Lab 6: SQL Select

CS355/CE373 Database Systems
Fall 2023

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Contents

1 Instructions

- This lab will contribute 1% towards the final grade.
- The deadline to submit this lab is at the end of your lab.
- The lab must be submitted online via CANVAS. The SQL file should be named as *Lab_06_aa01234.sql* where *aa01234* will be replaced with your student id. ***Files which don't follow the appropriate naming convention will not be graded***.

1.1 Marking scheme

This lab will be marked out of 100.

- 50 Marks are for completion of the lab.
- 10 Marks are for filling the feedback form within the lab timings.
- 40 Marks are for progress and attendance during the lab.

1.2 Late submission policy

No late submissions are allowed.

2 Objective

This lab activity is prepared on Northwind Sample Database of SQL Server. The database will be analyzed for the following SQL constructs:

- SELECT with/without WHERE clause
- WHERE clause with AND, OR and NOT
- LIKE, WildCard Search
- BETWEEN, IN/NOT IN
- Null Comparison
- Datetime (DATEADD, DATEDIFF, DATEPART)

3 Microsoft SQL Server Management Studio 18 Guide

In this Lab, we will be Microsoft SQL Server Management Studio (SSMS) 18/19.

1. Open Microsoft SQL Server Management Studio 18/19

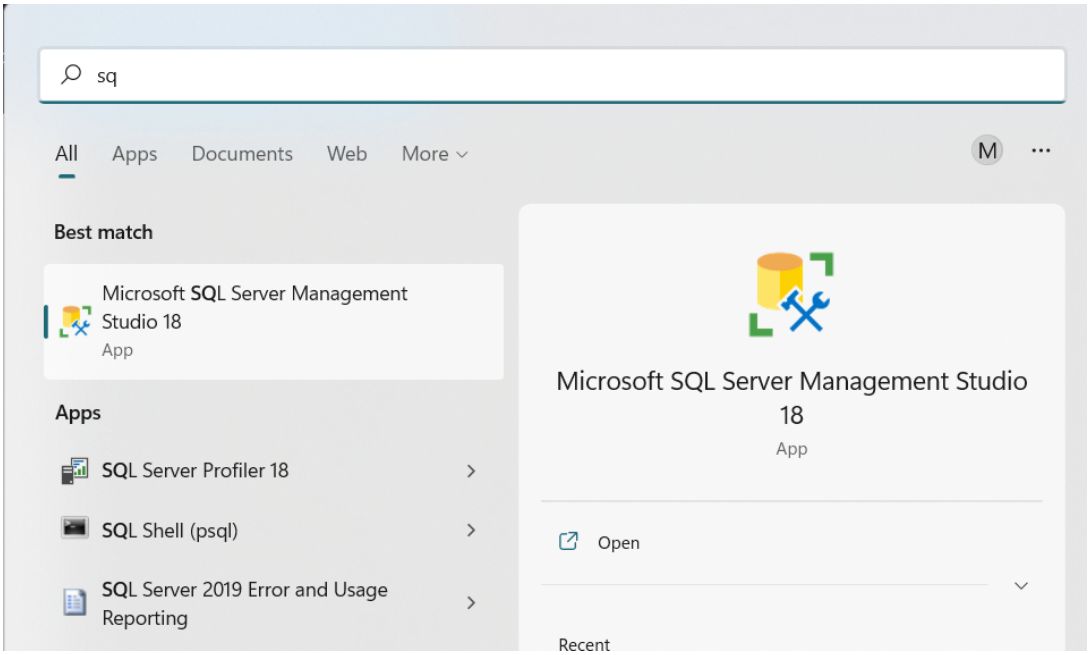

Figure 1: Open SSMS 18/19

2. Connect to SQL Server. The username is **sa** and the password is **Fall2022.dbms**

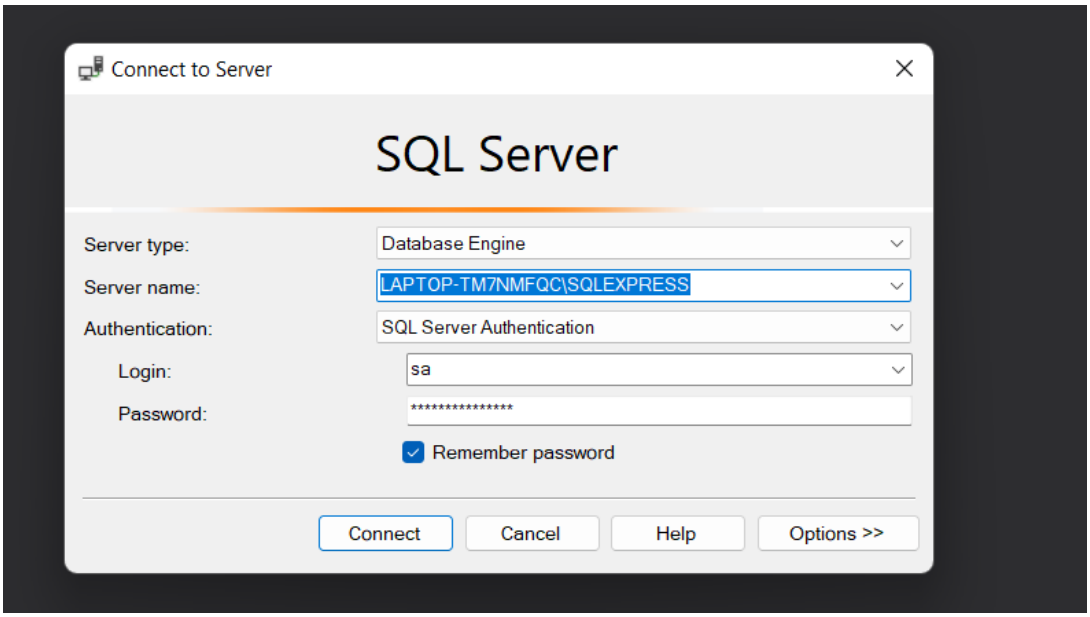

Figure 2: Connect to SQL Server

3. Upon successfully connecting to the SQL server, you should be able to view a page like this.

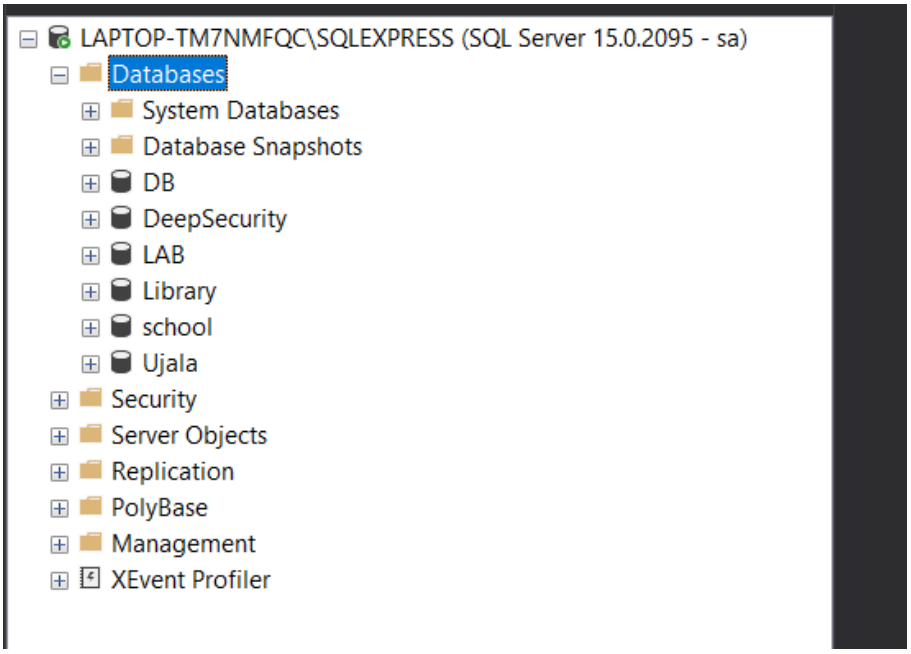

Figure 3: Select Databases

4. Clicking on **Databases** will open a new prompt. Select **New Database** which will open a new window.

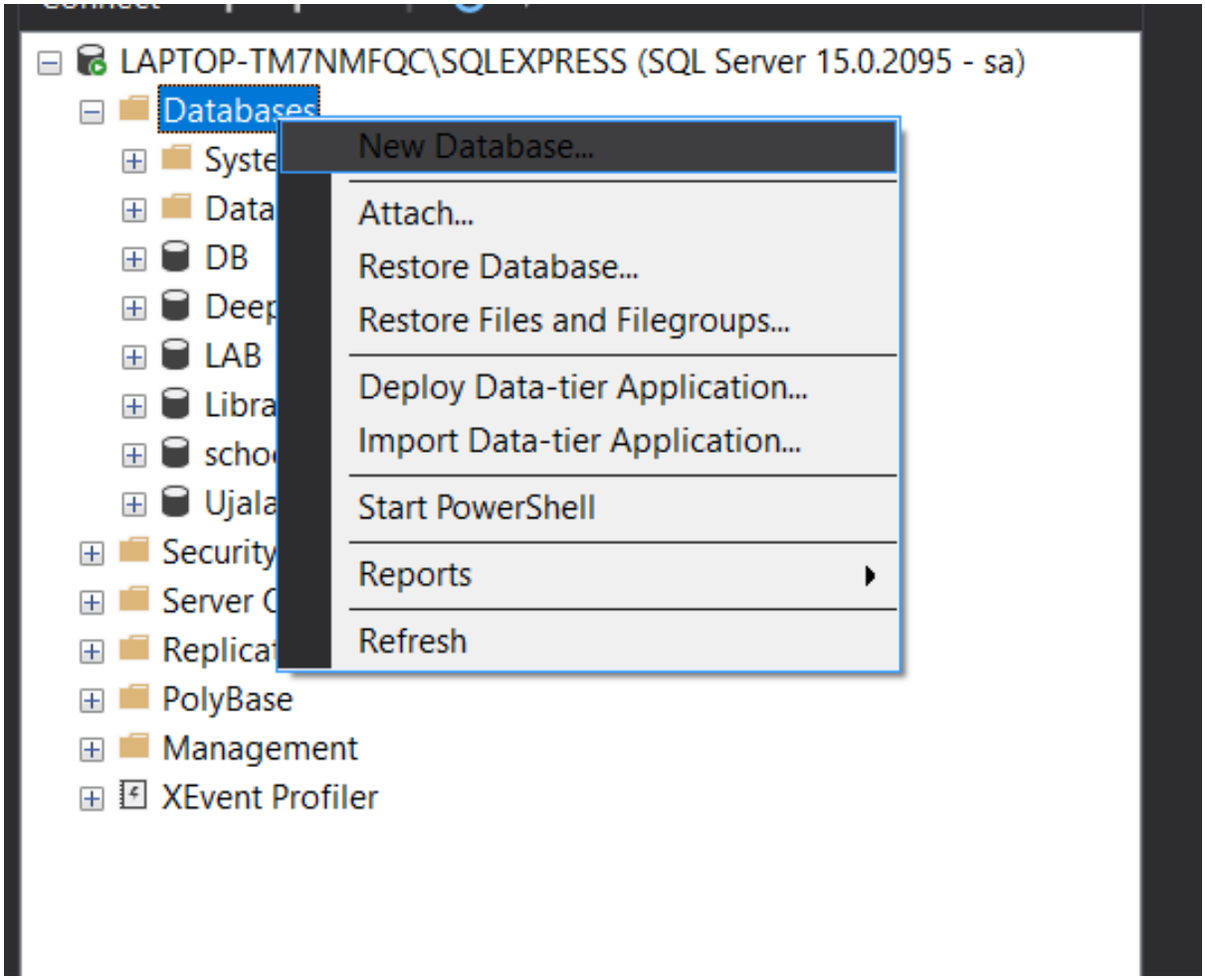

Figure 4: Create new Database

5. Name the new database as Northwind and then click ok.

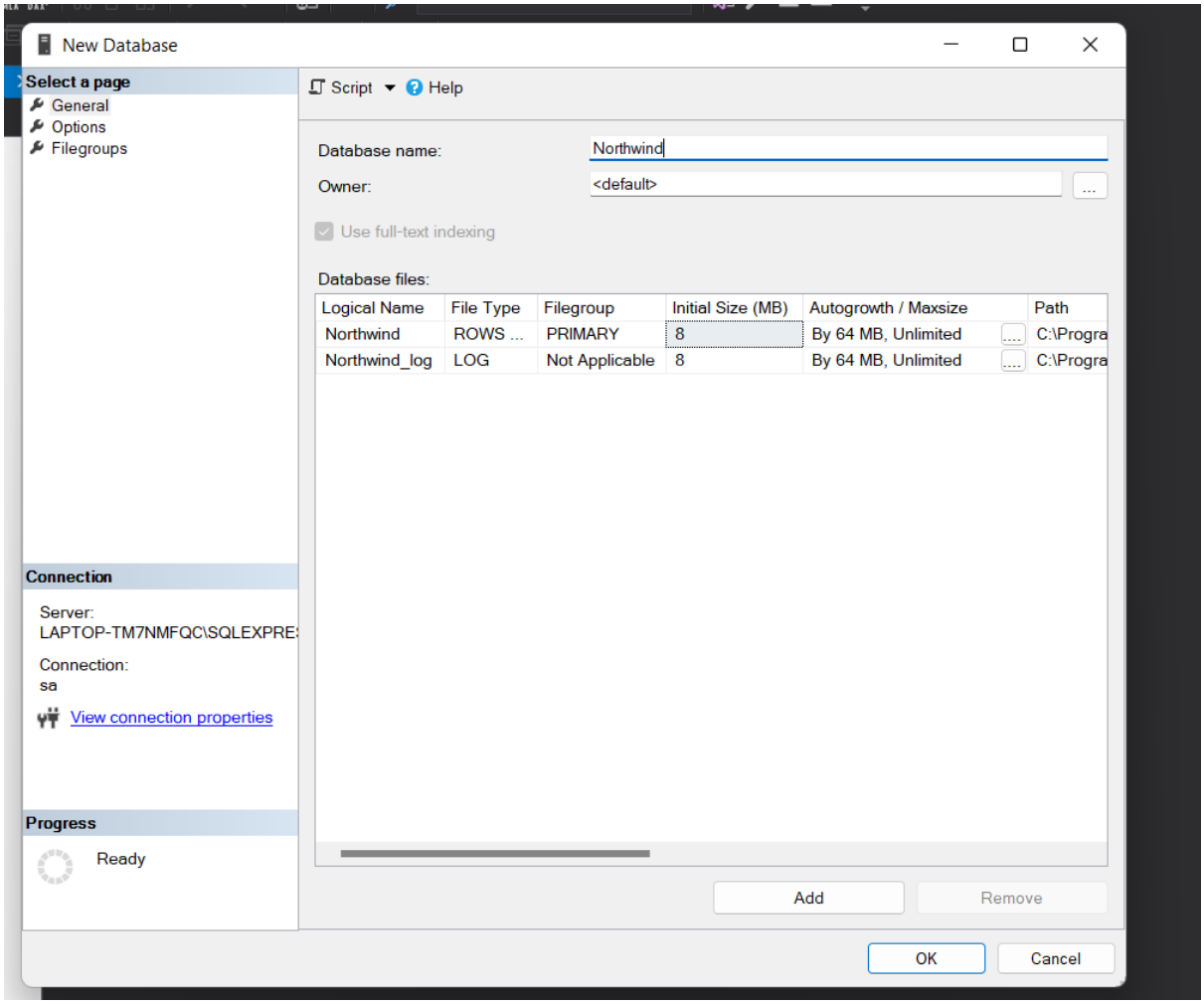

Figure 5: Create **Northwind** database

6. Upon successfully creating the **Northwind** Database you should be able to view a page like this.

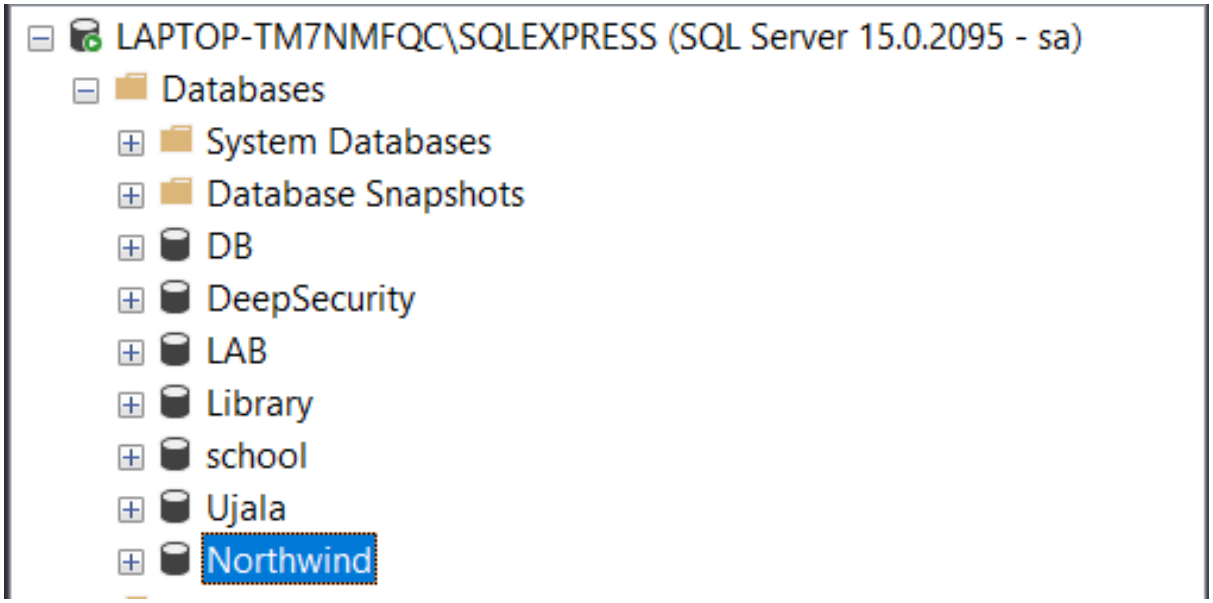

Figure 6: **Northwind** Database

7. Now, we have to load the data in the Northwind Database. First, download *northwind.sql* from lab Canvas site and then open it with SSMS. Click on the button while ensuring that the Northwind database is selected in the drop-down in the left of the button.
8. Once the queries execute, you can check whether the database has been sucessfully populated by checking for various tables that appear under the database in the **Object Explorer**.

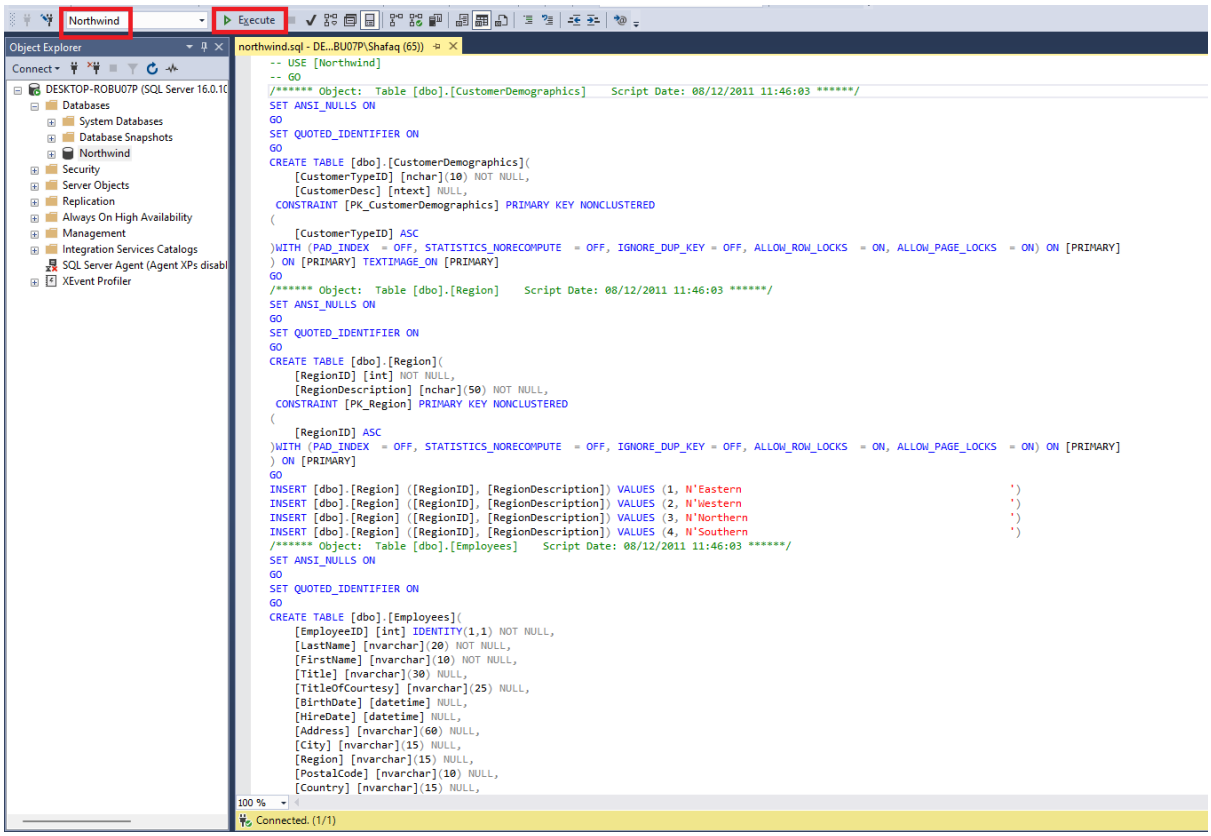

Figure 7: Populate **Northwind** Database

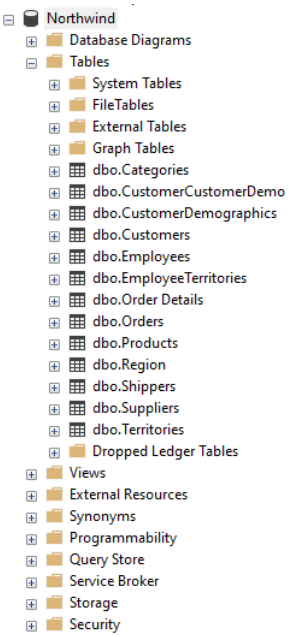

Figure 8: Ensure successful population

4 Query Syntax Examples

- Simple Selects
  - select * from employees
  - select firstname, last from employees
  - select firstname + ' ' + lastname as FullName from employees
- Where Clause
  - select * from employees where employeeid = 5
  - select * from employees where employeeid <> 5
  - select * from employees where employeeid > 5 and Country = 'UK'
- Combinations of AND, OR and NOT
  - Select employeeid, Country, City
    from employees
    where Country = 'UK' or (Country='USA' and City='Tacoma')
- Like - wildcard search
  - Select * from Employees where firstName like 'A%'
  - Select * from Employees where firstName like '%ew'
  - Select * from Employees where firstName like '%nd%'
  - Select * from Employees where firstName like '%_nd%'
- Between, in / not in
  - Select * from Employees where employeeid between 3 and 7
  - select * from employees where employeeid in (2,7,9)
  - select * from employees where employeeid not in (2,7,9)
- Null Comparison
  - Select employeeid,region from employees where region IS null
  - Select employeeid,region from employees where region is not null
- Dates
  - SELECT GETDATE();
  - SELECT DAY('2017/08/25') AS DayOfMonth;
  - SELECT DATEPART(year, '2017/08/25') AS DatePartInt;
  - SELECT DATEDIFF(year, '2017/08/25', '2011/08/25') AS DateDiff;

5 Exercises

The ERD Diagram for the Northwind Database is as shown in Figure 9.

1. List all Customers.
   Result contains 91 rows.

2. List following details of orders.
   Result: OrderId, Order Date, ShipCity, ShipCountry
   Result contains 830 rows.

3. List all orders to be shipped to 'Brazil'.
   Result: OrderId, Order Date, CustomerID
   Result contains 83 rows.

4. List all orders to be shipped to either 'France' or 'Sweden'.
   Result: OrderId, Order Date, CustomerID
   Result contains 114 rows.

5. List all orders to be shipped to either 'France' or 'Sweden' and having 'Freight' charges greater than 45.
   Result: OrderId, OrderDate, Freight, ShipCountry
   Result contains 49 rows.

6. List all employees.
   Result: Employee Full Name, Employee Title (Full Name is formed by concatenating fields TitleOFCourtesy, FirstName, LastName, separated by spaces)
   Result contains 9 rows.

7. Retrieve all orders to be shipped to an address containing word 'box'.
   Result:OrderId, OrderDate, ShipName, ShipAddress, ShipCity, ShipCountry
   Result contains 9 rows.

8. List all orders placed by customers with CustomerID starting with 'A' and ending with 'I'.
   Result: OrderId, CustomerID
   Result contains 6 rows.

9. List all employees who have been with the company for more than 10 years. **Result: EmployeeName**
   Result contains 9 rows.

10. List all orders and the time (in days) to process the orders.
    Result contains 830 rows.

11. List all customers having no fax number.
    Result contains 22 rows.

12. List all products sold in boxes.
    Result contains 11 rows.

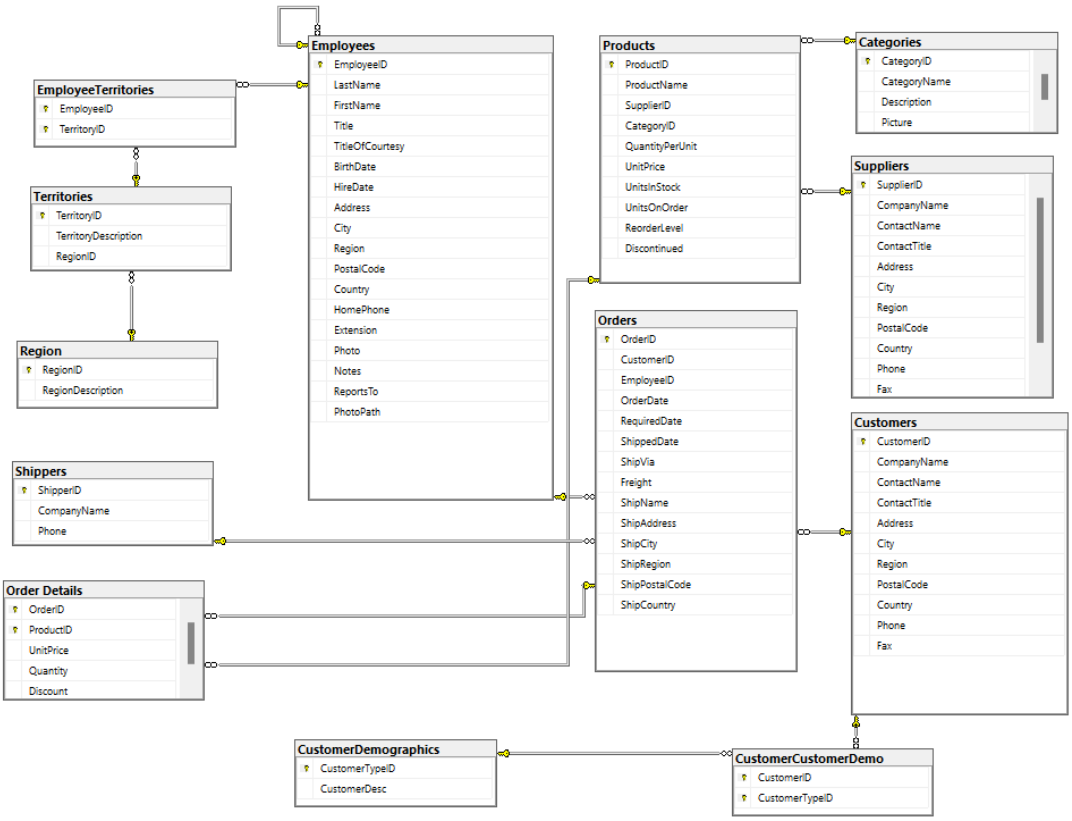

Figure 9: Northwind Database ERD