-- =============================================

-- 🔹 Step 1: Create a New Database and Use It

-- =============================================

**CREATE DATABASE DDL2; -- Create a database named "DDL2"**

**USE DDL2; -- Select this database for further operations**

-- =============================================

-- 🔹 Step 2: Create "employee" Table with Proper Data Types

-- =============================================

**CREATE TABLE employee (**

**EmpNum INT NOT NULL,**

**Name VARCHAR(50) NOT NULL,**

**Job VARCHAR(50),**

**HireDate DATE DEFAULT GETDATE(),**

**Salary INT,**

**Commission INT,**

**DeptNumber INT NOT NULL,**

**CONSTRAINT chk\_Salary CHECK (Salary > 0)**

**);**

-- =============================================

-- 🔹 Step 3: Create Another Table for Foreign Key Reference

-- =============================================

**CREATE TABLE P230566 (**

**studentID INT NOT NULL, -- Unique Identifier (Primary Key)**

**studentName VARCHAR(50) DEFAULT 'Unknown' -- Default value if no name is given**

**);**

-- =============================================

-- 🔹 Step 4: Add Primary Key to the Parent Table

-- =============================================

**ALTER TABLE P230566**

**ADD CONSTRAINT PKSTD PRIMARY KEY(studentID);**

-- =============================================

-- 🔹 Step 5: Insert Sample Data into the Parent Table

-- =============================================

**INSERT INTO P230566(studentID, studentName)**

**VALUES (1, 'Ali'), (2, 'Ahmed'), (3, 'Sara'); -- Ensure values exist before using them as FKs**

-- =============================================

-- 🔹 Step 6: Insert Data into Employee Table (Before Constraints)

-- =============================================

**INSERT INTO employee (EmpNum, Name, Job, Salary, Commission, DeptNumber)**

**VALUES**

**(101, 'Waleed', 'Software Engineer', 120000, 3500, 1),**

**(102, 'Ali', 'Graphic Designer', 60000, 4000, 2),**

**(103, 'Waleed', 'Software Engineer', 120000, 5000, 3);**

-- =============================================

-- 🔹 Step 7: Add a Primary Key to the Employee Table

-- =============================================

**ALTER TABLE employee**

**ADD CONSTRAINT Pk\_Emp PRIMARY KEY (EmpNum);**

-- =============================================

-- 🔹 Step 8: Rename "Salary" Column to "EmpSalary"

-- =============================================

**EXEC sp\_rename 'employee.Salary', 'EmpSalary', 'COLUMN';**

-- =============================================

-- 🔹 Step 9: Modify "EmpSalary" Column (Set NOT NULL + Data Type Constraint)

-- =============================================

**ALTER TABLE employee**

**ALTER COLUMN EmpSalary INT NOT NULL;**

-- =============================================

-- 🔹 Step 10: Add a CHECK Constraint for Commission (Must Be > 3000)

-- =============================================

**ALTER TABLE employee**

**ADD CONSTRAINT chk\_Commission CHECK (Commission > 3000);**

-- =============================================

-- 🔹 Step 11: Add a DEFAULT Value for "Name" Column

-- (If No Name Is Provided, Default = 'Computer Science')

-- =============================================

**ALTER TABLE employee**

**ADD CONSTRAINT df\_employee\_name DEFAULT 'Computer Science' FOR Name;**

-- =============================================

-- 🔹 Step 12: Add a Foreign Key Constraint for DeptNumber

-- (Links "DeptNumber" in Employee Table to "studentID" in P230566)

-- ON DELETE CASCADE -> If Parent is Deleted, Child Rows Are Deleted Too

-- =============================================

**ALTER TABLE employee**

**ADD CONSTRAINT Fk\_Dept FOREIGN KEY (DeptNumber) REFERENCES P230566(studentID)**

**ON DELETE CASCADE;**

-- =============================================

-- 🔹 Step 13: Add an INDEX on "Job" for Faster Search Queries

-- =============================================

**CREATE INDEX idx\_Job ON employee(Job);**

-- =============================================

-- 🔹 Step 14: Add an UNIQUE Constraint to Ensure No Duplicate Names Exist

-- =============================================

**ALTER TABLE employee**

**ADD CONSTRAINT UQ\_Name UNIQUE (Name);**

-- =============================================

-- 🔹 Step 15: Display Data (Check Inserted Records)

-- =============================================

**SELECT \* FROM employee;**

**SELECT \* FROM P230566;**

-- =============================================

-- 🔹 Step 16: Update Commission for a Specific Employee

-- =============================================

**UPDATE employee**

**SET Commission = 5000**

**WHERE EmpNum = 101;**

-- =============================================

-- 🔹 Step 17: Update All Software Engineers' Commission

-- =============================================

**UPDATE employee**

**SET Commission = 7000**

**WHERE Job = 'Software Engineer';**

-- =============================================

-- 🔹 Step 18: Display Employee Data Sorted by Commission (Descending Order)

-- =============================================

**SELECT \* FROM employee**

**ORDER BY Commission DESC;**

-- =============================================

-- 🔹 Step 19: Delete Employees from a Specific Department

-- =============================================

**DELETE FROM employee**

**WHERE DeptNumber = 3; -- Remove employees from Dept 3**

-- =============================================

-- 🔹 Step 20: Drop Foreign Key Constraint (If Required for Changes)

-- =============================================

**ALTER TABLE employee**

**DROP CONSTRAINT Fk\_Dept;**

-- =============================================

-- 🔹 Step 21: Drop Check Constraint on Commission

-- (If We Want to Modify It)

-- =============================================

**ALTER TABLE employee**

**DROP CONSTRAINT chk\_Commission;**

-- =============================================

-- 🔹 Step 22: Drop a Specific Column (Example: Removing "HireDate")

-- =============================================

**ALTER TABLE employee**

**DROP COLUMN HireDate;**

-- =============================================

-- 🔹 Step 23: Delete All Data from a Table Without Removing the Structure

-- =============================================

**TRUNCATE TABLE employee; -- Removes all rows but keeps table structure**

-- =============================================

-- 🔹 Step 24: Drop a Table Completely

-- (Removes Both Data and Table Structure)

-- =============================================

**DROP TABLE employee;**

-- =============================================

-- 🔹 Step 25: Drop the Entire Database (⚠ Be Careful!)

-- =============================================

**DROP DATABASE DDL2; -- Deletes database permanently**