

Lab 8: Group By and Order By

CS355/CE373 Database Systems

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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:

- Group By
- Order By

3 Query Syntax Examples

- **Group By**
 - select customerid,count(*) as NoOfOrders, max(orderdate) as LastOrder, min(orderdate) as FirstOrder
from orders
group by customerid
order by customerid
 - select customerid,o.employeeid, e.firstname,count(*) as Totalorders
from orders o, employees e
where o.employeeid = e.employeeid
group by customerid, o.employeeid, e.firstname
order by customerid
- **Having**
 - Select CompanyName,count(*) as NumberOfOrders
from orders o, customers c
where o.customerid = c.customerid
group by CompanyName
Having Count(*) > 5

- **Order By**

- Select * From Employees Order by EmployeeID ASC
- Select * From Orders where ShipRegion is not NULL order by OrderID DESC

4 Exercises

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

1. **List suppliers in the order of no. of products supplied (Supplier Name, No of Products) in descending order.**
Output: CompanyName, No. of Products.
Result contains 29 rows.
2. **List number of products supplied by different suppliers in different categories.**
Output: CompanyName, CategoryName, No.of Products, AveragePrice, Total Units in Stock.
Result contains 49 rows.
3. **Select Suppliers supplying more than 4 products.**
Output: Supplier Name.
Result contains 2 rows.
4. **Fetch no. of employees from Employees Table who are working in each region where Region is from Region Table in ascending order i.e. "Southern", "Western", "Northern", or "Eastern".**
Output: RegionDescription, No. of employees.
Result contains 4 rows.
5. **Select total amount of each order. [Total amount is calculated by summing up (Unit Price * Qty)-Discount in order details.]**
Output: OrderID, Total Amount.
Result contains 830 rows.
6. **Find total number of products in each category .**
Output: Category Name, No of Products.
Result contains 8 rows.
7. **Find number of orders placed by different customers for different suppliers where ContactName is from Customers Table and CompanyName is from Suppliers Table.**
Output: ContactName, CompanyName, No. of orders.
Result contains 1236 rows.
8. **Find number of orders handled by different employees in different years.**
Output: EmployeeName, Year, No. of Orders.
Result contains 27 rows.

9. **Find number of orders, in descending order, handled by different employees under different managers.**
 Output: Manager Name, Employee Name, No. of orders.
Result contains 8 rows.
10. **Fetch no. of employees in each region from Region Table. If there is no employee in any region, even then the region name should appear in the list with employee count of 0.**
 Output: Region Name, No. of employees
Result contains 4 rows.
11. **Find all combinations of employees and customer ordered by employee ID.**
 Output: Employee Full Name, Customer Name.
 Note that the Full name is generated by concatenating First Name and Last Name.
Result contains 819 rows.
12. **Get CustomerID and ContactName from Customers alphabetically, by Country and name.**
 Output: CustomerID, ContactName
Result contains 90 rows.
13. **Display the number of employees and customers from each city that has employees in it ordered by City.**
 Output: Number of Employees, Customers
Result contains 5 rows.
14. **Display the number of employees and customers from each city.**
 Output: Number of Employees, Customers
Result contains 71 rows.
15. **Display the order ids and the associated employee names for orders that shipped after the required date.**
 Output: OrderID, Employee Full Name
Result contains 37 rows.
16. **Display the total quantity of products (from the Order_Details table) ordered. Only show records for products for which the quantity ordered is fewer than 200.**
 Output: OrderID, Employee Full Name
Result contains 5 rows.
17. **Display the total number of orders by Customer since December 31, 1996. The report should only return rows for which the total number of orders is greater than 15. it should display CustomerID and Total Number of Orders.**
 Output: CustomerID, Total Number of Orders.
Result contains 5 rows.

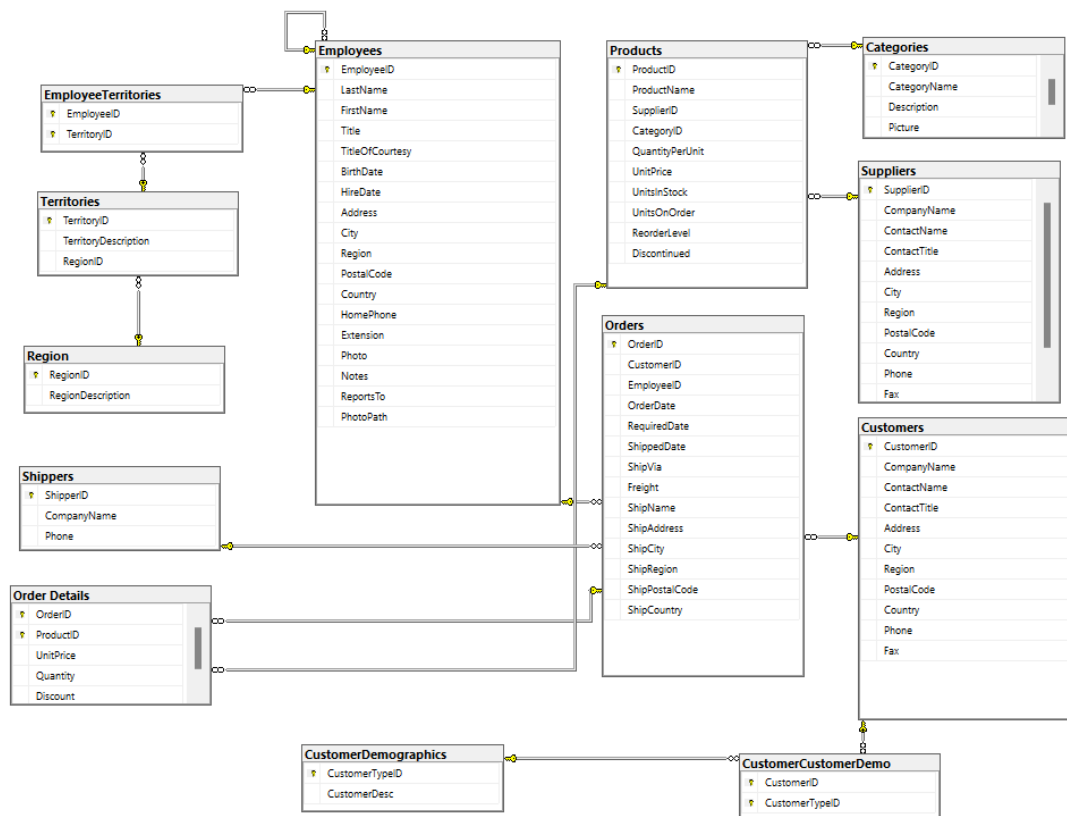


Figure 1: Northwind Database ERD