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Project

❖ Hospital Management system

Step 1: Identify the Attributes and Primary key for each Entity

1. Patient: P-ID(primary key), name, dob, sex, Mob-no., age, blood_group
2. Employee: E-Id(primary key), name, salary, sex, Mob-no, address, state, city, pin-no.
3. Doctor: doctor_id, E-ID (Foreign Key), P_ID (foreign key), Department, qualification.
4. Nurse:nurse_id(primary key), E-ID (Foreign Key), P_ID (foreign key).
5. Room: R-ID(primary key) , Type, Capacity, Availability,), P_ID (foreign key).
6. Receptionist: R_id, record_no(foreign key), E-ID (Foreign Key)
7. Test Report: R-ID (Primary Key), P-ID (Foreign Key), Test Type, Result
8. Bill: B-ID, P-ID (Foreign Key referencing Patient), Amount.
9. Records: Record-no(primary key), App-no, P-ID (Foreign Key), R_ID (foreign key)

Step 2: Identify the Relationship

Entities have some relationships with each other. Relationships define how entities are associated with each other.

Let's Establishing Relationships between them are:

- Patient consults Doctor.
- Employee have roles as a nurse, doctor and receptionist within the hospital.
- Patient pays bills for medical services.
- Nurse governs rooms.
- Patient assigned rooms during their stay at hospital.
- Receptionist maintains hospital records.
- Patient has test report.

Step 3: Identify the Cardinality Ratio and Participation
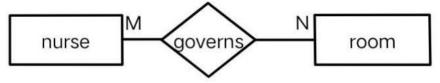
1. Patient - Doctor

Relationship: Many-to-Many

A patient can have a relationship with one or more doctors for consultations or treatments and a doctor can have multiple patients.

2. Nurse - Rooms

Relationship: Many-to-Many

A nurse can be assigned to one or more rooms during their shift. A room can have multiple nurses assigned to it over different shifts.

3. Receptionist - Records

Relationship: Many-to-Many

A receptionist manages records which could include patient records, appointment schedules, or other administrative documents. A record can be managed by one or more receptionists.

4. Patient - Bills

Relationship: One-to-Many
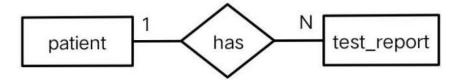

One patient can have multiple bills but one bill is associated with only one patient.

5. Patient - Test Report

Relationship: One-to-Many

One patient can have multiple test reports, one test report is associated with only one patient.

6. Rooms - Patient

Relationship: One-to-Many

One room can accommodate multiple patients over time and One patient occupies one room at a time.

Step 4: ER Diagram Representation

Step-5: Implementing the database in MySQL

1. Patient: P-ID, Mob-no, name, sex, age, dob,blood_group

		P_ID	Mob_No	Name	Sex	age	dob	blood_group
☐	✏ Edit ⧉ Copy ⊖ Delete	1	1234567890	John Doe	MALE	30	0000-00-00	O+
☐	✏ Edit ⧉ Copy ⊖ Delete	2	987654321	Jane Roe	FEMALE	25	0000-00-00	A-

2. Employee: E-Id, Mob-no, name, state, city, pin_no, sex, salary

		E_ID	Mob_No	Name	State	City	Pin_no	Sex	Salary
☐	✏ Edit ⧉ Copy ⊖ Delete	1	123456789	Alice Johnson	California	Los Angeles	90001	MALE	75000.00
☐	✏ Edit ⧉ Copy ⊖ Delete	2	987654321	Bob Smith	New York	New York City	10001	MALE	80000.00
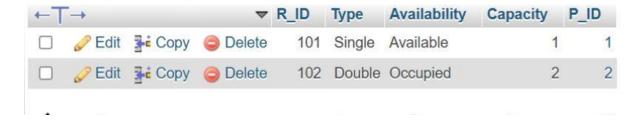
3. Doctor: doctor_id, E-ID , P_ID

				doctor_id	E_id	P_ID
☐	Edit	Copy	Delete	1	1	1
☐	Edit	Copy	Delete	2	2	2

4. Nurse:nurse_id, E-ID , P_ID .

				nurse_id	E_ID	P_ID
☐	Edit	Copy	Delete	1	1	1
☐	Edit	Copy	Delete	2	2	2

5. Room: R-ID , Type, Availability, capacity, P_ID

				R_ID	Type	Availability	Capacity	P_ID
☐	Edit	Copy	Delete	101	Single	Available	1	1
☐	Edit	Copy	Delete	102	Double	Occupied	2	2
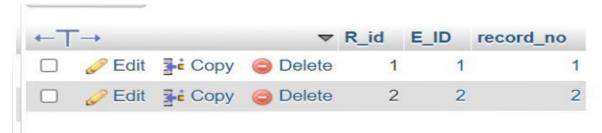
6. Receptionist: R_id, E-ID , record_no

				R_id	E_ID	record_no
☐	Edit	Copy	Delete	1	1	1
☐	Edit	Copy	Delete	2	2	2

7. Test Report: R-ID , Result, Test_type, P_ID

				R_ID	Result	Test_type	P_ID
☐	Edit	Copy	Delete	1	Normal	Blood Test	1
☐	Edit	Copy	Delete	2	High	Cholesterol Test	2

8. Bill: B-ID, P-ID (Foreign Key referencing Patient), Amount.

			B_ID	Amount	P_ID
☐	🖊 Edit	📋 Copy	⊖ Delete	1	500	1
☐	🖊 Edit	📋 Copy	⊖ Delete	2	750	2
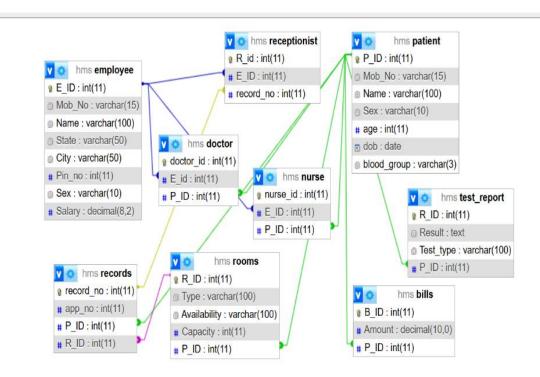
9. Records: record_no, app_no, P_ID, R_ID

			record_no	app_no	P_ID	R_ID
☐	🖊 Edit	📋 Copy	⊖ Delete	1	1001	1	101
☐	🖊 Edit	📋 Copy	⊖ Delete	2	1002	2	102

Step-6: Implementing the schema Diagram

hms receptionist
- R_id : int(11)
- E_ID : int(11)
- record_no : int(11)

hms patient
- P_ID : int(11)
- Mob_No : varchar(15)
- Name : varchar(100)
- Sex : varchar(10)
- age : int(11)
- dob : date
- blood_group : varchar(3)

hms employee
- E_ID : int(11)
- Mob_No : varchar(15)
- Name : varchar(100)
- State : varchar(50)
- City : varchar(50)
- Pin_no : int(11)
- Sex : varchar(10)
- Salary : decimal(8,2)

hms doctor
- doctor_id : int(11)
- E_id : int(11)
- P_ID : int(11)

hms nurse
- nurse_id : int(11)
- E_ID : int(11)
- P_ID : int(11)

hms test_report
- R_ID : int(11)
- Result : text
- Test_type : varchar(100)
- P_ID : int(11)

hms records
- record_no : int(11)
- app_no : int(11)
- P_ID : int(11)
- R_ID : int(11)

hms rooms
- R_ID : int(11)
- Type : varchar(100)
- Availability : varchar(100)
- Capacity : int(11)
- P_ID : int(11)

hms bills
- B_ID : int(11)
- Amount : decimal(10,0)
- P_ID : int(11)