Lab 8: SQL Sub Queries

CS355/CE373 Database Systems
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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_08_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:

- Top
- Sub Queries
- Order By
- Case

3 Query Syntax Examples

- **Sub Queries**
  Select * From Orders
  Where EmployeeID in (
  Select Top 3 EmployeeID
  From Orders O
  Group By EmployeeID
  Order By Count(*) Desc)

- **SQL Case**
  SELECT OrderID, Quantity,
  CASE
  WHEN Quantity > 30 THEN 'The quantity is greater than 30'
  WHEN Quantity = 30 THEN 'The quantity is 30'
  ELSE 'The quantity is under 30'
  END AS QuantityText
  FROM [Order Details]

- **SQL TOP**
  SELECT TOP 3 E.FirstName + ' ' + E.LastName AS EmployeeName, Year(O.OrderDate) AS [Year], count(*) AS 'Number of Orders'
  FROM Orders O
  INNER JOIN Employees E
  ON O.EmployeeID=E.EmployeeID
  GROUP BY E.FirstName + ' ' + E.LastName, Year(O.OrderDate)
  ORDER BY COUNT(*) DESC
- **SQL UNION**
  SELECT Customers.ContactName FROM Customers
  UNION
  SELECT Employees.FirstName + ' ' + Employees.LastName FROM Employees

4 Exercises

The ERD Diagram for the Northwind Database is as shown in Figure 1.

1. **Fetch Customers who have not placed any order.**
   Output: ContactName.
   Result contains 2 rows.
2. **Select orders in which products of neither 'Meat/Poultry' nor 'Dairy Products' categories exist.**
   Output: OrderID.
   Result contains 766 rows.
3. **Find the employee who processed the first order placed in year 1997.**
   Output: Employee ID.
   Result contains 1 row.
4. **Select all employees who work directly under the top manager of the company.**
   Output: EmployeeID.
   Result contains 5 rows.
5. **Select all employees who are assigned to territories in 'Western' region.**
   Result contains 2 rows.
6. **Select all employees who are not assigned to territories in 'Western' region.**
   Result contains 7 rows.
7. **Select all orders placed by the employees who are not assigned to territories in 'Western' region.**
   Result contains 691 rows.
8. **Select all Customers and Suppliers belonging to 'USA'.**
   Output: ContactName.
   Result contains 17 rows.
9. **Find the cheapest product in the database.**
   Output: ProductName.
   Result contains 1 row.
10. **Select all employees and their Seniority level**
    - Seniority level = 3 if employee has been with the company for more than 5 years.

- Seniority level = 2 if employee has been with the company from 3-5 years.
- Seniority level = 1 if employee has been with the company for < 3 years

Output: EmployeeID, SeniorityLevel.
Result contains 9 rows.

11. **List all products and their types which shows if they are 'Costly' (unit price $>$ 80), 'Economical' (unit price between 30 and 80) or 'Cheap' (Unit price $<$ 30).**
Output: ProductName, Types.
Result contains 77 rows.

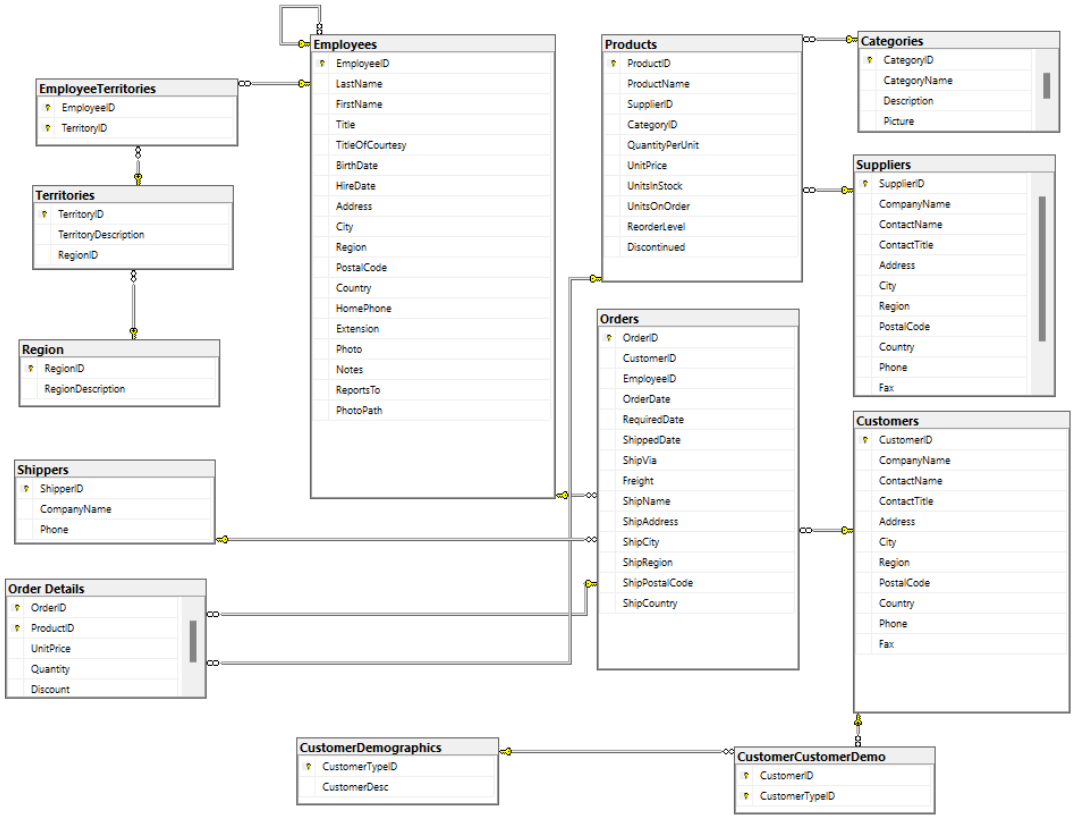

Figure 1: Northwind Database ERD