Assignment Day2 –SQL: Comprehensive practice

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# Answer following questions

1. What is a result set?

Ans: It is a set of rows in Database and it also includes metadata about the query like column names, types, size of each coloumn.

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

Ans: UNION and UNION ALL is just like UNION command there is difference that UNION ALL selects all the values, in addition to this, UNION ALL will not remove the duplicate rows instead it just pulls all rows.

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

Ans: UNION, UNION ALL INTERSECT,MINUS AND EXCEPT

1. What is the difference between Union and Join?

Ans: JOIN in SQL is used to combine data from many tables based on a matched condition between them. The data combined using JOIN statement results into new columns.

UNION in SQL is used to combine the result-set of two or more SELECT statements. The data combined using UNION statement is into results into new distinct rows.

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

Ans: Inner join returns only the matching rows between both the tables, non-matching rows are eliminated.

Full Join or Full Outer Join returns all rows from both the tables (left & right tables), including non-matching rows from both the tables

1. What is difference between left join and outer join

Ans: basically they are same, Left Outer Join returns all the rows from the table on the left and columns of the table on the right is null padded. Left Outer Join retrieves all the rows from both the tables that satisfy the join condition along with the unmatched rows of the left table

1. What is cross join?

The CROSS JOIN is used to generate a paired combination of each row of the first table with each row of the second table. This join type is also known as cartesian join.

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

Ans: The **WHERE clause** is used to fetch the data which specify the given condition. It is used to filter records and select only necessary records. It is used with **SELECT, UPDATE, DELETE,** etc. query. The SQL also implements **and, or, and not** in the WHERE clause which is known as the boolean condition.

the **HAVING clause**is generally used along with the GROUP BY clause. This clause is used in the column operation and is applied to aggregate rows or groups according to given conditions

We cannot use the HAVING clause**without**SELECT statement whereas the WHERE clause can be used with SELECT, UPDATE, DELETE, etc

HAVING clause is generally used with the GROUP BY. If you use the **HAVING** clause **without** GROUP BY then also it can refer to any column but it **won't be used**while performing the query unlike WHERE clause.

WE can use **aggregate functions** like sum, min, max, avg, etc with the HAVING clause but they can**never** be used with**WHERE clause**.

1. Can there be multiple group by columns?

Ans: Yes there can be multiple group by columns, using group by, SQL will put the rows with the same values in all those columns in the same group.

# Write queries for following scenarios

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

Ans: Graphical user interface, text

Description automatically generated

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(ProductID) AS "Number of Products in A Category"

FROM Production.Product AS P

WHERE P.ProductSubcategoryID IS NOT NULL

Graphical user interface, text, application

Description automatically generated

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

ProductSubcategoryID CountedProducts

Ans: SELECT ProductSubcategoryID, COUNT(ProductID) AS " CountedProducts"

FROM Production.Product AS P

WHERE P.ProductSubcategoryID IS NOT NULL

GROUP BY ProductSubcategoryID;

Table

Description automatically generated with medium confidence

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

Ans: SELECT COUNT(ProductID) AS "Number of Products Not in A Category"

FROM Production.Product AS P

WHERE P.ProductSubcategoryID IS NULL;

Graphical user interface, text, application, email

Description automatically generated

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

Ans: SELECT SUM(Quantity) AS 'Summary of Products'

FROM Production.ProductInventory

GROUP BY ProductID;

Graphical user interface, text

Description automatically generated

1. Write a query to list the sum 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

Ans: SELECT ProductID, SUM(Quantity) AS TheSum FROM Production.ProductInventory

WHERE LocationID =40 GROUP BY ProductID

HAVING SUM(Quantity) < 100;

Graphical user interface

Description automatically generated with medium confidence

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1. Write a query to list the sum 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

Ans: SELECT Shelf, ProductID, SUM(Quantity) AS TheSum

FROM Production.ProductInventory

WHERE LocationID =40

GROUP BY ProductID, Shelf

HAVING SUM(Quantity) < 100;

Table

Description automatically generated with medium confidence

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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.

Ans: SELECT ProductID, AVG(Quantity) AS TheAvg

FROM Production.ProductInventory

WHERE LocationID = 10

GROUP BY ProductID;

Table

Description automatically generated with low confidence

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

ProductID Shelf TheAvg

Ans:

SELECT ProductID, Shelf, AVG(Quantity) AS TheAverage

FROM Production.ProductInventory

GROUP BY ProductID,Shelf;

Graphical user interface, application

Description automatically generated

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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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Ans: SELECT ProductID, Shelf, AVG(Quantity) AS TheAverage

FROM Production.ProductInventory

WHERE Shelf <> 'N/A'

GROUP BY ProductID, Shelf;

Graphical user interface, application

Description automatically generated with medium confidence

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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Ans:Graphical user interface

Description automatically generated

**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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Ans: Graphical user interface, application

Description automatically generated

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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Ans: Graphical user interface, text, application

Description automatically generated

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

1. List all Products that has been sold at least once in last 25 years.

Ans:

Graphical user interface, text, application

Description automatically generated

1. List top 5 locations (Zip Code) where the products sold most.

Ans: Graphical user interface, text, application

Description automatically generated

1. List top 5 locations (Zip Code) where the products sold most in last 25 years.

Ans:

Graphical user interface, text, application

Description automatically generated

1. List all city names and number of customers in that city.

Ans: Graphical user interface, application, table

Description automatically generated

1. List city names which have more than 2 customers, and number of customers in that city

Ans;

Graphical user interface, text, application

Description automatically generated

1. List the names of customers who placed orders after 1/1/98 with order date.

Ans:

Graphical user interface, application

Description automatically generated

1. List the names of all customers with most recent order dates

Ans: Graphical user interface, text

Description automatically generated

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

Ans: Graphical user interface, application

Description automatically generated

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

Ans: Graphical user interface, application

Description automatically generated

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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Ans: Graphical user interface, text, application

Description automatically generated

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

Ans: Graphical user interface, text, application

Description automatically generated

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

Ans: Graphical user interface, text, application

Description automatically generated

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

Ans:

Graphical user interface, text, application

Description automatically generated

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

City

Name

Contact Name,

Type (Customer or Supplier)

Ans:

Graphical user interface, text, application

Description automatically generated

GOOD LUCK.