Task 6 (SQL Implementation of Mapped and Normalized ERDs)

🎯 Objective:

Translate ERD and mapped schemas into actual SQL code to create normalized databases using SQL Server Management Studio (SSMS).

🗂️ Databases to Implement:

fully implement the following databases:

1. **Company**
2. **University**
3. **Airline**
4. **Hotel**
5. **Bank**

These should be based on their previously made ERD, mapping, and normalization results for each system.

📦 Deliverables:

For **each database**, must submit:

✅ 1. Database Creation Script

Example:

CREATE DATABASE BankDB;

GO

USE BankDB;

✅ 2. Table Creation Scripts

- Apply the mapping rules and constraints from their work.
- Include all **PKs**, **FKs**, **NOT NULL**, **UNIQUE**, **DEFAULT**, **CHECK**, and **data types**.

✅ 3. Referential Integrity

- Correctly define all **foreign key relationships**.
- Match PK-FK data types.
- Respect participation constraints: **NOT NULL** for total participation.

✅ 4. Sample Constraints

- Domain constraints: CHECK, DEFAULT, data types
- Entity constraints: PRIMARY KEY, UNIQUE, NOT NULL
- Referential constraints: FOREIGN KEY

🛠️ Example Snippet – Airline System

```
CREATE TABLE Airport (
    AirportCode CHAR(3) PRIMARY KEY,
    Name VARCHAR(100) NOT NULL,
    City VARCHAR(100),
    State VARCHAR(50)
);

CREATE TABLE FlightLeg (
    LegID INT PRIMARY KEY,
    FlightNo INT NOT NULL,
    DepartureAirport CHAR(3),
    ArrivalAirport CHAR(3),
    ScheduledDepTime DATETIME,
    ScheduledArrTime DATETIME,
    FOREIGN KEY (DepartureAirport) REFERENCES Airport(AirportCode),
    FOREIGN KEY (ArrivalAirport) REFERENCES Airport(AirportCode)
);
```

📄 Submission Format:

- One .sql file for each database
- Optionally: one .docx file containing ERD screenshots, table descriptions, and mapping rules

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🧠 Bonus Questions for Reflection:

- Which constraints did you apply manually and why?
- How did you ensure your FKs match their referenced PKs?
- What challenges did you face translating derived/multivalued attributes?