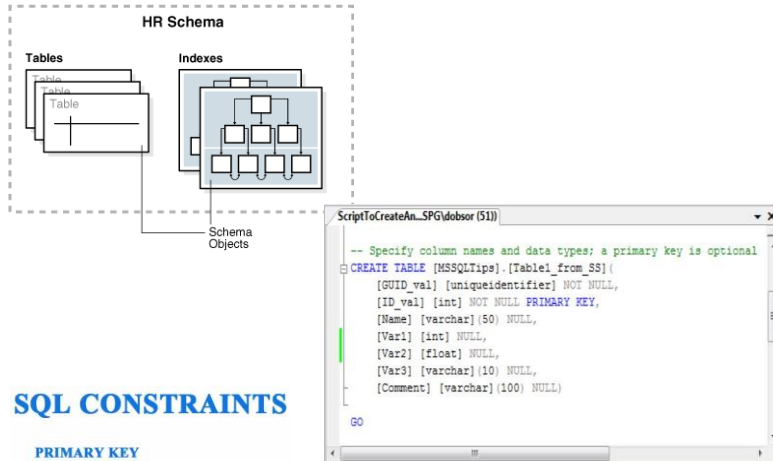# SQL AND
MS SQL SERVER INTRODUCTION

Instructor:
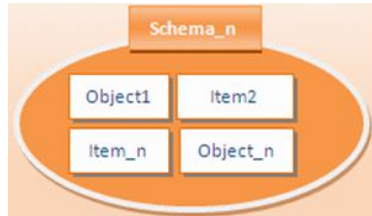
Learning Goals

By the end of this lecture students

should be able to:

✓ Understand what is SQL?

✓ Able to use MS SQL Server Management Studio to connect to Server.

✓ Able create database and table use MS SQL Server Management Studio and DDL Statement.

Table of contents

◊ **SQL INTRODUCTION**

◊ **MS SQL SERVER MANAGEMENT STUDIO**

◊ **DDL: CREATE DATABASE AND TABLE**

Section 1

SQL INTRODUCTION

What is SQL?

- **Which is a computer language for:**
  - ✓ storing,
  - ✓ manipulating and
  - ✓ retrieving data stored in relational database.
- SQL is the standard language for Relation Database System, like **MySQL**, **MS Access**, **Oracle**, **Sybase**, **Informix**, **Postgres** and **SQL Server** use SQL as standard database language.
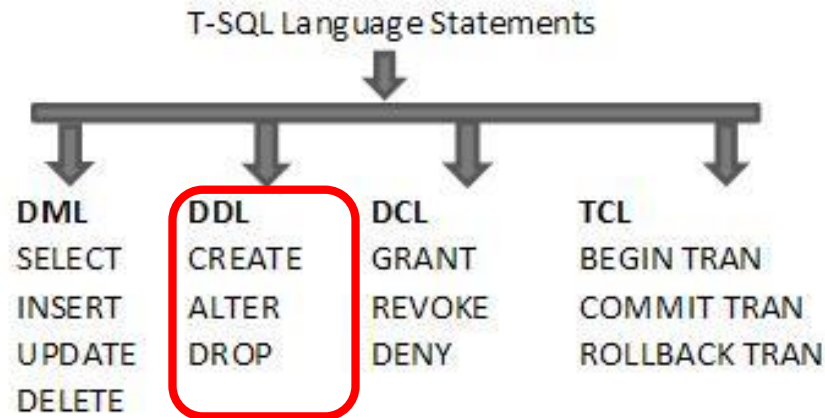- SQL is an ANSI (American National Standards Institute) standard.

Structured

Query

Language

SQL Commands
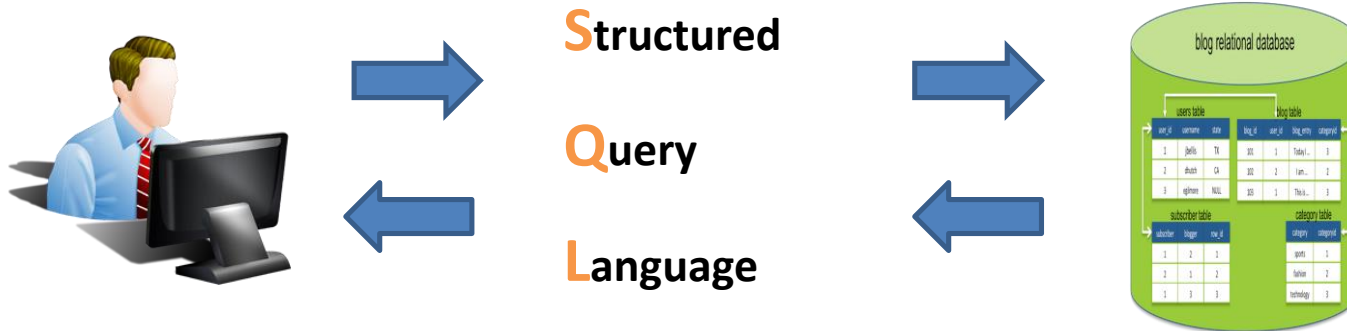
SQL consists of **three components:**

➢ Data Definition Language (DDL)

➢ Data Manipulation Language (DML) and

➢ Data Control Language (DCL)

Introduction to DDL Statements
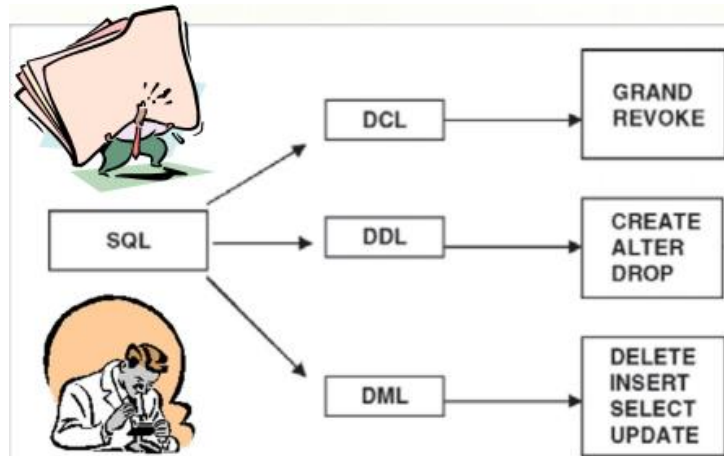
- **DDL** stands for **D**ata **D**efinition **L**anguage

- Define data structures in SQL Server as creating, altering, and dropping tables and establishing constraints…

T-SQL Language Statements

DML	DDL	DCL	TCL
SELECT	CREATE	GRANT	BEGIN TRAN
INSERT	ALTER	REVOKE	COMMIT TRAN
UPDATE	DROP	DENY	ROLLBACK TRAN
DELETE			

SQL Server Database Objects

■ **A SQL Server database has lot of objects like:**

- Database
- Schema
- Tables
- Views
- Stored Procedures
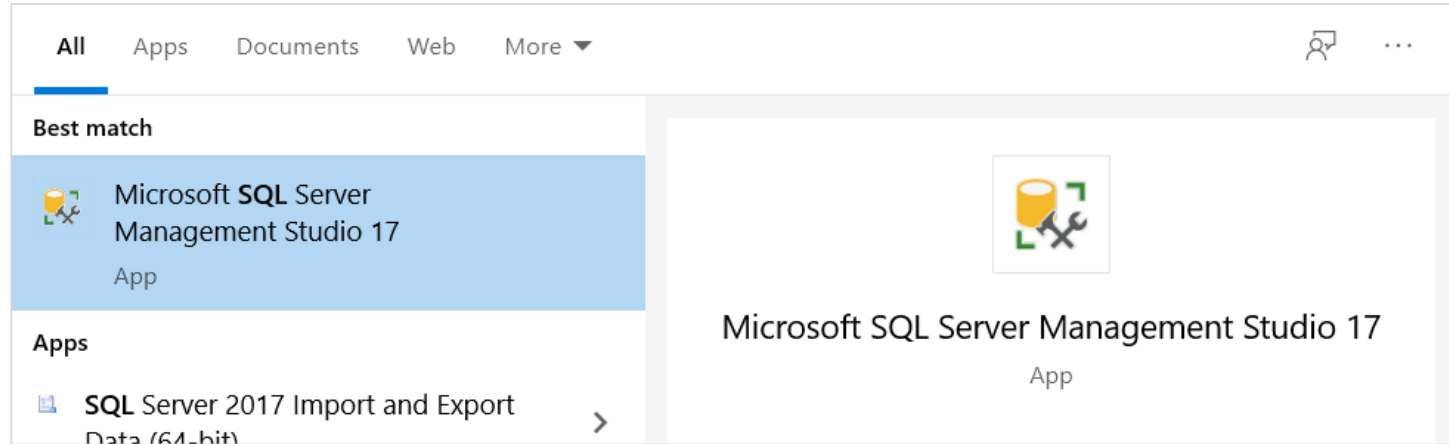- Functions
- Rules
- Defaults
- Triggers

Section 2

MS SQL SERVER MANAGEMENT STUDIO

MS SQL Server Management Studio

- Open **MS SQL Server Management Studio** in the window start:

MS SQL Server Management Studio

- **Login with account 'sa':**

  - ✓ **Server name**: localhost/Computer name (ex: LPP12345678A)/SQL Server IP Address).

  - ✓ **Authentication**: SQL Server Authentication.

  - ✓ **Username**: sa

  - ✓ **Password**: Your password that used when you install SQL Server.

MS SQL Server Management Studio
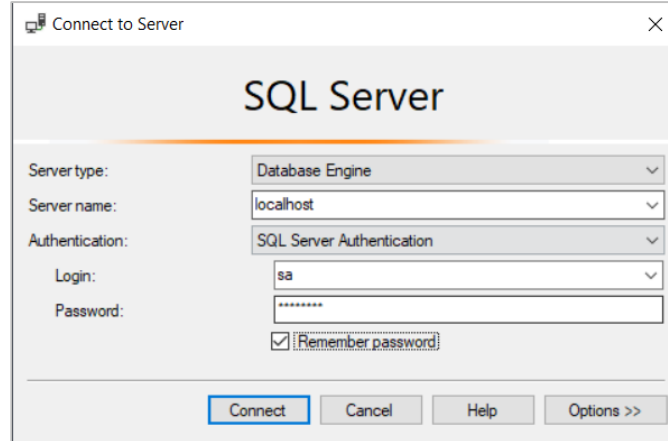
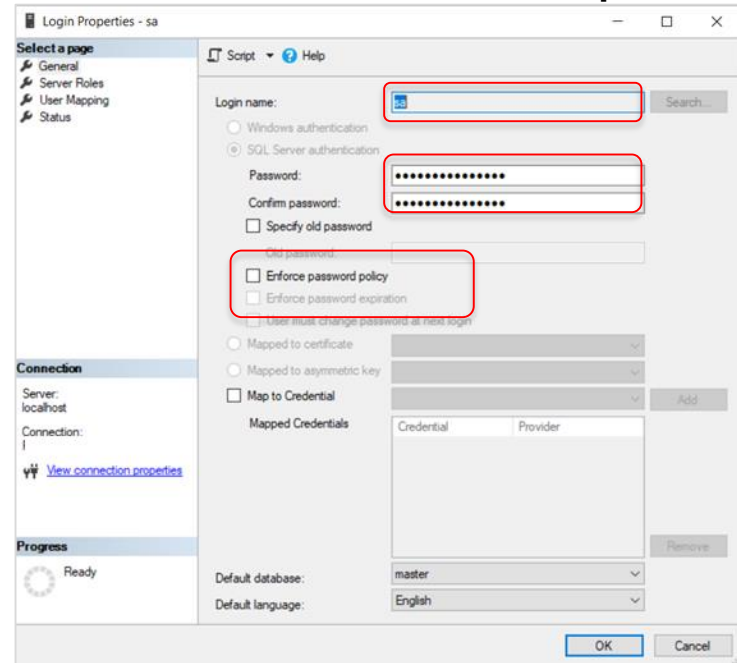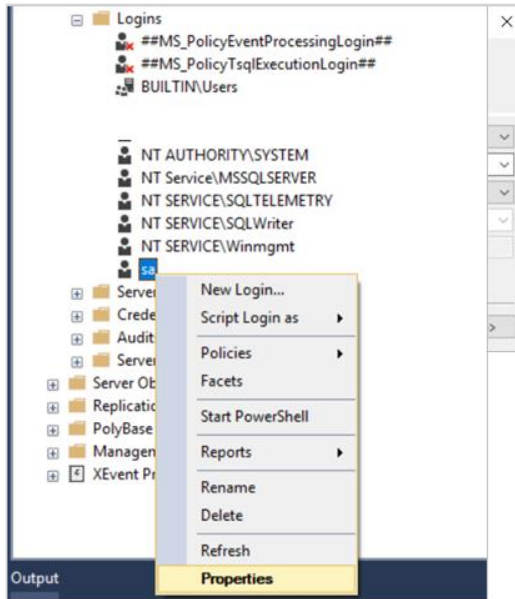- **Login with Windows Authentication:**

  - ✓ **Server name**: localhost/Computer name (ex: LPP12345678A)/SQL Server IP Address).

  - ✓ **Authentication**: Windows Authentication.
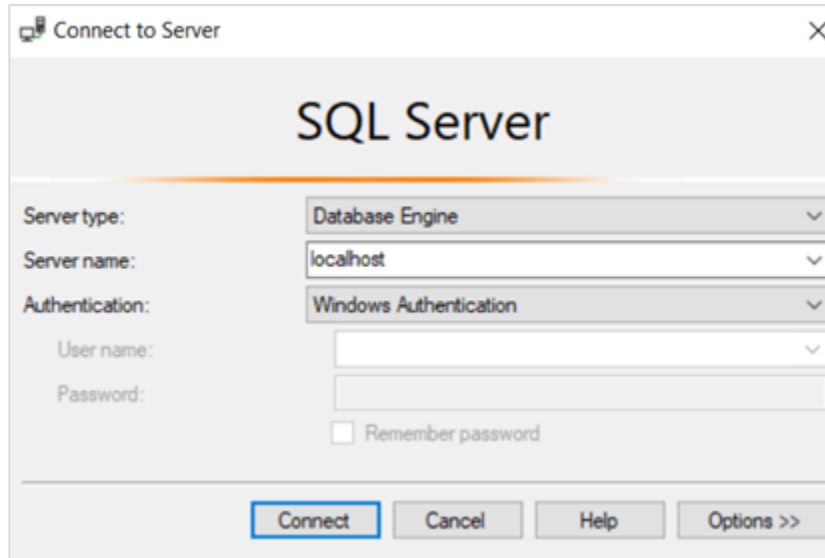
*If you do not remember the login account when installing SQL Server*

MS SQL Server Management Studio

- **Change password account 'sa':**
  - ✓ Login with **Windows Authentication**
  - ✓ Select '**Login**' | Right click to 'sa' | Properties | Enter new **Password** and **Confirm password** as the following screen:
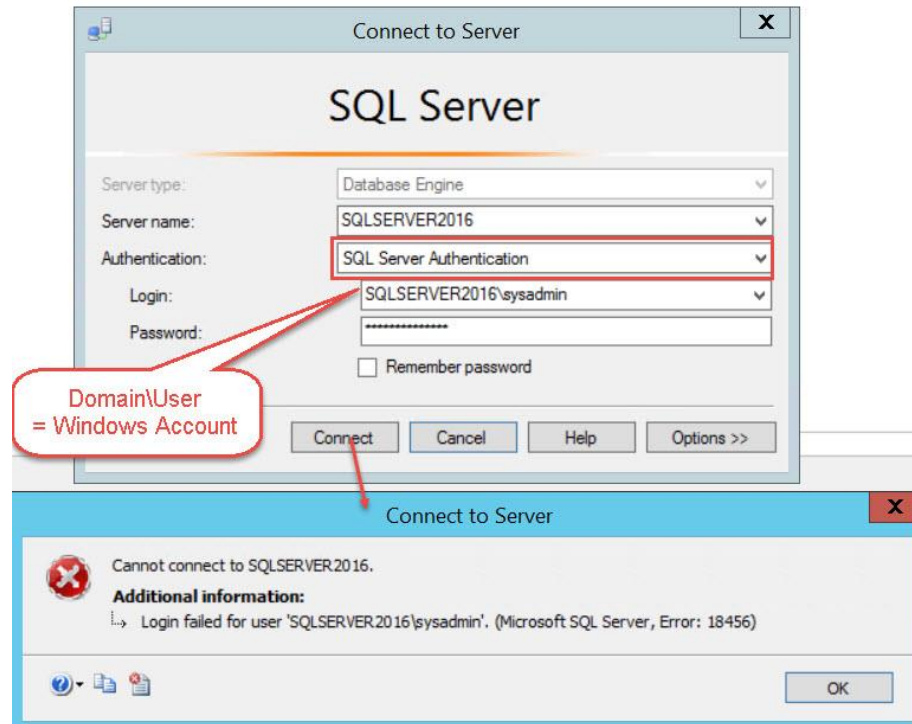
MS SQL Server Management Studio

- **Create a new account:**
  - ✓ Login with **Windows Authentication**
  - ✓ Right click to '**Login**' | New Login | Enter a new **Login name** choose **SQL Server authentication** and **Password** + **Confirm password** as the following screen:
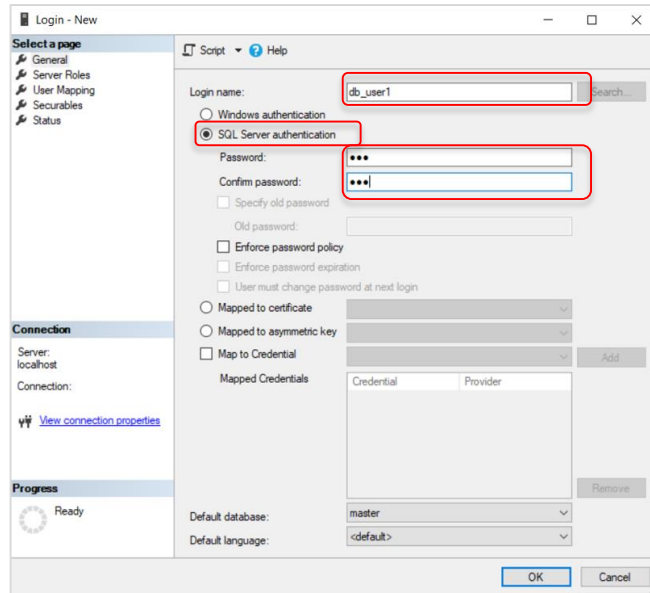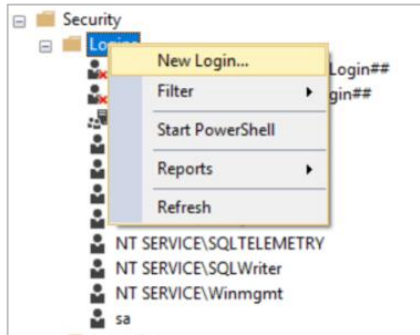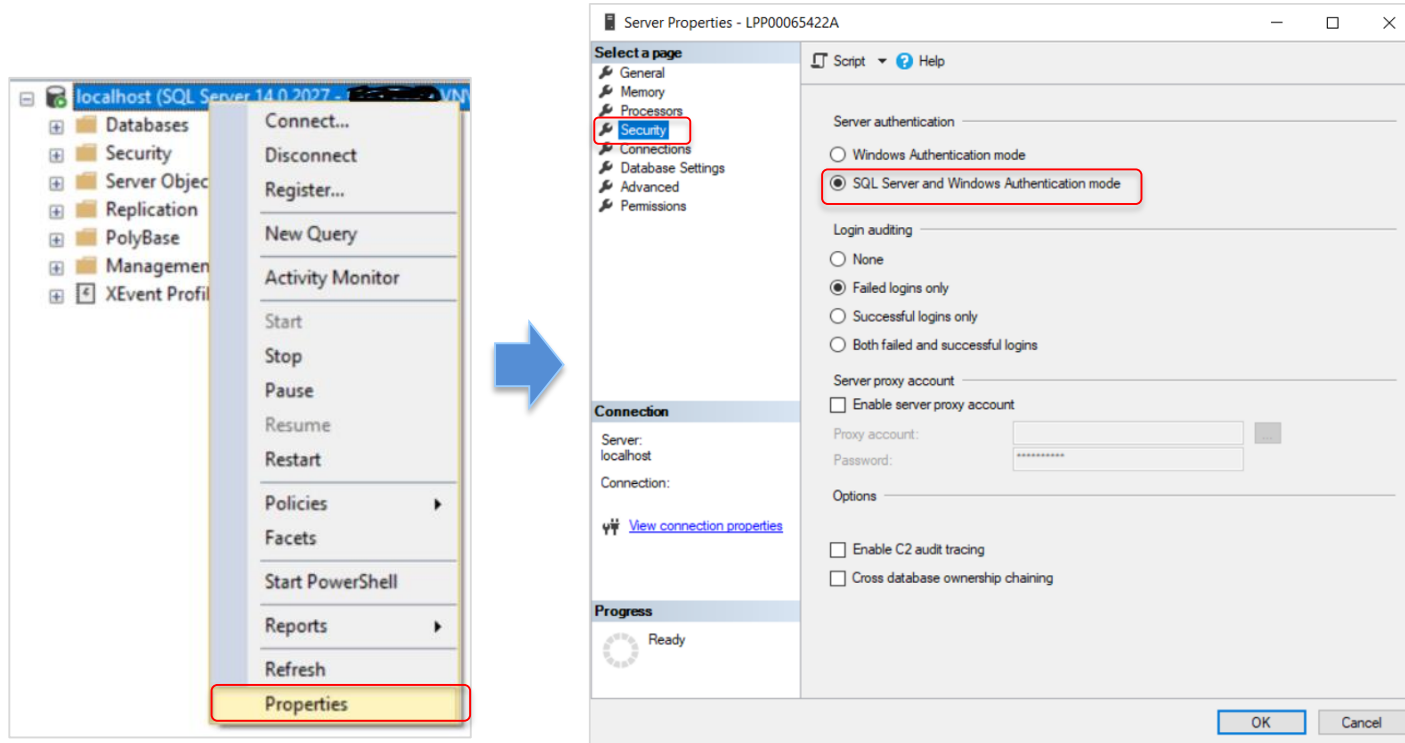

  - ✓ *You can login with the created account.*

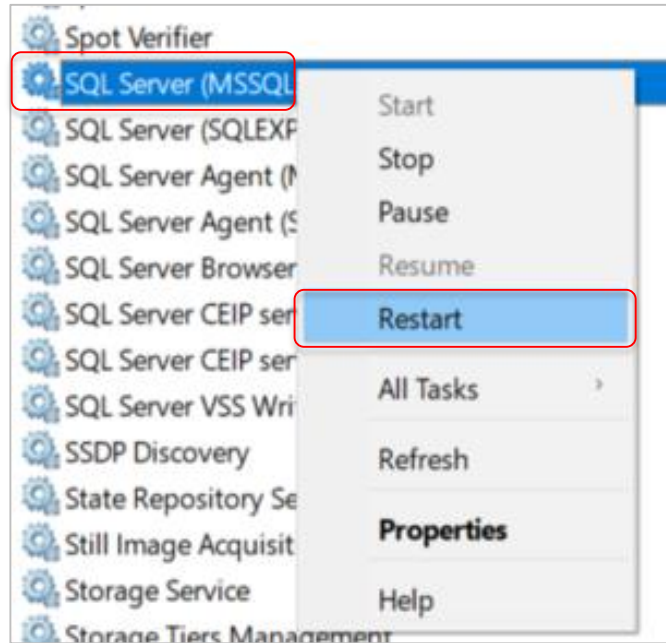# MS SQL Server Management Studio

- **Login Fail, how to fix?**

MS SQL Server Management Studio

- **You must enable SQL Server Authentication:**

MS SQL Server Management Studio

- Restart **SQL Server** and **re-login**:
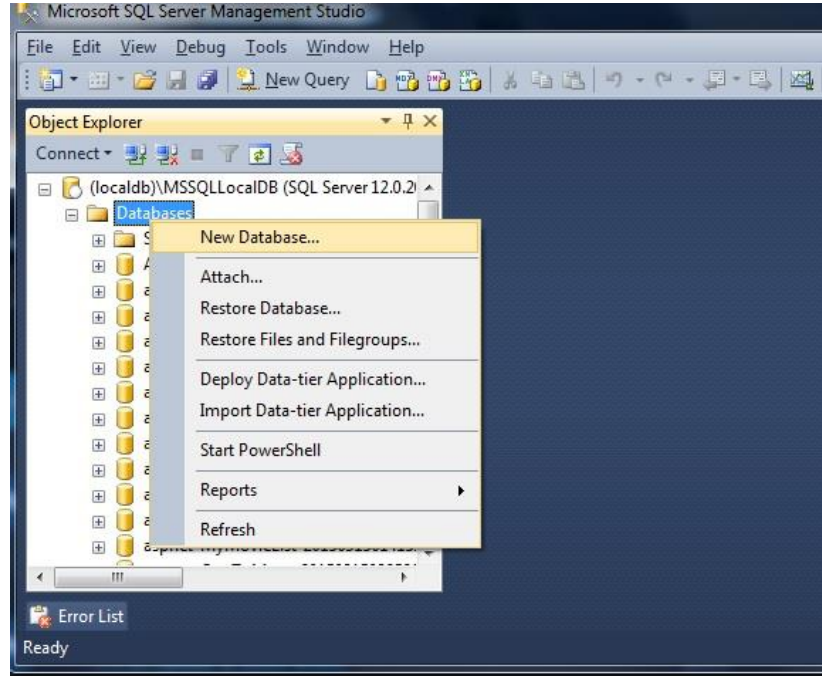 - ✓ Open **Control Panel** | **Administrative Tools** | **Services |** Right click **SQL Server**:

MS SQL Server Management Studio

- **Object Explorer: Manage database objects.**

Section 3

DDL: CREATE DATABASE AND TABLE

Create a new Database

- R-click **Database** | choose **New Database…**

Create a new Database

- Enter **Database name**:
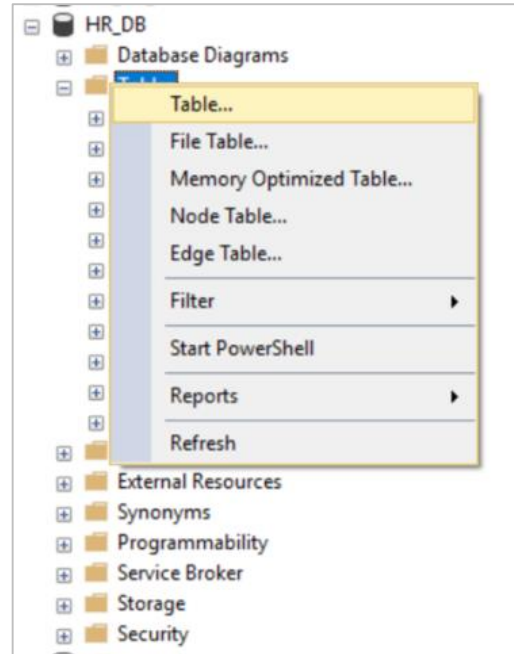
Create a new Database

- **DDL Query:**
  - ✓ Check if database not exists the creating a new database:

```sql
IF NOT EXISTS
    (SELECT * FROM sys.databases d WHERE d.name LIKE 'HR_DB')
CREATE DATABASE HR_DB;
```
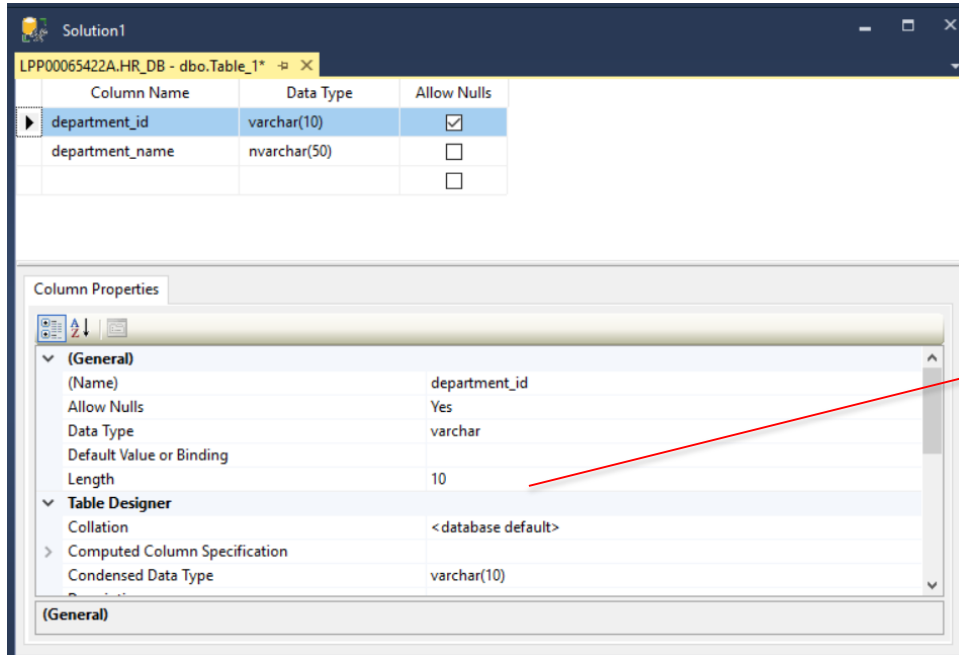
Create a new Table

- R-click Tables | choose **Table…**

Create a new Table

- R-click Tables | choose **Table…**
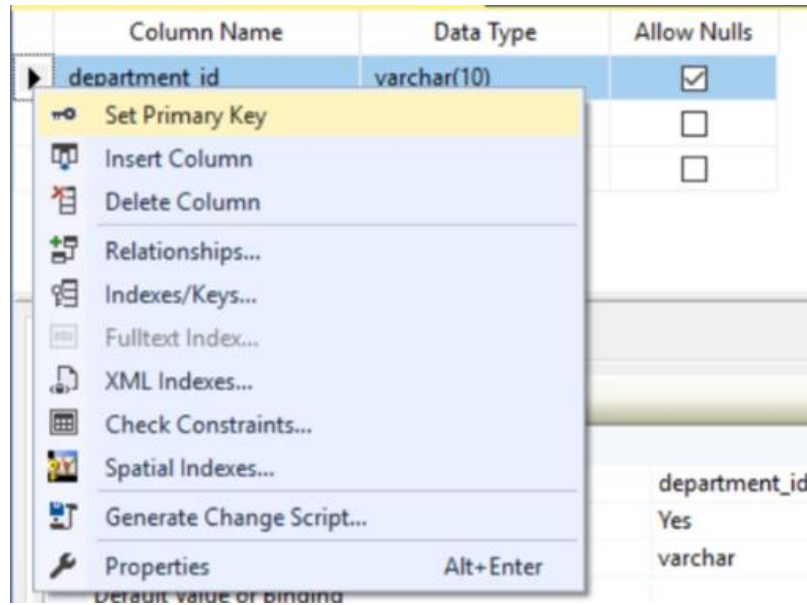- Create columns of table (name, type, ..) and **Ctrl + S** to save table.

Properties of a selected column, you can customize the data type, length, …
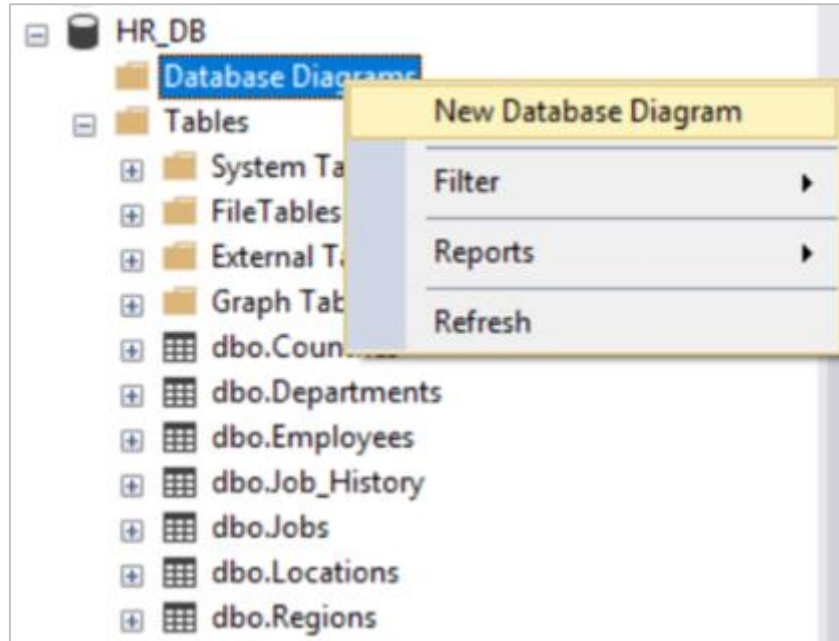
- **Primary key:**
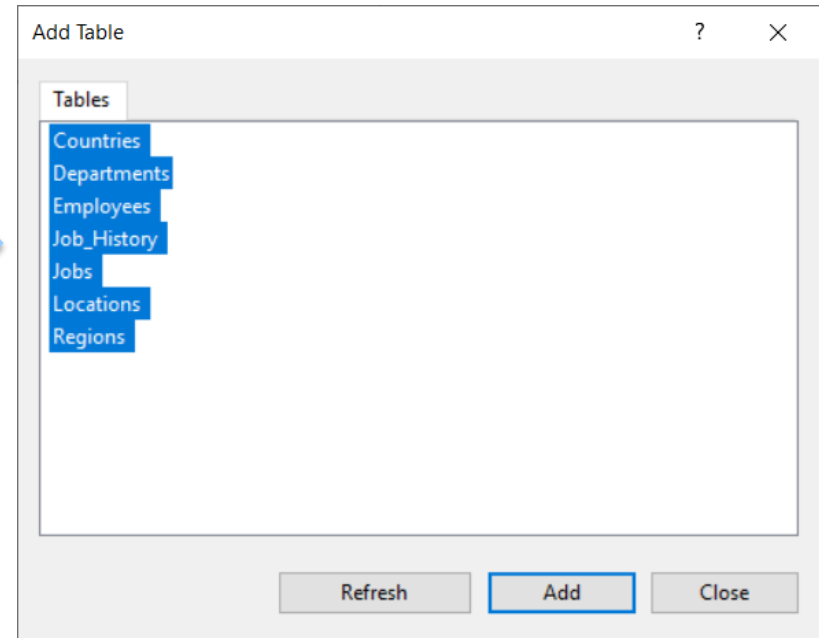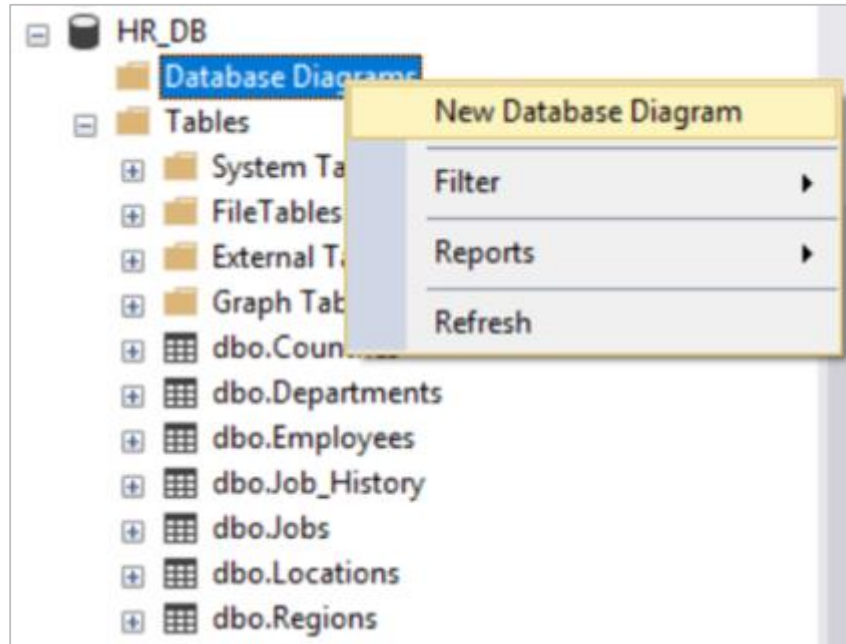 - ✓ R-click in a selected column **|** choose **Set Primary Key:**

Create a Relationship between two tables

- R-click **Database Diagrams**:

Create a Relationship between two tables

- R-click **Database Diagrams** and **Add Table**:
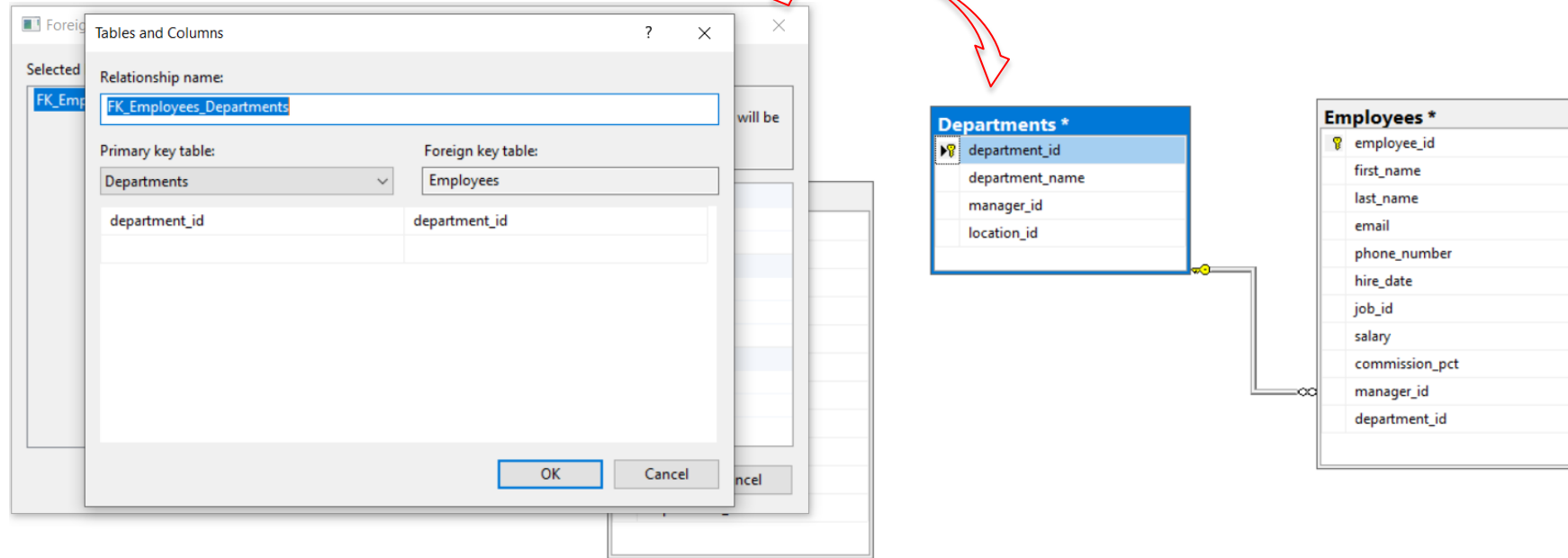
- Drag **Primary Key (PK in Table A)** to **Foreign Key (FK in Table B):**
  - ✓ Notice that, FK in Table B must **the same as datatype** with PK in Table A.
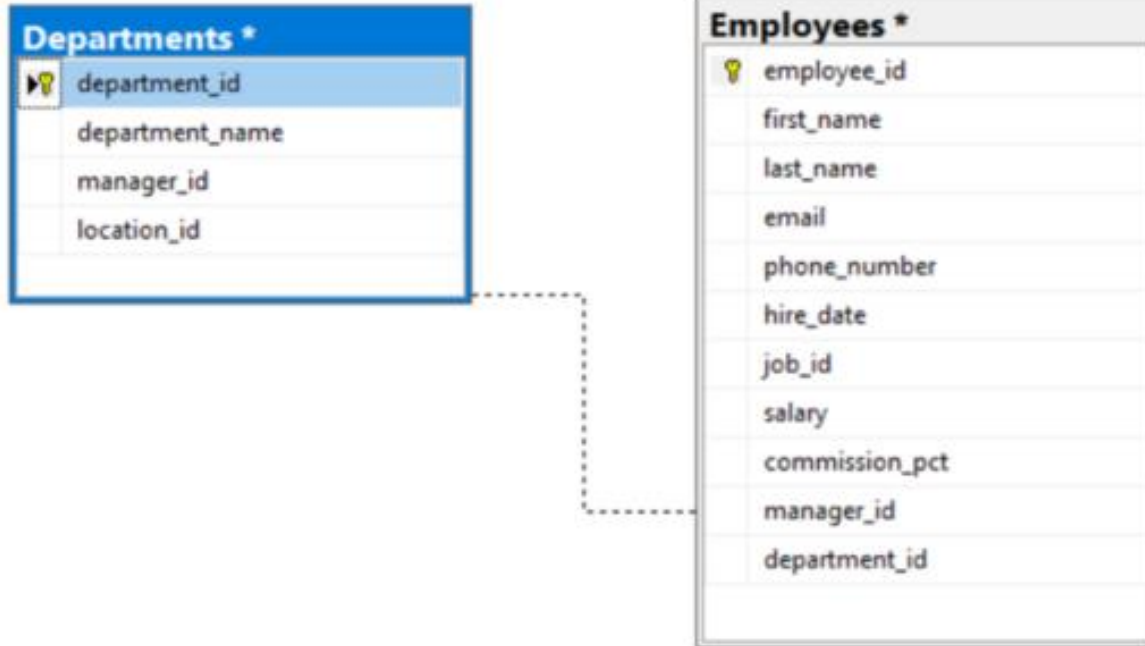
Create a Relationship between two tables

- Confirmation, click **OK** and result:

Create a new Table

- **DDL Query:**

```sql
CREATE TABLE dbo.Departments(
  department_id    INT PRIMARY KEY,
  department_name VARCHAR(100),
  manager_id       INT,
  location_id      INT
)
GO
```

```sql
CREATE TABLE dbo.Employees(
  employee_id     INT PRIMARY KEY,
  first_name      VARCHAR(20),
  last_name       VARCHAR(30) NOT NULL,
  email           VARCHAR(50) NOT NULL UNIQUE,
  phone_number    VARCHAR(20),
  hire_date       DATE NOT NULL,
  salary          NUMERIC(10, 2)
  commission_pct  NUMERIC(6,2), -- commission percentage
  manager_id      INT,
  department_id INT,
      CONSTRAINT  emp_dept_fk FOREIGN KEY(department_id)
      REFERENCES dbo.Departments(department_id)
)
```

SUMMARY

◊ **SQL INTRODUCTION**

◊ **MS SQL SERVER MANAGEMENT STUDIO**

◊ **DDL: CREATE DATABASE AND TABLE**

Thank you