**DML (Data Manipulation Language) and DDL (Data Definition Language) in SQL Server with Real-Life Scenarios**

**DDL (Data Definition Language)**

DDL commands are used to define and modify database schema (structure). These include CREATE, ALTER, DROP, TRUNCATE, and RENAME.

**Real-Life Scenario: Creating and Managing a Job Portal Database Schema**

Suppose you are developing a **Job Portal System** where job seekers apply for jobs posted by job providers. You need to create tables for **Users** and **Jobs**.

**1. CREATE (Defining Database Structure)**

Creating the Users and Jobs tables.

CREATE TABLE Users (

UserID INT IDENTITY(1,1) PRIMARY KEY,

UserName NVARCHAR(100) NOT NULL,

Email NVARCHAR(255) UNIQUE NOT NULL,

PasswordHash NVARCHAR(255) NOT NULL,

Role NVARCHAR(50) CHECK (Role IN ('JobSeeker', 'JobProvider', 'Admin')),

CreatedAt DATETIME DEFAULT GETDATE()

);

CREATE TABLE Jobs (

JobID INT IDENTITY(1,1) PRIMARY KEY,

JobTitle NVARCHAR(255) NOT NULL,

Description TEXT,

Location NVARCHAR(255),

Salary DECIMAL(10,2),

JobProviderID INT FOREIGN KEY REFERENCES Users(UserID),

CreatedAt DATETIME DEFAULT GETDATE()

);

**2. ALTER (Modifying Table Structure)**

Later, if you need to **add a column** for the phone number in the Users table:

ALTER TABLE Users ADD PhoneNumber NVARCHAR(15);

**3. DROP (Deleting Tables)**

If you decide to **remove the Jobs table** from the system:

DROP TABLE Jobs;

**4. TRUNCATE (Removing All Data Without Logging)**

If an admin wants to **clear all job listings** before launching the system:

TRUNCATE TABLE Jobs;

**DML (Data Manipulation Language)**

DML commands deal with the **data inside tables**. These include INSERT, UPDATE, DELETE, and SELECT.

**Real-Life Scenario: Managing Job Listings and User Data**

Once the database structure is in place, job providers need to **add, update, and remove jobs**.

**1. INSERT (Adding Data)**

A job provider registers and posts a job.

INSERT INTO Users (UserName, Email, PasswordHash, Role)

VALUES ('John Doe', 'john@example.com', 'hashedpassword', 'JobProvider');

INSERT INTO Jobs (JobTitle, Description, Location, Salary, JobProviderID)

VALUES ('Software Engineer', 'Develop web applications using C# and Blazor', 'New York', 80000, 1);

**2. UPDATE (Modifying Data)**

If the job provider updates the job listing **to increase the salary**:

UPDATE Jobs

SET Salary = 90000

WHERE JobID = 1;

**3. DELETE (Removing Data)**

If the job provider **decides to remove the job listing**:

DELETE FROM Jobs WHERE JobID = 1;

**4. SELECT (Retrieving Data)**

A job seeker **views available jobs**:

SELECT JobTitle, Description, Location, Salary

FROM Jobs

WHERE Location = 'New York';