28/7/25 Task 01:-

Title:- Conceptual design using ER model - healthcare management system

steps involved in creating ER diagram

step 1:-

Problem understanding and requirement - Analysis

* Analyze the real world application healthcare management system
* Understanding 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 example attributes entity - Attributes

Patent: patent ID, Name, Age, gender, phone, Address

Doctor: Doctor ID, Name, specialization, contact No department ID

Appointment: Appointment (ID) (PK), patient ID (FK), Doctor ID, Date, Time

Prescription: Prescription (ID) (PK), Appointment ID (PK), diagnosis Notes

medicine: medical ID (PK), name, dosage, manufacturer

Department: Department ID (PK) Name location

step 4:

Define Relationship 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

* choose Blank diagram → Click create
* from left panel, drag the following
* Use rectangels for entities (patient, Doctor)
* Use Ellipses for Attributes (Name, Age, etc)
* Use Domains for Relationships (Books, Conduct)
* connect using lines
* solids lines for relationships connectors
* Use pk or underline to create primary key
* Use double ellipse for multivalued attributes
* Use labels such as (1:N), (M:N) etc., to show case

Example Relationships :-

* Patient (1) - books → (m) - Appointments
* Doctor (1) - conducts → (m) - Appointments
* Appointment (1) - generates → (1) - Prescription
* prescription (1) - includes → (m) medicine
* save diagram as PNG / PDF and include it in your lab report

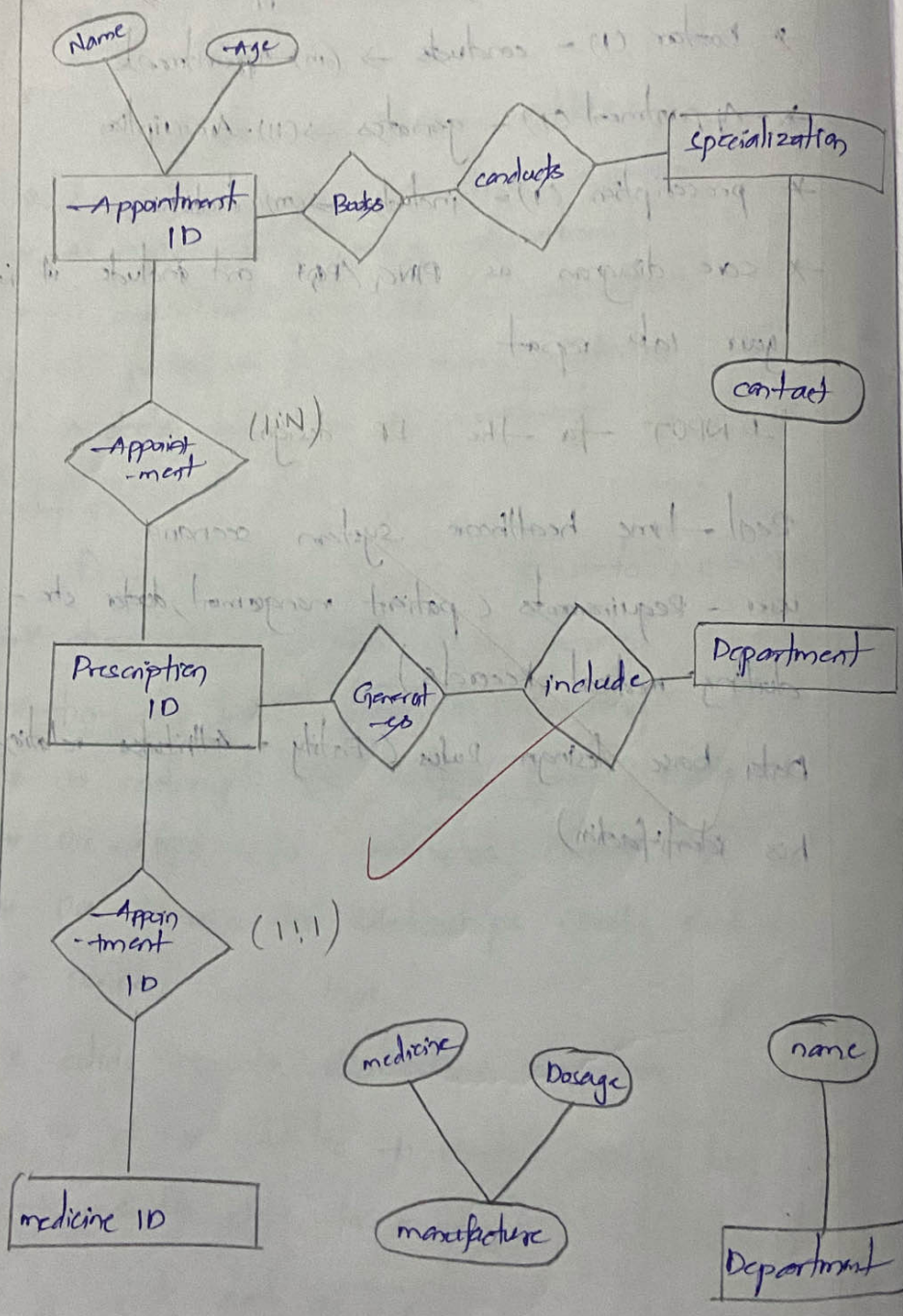
INPUT for the ER design

Real-time healthcare system scenario

user - Requirements (patient management, doctor sch - duling medical records)

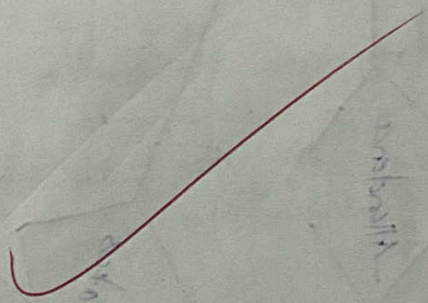
Data base design Rules (Entity - Attributes relations - hip identification)

Output Diagram



Output:-

Entity Relationship Diagram that clearly shows All identified entities with attributes All Relationship with appropriate cardinalities foreign keys and key marked separately



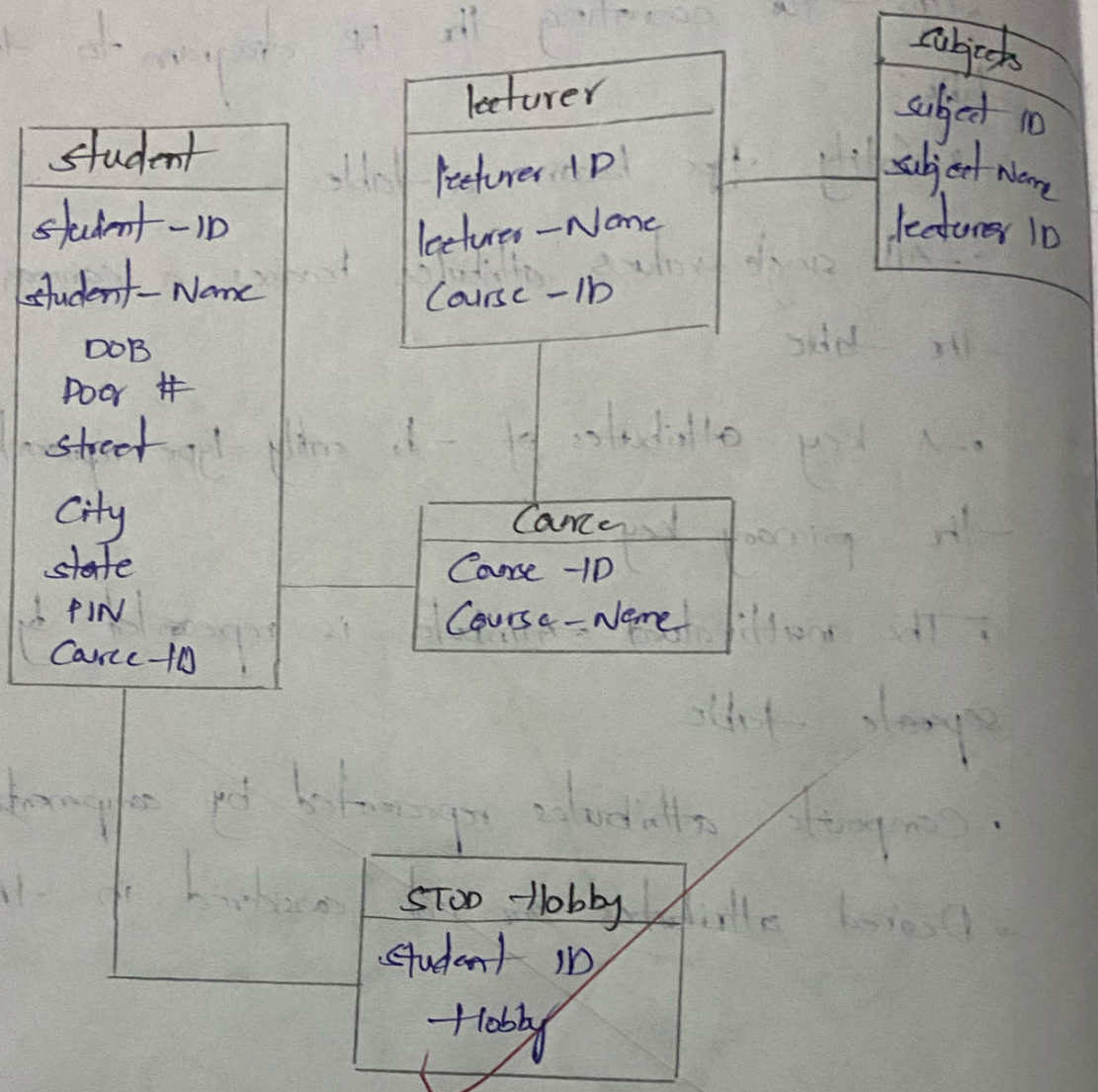
Result:- This task helped us understand the importance of conceptual design in atom using draw.io, we are able to visualize model a real-time healthcare system

Cource Name
Cource ID
Cource
Has
Lecturer ID
Subject ID
Subject Name
Subjects
Attendance
Teaches
Teaches
Course ID
Lecturer Name
Lecturer ID
LECTURER
Teaches
Student Name
Student ID
Hobby
DOB
STUDENT
Address
Pin
State
City
Street
Door
1
N
M

1.2 Convert ER Diagram into Relation model

steps for converting the ER diagram to the table:

- Entity type become a table
- All single-values attributes become a column for the table
- A key attributes of the entity type represented by the primary key
- The multivalued Attribute is represented by a seperate table
- Composite attributes represented by components
- Derived attributes are not considered in the table


Subjects
subject ID
subject Name
lecturer ID
lecturer
lecturer ID
lecturer - Name
Course - ID
student
student - ID
student - Name
DOB
Door #
street
City
state
PIN
Course - ID
Course
Course - ID
Course - Name
STUD - Hobby
student ID
Hobby

VEL TECH - CSE	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	5
RECORD (5)	5
TOTAL (20)	20
SIGN WITH DATE	

Result

Thus the Conceptual ER diagram into relational model has been successfully created.