Supplier (U) ~~Supplier~~ → Doctor (U)

Customer (M) → Employee (U) ~~Employee~~ → Doctor (U)

Customer (M) → Medicines (U) ~~Medicines~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

Customer (M) → Books (U) ~~Books~~ → Doctor (U)

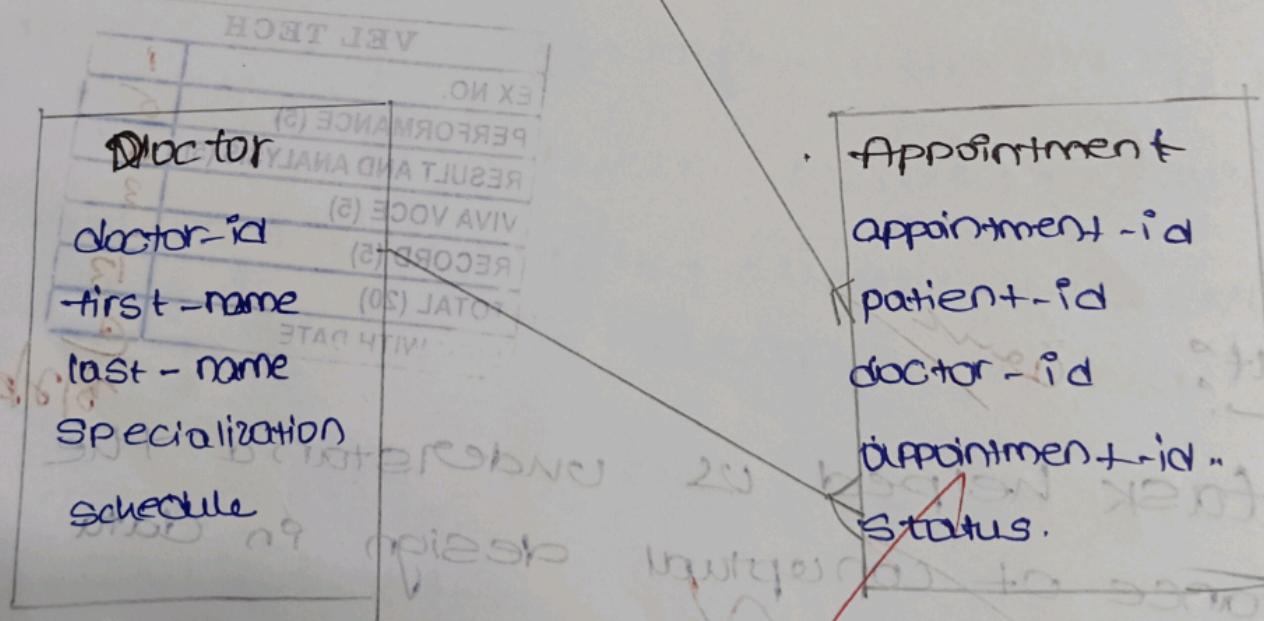
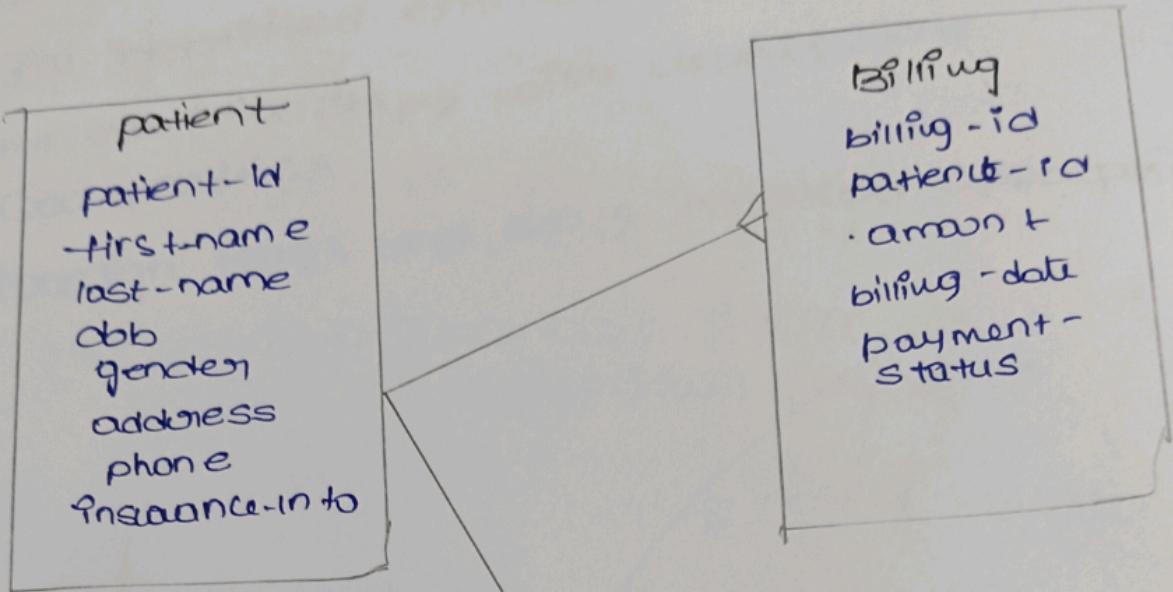
Customer (M) → Books (U) ~~Books~~ → Doctor (U)

VEL TECH	
EX NO.	1
PERFORMANCE (5)	6
RESULT AND ANALYSIS (5)	6
VIVA VOCE (5)	3
RECORD (5)	-
TOTAL (20)	13
SIGN WITH DATE	28/12/2018

Result:

This task helped us understand the importance of conceptual design in data base management system. Using draw we were able to visually model a real time health care system into the ER-diagram which forms the foundation for the relational schema design in the next phase.

Hence the Entity relationship diagram of E-Common data base management system was successfully drawn using draw.io ..



1.1 Convert ER diagram into relational model

Aims:-

Dated 07/25

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 represented by the primary key.
- The multivalued attribute presented by a separate table.
- Composite attribute represented by components.
- Derived attributes are not considered in the table.
- Using these rules, you can convert the ER diagram to tables and columns and assign the mapping between the tables.

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	(28) 28/8/2023

Result:- thus, convert ER diagram into relational model is successfully completed.