Tutorial-2

EER Scenario: Hospital Management System

A hospital wants to develop an Advanced Database System to manage patients, doctors, appointments, treatments, and billing.

- Patients have attributes: PatientID, Name, Contact, Address.
- Doctors have attributes: DoctorID, Name, Specialization, Contact.
- Each Appointment is identified by AppointmentID, and records the Date, Time, and links to one Patient and one Doctor.
- Treatments are prescribed during appointments. Each treatment has TreatmentID, Description, and Cost. An appointment can include multiple treatments, and a treatment can be given in multiple appointments (many-to-many relationship with quantity).
- Bills are generated for appointments. Each bill has BillID, TotalAmount, PaymentStatus, and links to a single Appointment.
- The hospital has Staff classified into Nurses and Administrative Staff (disjoint specialization). Nurses assist doctors during appointments.

Based on the above scenario:

a) Draw an Enhanced ER (EER) Diagram showing entities, attributes, relationships, cardinalities, and specialization.
b) Map the EER diagram into relational tables, specifying Primary Keys (PK) and Foreign Keys (FK).
c) Write SQL DDL statements to create all tables.
d) Write SQL DML statements to insert at least 3 sample records in each table.
e) Write a JOIN query to retrieve appointments with patient and doctor names.
f) Write a JOIN query to list treatments given to a specific patient.
g) Write a Stored Procedure to insert a new appointment and automatically generate a bill.

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