# Answer following questions

1. What is a result set?

Set from DB which consist of row and column. It depends on DB system.

1. What is the difference between Union and Union All?

Union will eliminate duplicate value, but Union All will not.

1. What are the other Set Operators SQL Server has?

UNION, UNION ALL, INTERSECT, EXCEPT

1. What is the difference between Union and Join?

Join is used to combine tables, Union is used to combine rows

1. What is the difference between INNER JOIN and FULL JOIN?

Inner join return only matching row from two tables. Full join return all rows from both tables.

1. What is difference between left join and outer join

Left join is subset of outer join

1. What is cross join?

It returns number of rows in left table multiplied by number of rows in right table.

1. What is the difference between WHERE clause and HAVING clause?

WHERE clause is used to filter the records from the table based on the specified condition. HAVING clause is used to filter record from the groups based on the specified condition. HAVING is applied to aggregated rows or groups.

1. Can there be multiple group by columns?

Yes.

# Write queries for following scenarios

1. How many products can you find in the Production.Product table?

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1. Write a query that retrieves the number of products in the Production.Product table that are included in a subcategory. The rows that have NULL in column ProductSubcategoryID are considered to not be a part of any subcategory.

select count(p.ProductSubcategoryID)

from Production.Product p

1. How many Products reside in each SubCategory? Write a query to display the results with the following titles.

ProductSubcategoryID CountedProducts

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select p.ProductSubcategoryID, count(p.ProductSubcategoryID) as "CountedProducts"

from Production.Product p

where p.ProductSubcategoryID is not null

group by p.ProductSubcategoryID

1. How many products that do not have a product subcategory.

select count(p.ProductID)

from Production.Product p

where p.ProductSubcategoryID is null

1. Write a query to list the summary of products quantity in the Production.ProductInventory table.

select p.ProductID, p.Quantity

from Production.ProductInventory p

1. Write a query to list the summary of products in the Production.ProductInventory table and LocationID set to 40 and limit the result to include just summarized quantities less than 100.

ProductID TheSum

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select p.ProductID,p.Quantity as "TheSum"

from Production.ProductInventory p

where p.LocationID = 40 and p.Quantity < 100

1. Write a query to list the summary of products with the shelf information in the Production.ProductInventory table and LocationID set to 40 and limit the result to include just summarized quantities less than 100

Shelf ProductID TheSum

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select p.Shelf,ProductID,p.Quantity as "TheSum"

from Production.ProductInventory p

where p.LocationID = 40 and p.Quantity < 100

1. Write the query to list the average quantity for products where column LocationID has the value of 10 from the table Production.ProductInventory table.

select avg(p.Quantity)

from Production.ProductInventory p

where p.LocationID = 10

1. Write query to see the average quantity of products by shelf from the table Production.ProductInventory

ProductID Shelf TheAvg

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select p.ProductID,p.Shelf, avg(p.Quantity) as "TheAvg"

from Production.ProductInventory p

where p.LocationID = 10

group by p.Shelf,p.ProductID

1. Write query to see the average quantity of products by shelf excluding rows that has the value of N/A in the column Shelf from the table Production.ProductInventory

ProductID Shelf TheAvg

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select p.ProductID,p.Shelf,avg(p.Quantity) as "TheAvg"

from Production.ProductInventory p

where p.Shelf != 'N/A'

group by p.ProductID,p.Shelf

1. List the members (rows) and average list price in the Production.Product table. This should be grouped independently over the Color and the Class column. Exclude the rows where Color or Class are null.

Color Class TheCount AvgPrice

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select p.Color,p.Class,count(p.ProductID)as"TheCount",avg(p.ListPrice)as"AvgPrice"

from Production.Product p

where p.Color is not null and p.Class is not null

group by p.Color,p.Class

**Joins:**

1. Write a query that lists the country and province names from person. CountryRegion and person. StateProvince tables. Join them and produce a result set similar to the following.

Country Province

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select c.Name as "Country", s.Name as "Pronvice"

from person.CountryRegion c inner join person.StateProvince s

on c.CountryRegionCode = s.CountryRegionCode

1. Write a query that lists the country and province names from person. CountryRegion and person. StateProvince tables and list the countries filter them by Germany and Canada. Join them and produce a result set similar to the following.

Country Province

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select c.Name as "Country", s.Name as "Pronvice"

from person.CountryRegion c inner join person.StateProvince s

on c.CountryRegionCode = s.CountryRegionCode

where c.Name = 'Germany' or c.Name = 'Canada'

**Using Northwnd Database: (Use aliases for all the Joins)**

1. List all Products that has been sold at least once in last 25 years.
2. List top 5 locations (Zip Code) where the products sold most.

select top 5 (o.ShipPostalCode)

from Orders o

group by o.ShipPostalCode

order by count(o.ShipPostalCode) desc

1. List top 5 locations (Zip Code) where the products sold most in last 20 years.
2. List all city names and number of customers in that city.

select c.City, count(c.CustomerID)

from Customers c

group by c.City

1. List city names which have more than 10 customers, and number of customers in that city

select c.City, count(c.CustomerID)

from Customers c

group by c.City

having count(c.CustomerID) >10

1. List the names of customers who placed orders after 1/1/98 with order date.
2. List the names of all customers with most recent order dates

select c.ContactName, o.OrderDate

from Customers c inner join Orders o

on c.CustomerID = o.CustomerID

where o.OrderID in

( select min(OrderID) from Orders

group by CustomerID

)

order by c.ContactName

1. Display the names of all customers along with the count of products they bought

select c.ContactName as "Name", count(od.OrderID) as "Quantity"

from Customers c left join orders o

on c.CustomerID = o.CustomerID

inner join [Order Details] od

on o.OrderID = od.OrderID

inner join Products p

on od.ProductID = p.ProductID

group by c.ContactName

order by count(od.OrderID) desc

1. Display the customer ids who bought more than 100 Products with count of products.

select c.ContactName as "Name", count(od.OrderID) as "Quantity"

from Customers c left join orders o

on c.CustomerID = o.CustomerID

inner join [Order Details] od

on o.OrderID = od.OrderID

inner join Products p

on od.ProductID = p.ProductID

group by c.ContactName

having(count(od.OrderID))>100

order by count(od.OrderID) desc

1. List all of the possible ways that suppliers can ship their products. Display the results as below

Supplier Company Name Shipping Company Name

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select s.CompanyName as "Supplier Company Name",

ship.CompanyName as "Shipping Company Name"

from Suppliers s cross join Shippers ship

order by s.CompanyName

1. Display the products order each day. Show Order date and Product Name.

select o.OrderDate,p.ProductName

from Orders o inner join [Order Details] od

on o.OrderID = od.OrderID

inner join Products p

on od.ProductID = p.ProductID

order by o.OrderDate

1. Displays pairs of employees who have the same job title.

select e1.FirstName+' '+e1.LastName+', '+e2.FirstName+' '+e2.LastName as "Names"

from Employees e1 inner join Employees e2

on e1.Title = e2.Title

where e1.FirstName != e2.FirstName and e1.LastName != e2.LastName

1. Display all the Managers who have more than 2 employees reporting to them.

select manager.FirstName+' '+manager.LastName as "Name"

from Employees emp inner join Employees manager

on emp.ReportsTo = manager.EmployeeID

group by manager.LastName,manager.FirstName

having(count(manager.FirstName)>2)

1. Display the customers and suppliers by city. The results should have the following columns

City

Name

Contact Name,

Type (Customer or Supplier)

select c.City, c.ContactName as "Name",s.ContactName

from Customers c inner join Suppliers s

on c.City = s.City

order by c.City

28. Have two tables T1 and T2

|  |  |
| --- | --- |
| F1.T1 | F2.T2 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |

Please write a query to inner join these two tables and write down the result of this query.

Select \*

From F1 inner join F2

On F1.T1 = F2.T2

Result:

F1.T1 F2.T2

2 2

3 3

29. Based on above two table, Please write a query to left outer join these two tables and write down the result of this query.

Select \*

From F1 left join F2

On F1.T1 = F2.T2

Result:

F1.T1 F2.T2

1 null

2 2

3 3