21/08/25 Task-19

Conceptual Design using ER Model - Healthcare Management system

Aim:- Developing the conceptual design using ER Model - Healthcare Management system

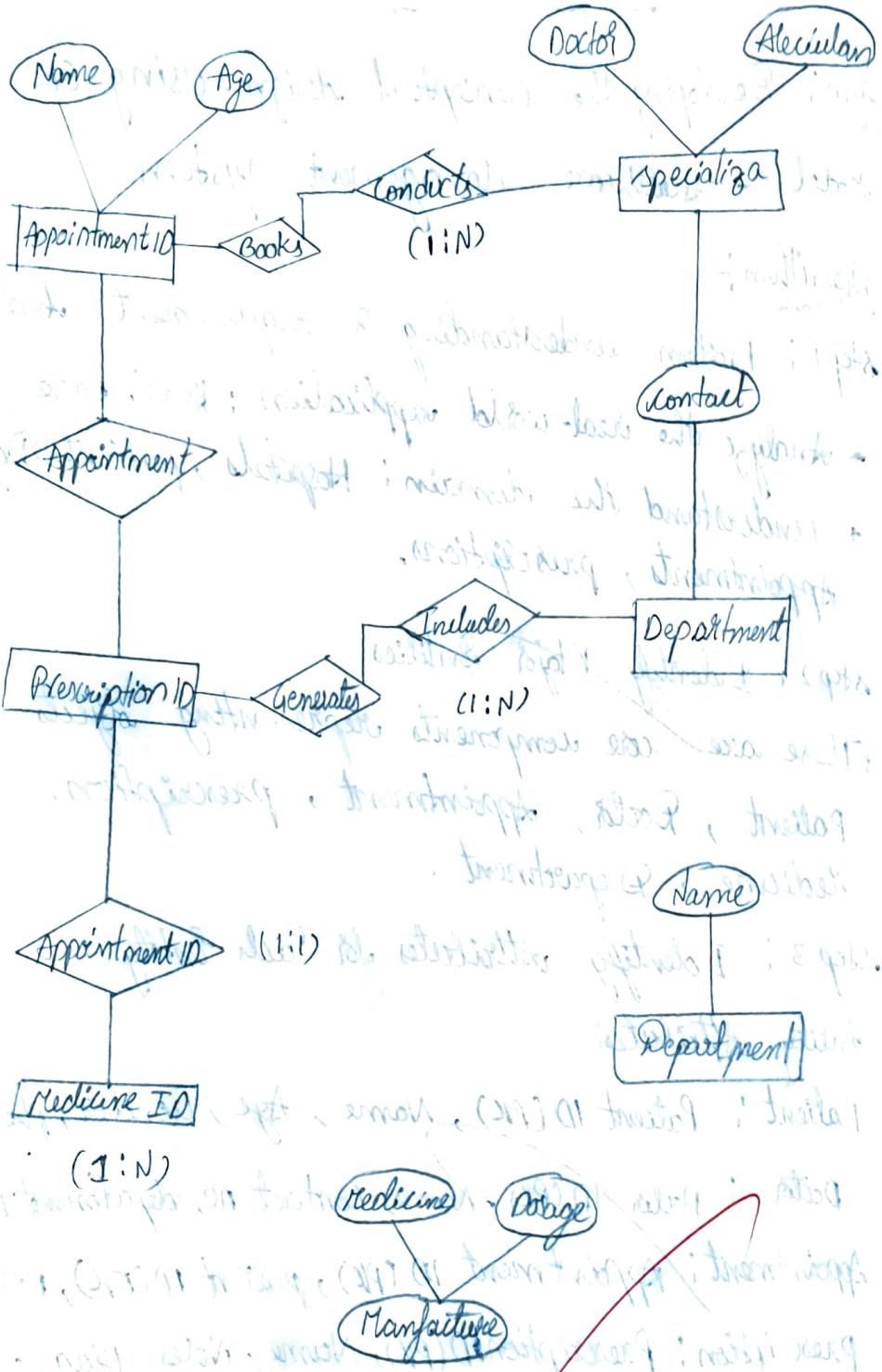
Algorithm:-

step1: Problem understanding & requirement analysis
* Analyze the real-world application: Health care
* understand the domain: Hospitals, patients, Doctors, Appointments, prescriptions.

step2: Identify Major Entities
*These are core components representing objects
patient, Doctor, Appointment, prescription, Medicine, Department.

step3: Identify Attributes for Each Entity
Entity Attributes:
Patient: Patient ID (PK), Name, Age, Gender, phone
Doctor: Doctor ID (PK), Name, contact no, department ID (FK)
Appointment: Appointment ID (PK), patient ID (FK), Date
Prescription: Prescription ID (PK), Name, Notes, Diagnosis

Step4: Define Relationships between Entities
* A patient books one or more Appointments
* A doctor conducts many Appointments


Name
Age
Doctor
Alecivlan
Appointment ID
Books
Conducts
(1:N)
specializa
contact
Appointment
Includes
Department
Prescription ID
Generates
(1:N)
Name
Appointment ID
(1:1)
Department
Medicine ID
(1:N)
Medicine
Dosage
Manfaiture

* An prescription includes many medicines.
* A doctor belongs to one department.

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, ellipses for Attributes, diamonds for relationships.
* connect using lines:
* solid lines for relationship connectors
* Use PK or underline to denote Primary key
* Use labels such as (1:N), (M:N), etc.

Example relationships:

* Patient (1) → books → (M) Appointment
* Doctor (1) – conducts → (M) Appointment
* Appointment (1) → generates → (1) Prescription
* Prescription (1) – includes → (M) Medicine

Input:

Real-time Health care system scenario.
User requirements.
Database design Rules.

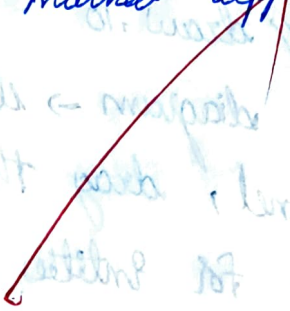
Output:

Entity Relationship Diagram (ERD) that clearly shows:

All identified entities with attributes

All relationship with appropriate cordinates

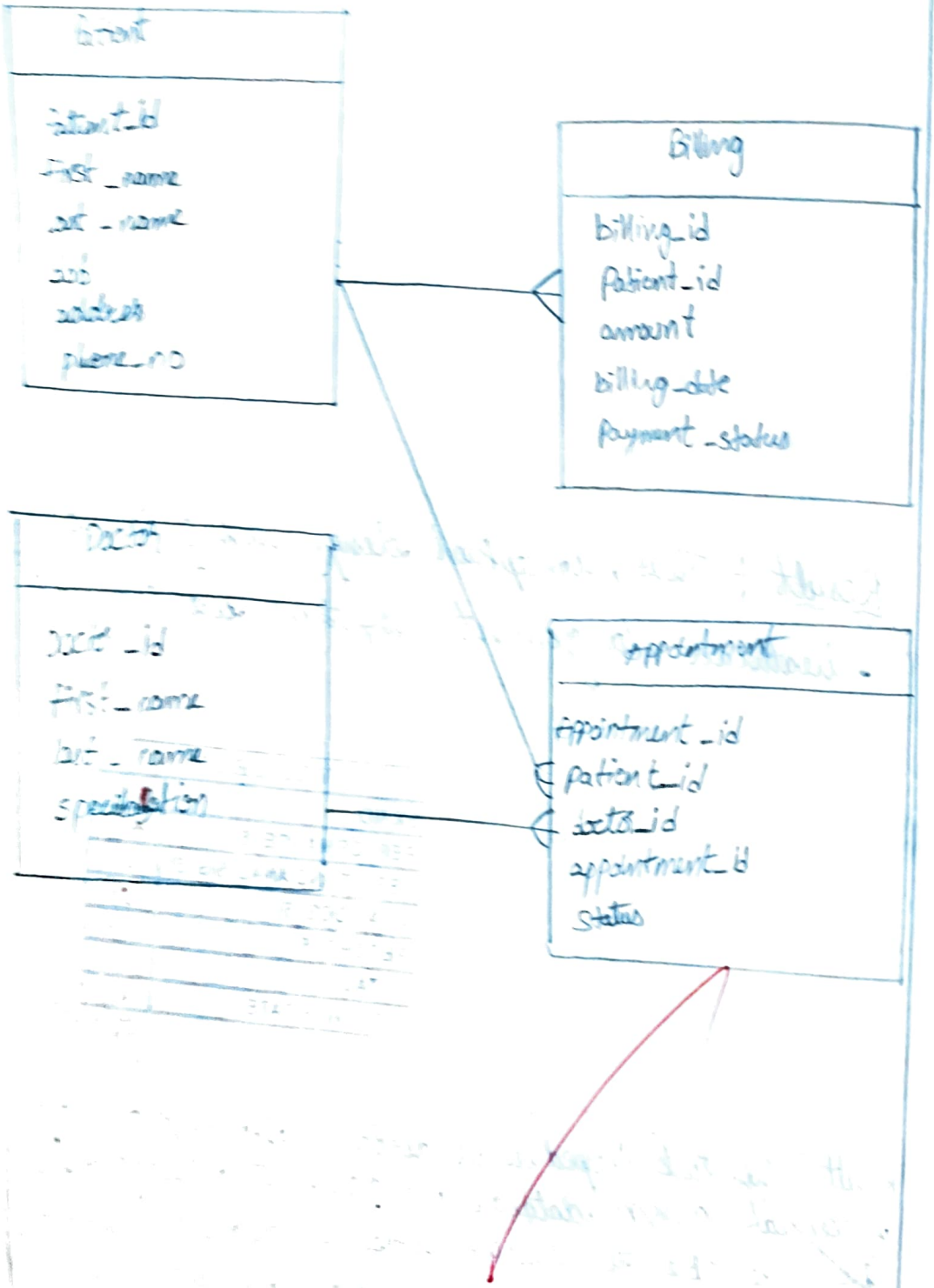
Foreign keys and keys marked appropriately.



Result : Thus, conceptual design using ER Model - Healthcare Mangement system was completed

VEL TECH	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	5
VIVA VOCE (5)	3
RECORD (5)	1
TOTAL (20)	13
SIGN WITH DATE	29/7/25

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


Billing
billing_id
Patient_id
amount
billing_date
Payment_status
appointment
appointment_id
patient_id
doctor_id
appointment_id
status

28/08/25 Task 11

1.2 Convert ER Diagram into Relation Model

Aim: To convert ER diagram into Relation Model

Algorithm: - Steps for converting ER diagram to the table

* Entity type becomes a table
* All single-valued attributes becomes a column for the table.
* A key attribute of the Entity type represented by the the primary key.
* The multivalued attributes is represented by a separate table.
* Composite attribute represented by components
* Derived attributes represented by components
* using these rules, you can convert ER diagram to tables & columns & assign mapping tables.

VEL TECH	
EX NO.	1
PERFORMANCE (5)	5
RESULT AND ANALYSIS (5)	3
VIVA VOCE (5)	—
RECORD (5)	13
TOTAL (20)	
SIGN WITH DATE	28/8/25

Result: Thus, we converted ER diagram into Relation Model successfully.

Thus, converting ER diagram into Relational Model was completed