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-- SQL DATA SCIENCE PROJECT CREATED BY JAYANTA ROY:--  
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-- 1) CREATE NEW DATABASE ( DATABASE NAME= NORTHWND)  
-- 2) RESTORE SAMPLE DATABASE( NORTHWND)  
  
-- 3) EXTRACTING DATA FROM SELECTED DATABASE & TABLE  
  
-- REMOVING DUPLICATES RECORDS:  
SELECT DISTINCT ContactTitle  
FROM Customers;  
  
-- AGGREGATE FUNCTIONS & GROUPING DATA:--  
SELECT * FROM Customers;  
  
SELECT ContactTitle,TotalContactTitle=COUNT(*)  
FROM Customers  
GROUP BY ContactTitle  
ORDER BY Count(*) DESC;  
  
SELECT CustomerID,CompanyName,ContactName,City,Country  
FROM Customers  
ORDER BY CompanyName ASC  
OFFSET 0 ROWS  
FETCH NEXT 6 ROWS ONLY;  
  
SELECT TotalCustomers = COUNT(*)  
FROM Customers;  
  
SELECT COUNT( CustomerID )  
FROM Customers;  
  
SELECT TotalEmployees = COUNT(*)  
FROM Employees;  
  
SELECT AVG(UnitPrice) AS [Total Avg.Price],AVG(UnitsInStock) AS [Total Avg. Units  
In Stock]  
FROM Products;  
  
SELECT MAX(UnitPrice) AS [ Total Max Units Price], MAX(UnitsInStock) AS [Total Max  
Units In Stock ], MAX( UnitsOnOrder) AS [Total Max Units On Order]  
FROM Products;  
  
SELECT MIN(UnitPrice) AS [ Total Min Units Price], MIN(UnitsInStock) AS [Total Min  
Units In Stock ], MIN( UnitsOnOrder) AS [Total Min Units On Order]  
FROM Products;  
  
SELECT SUM(UnitPrice) AS [ Total Units Price], SUM(UnitsInStock) AS [Total Units  
In Stock ], SUM( UnitsOnOrder) AS [Total Units On Order]  
FROM Products;  
  
-- FILTERING DATA WITH EQUALITY FILTERS, COMPARISON FILTER, LOGICAL COMPARISON  
FILTER, STRING COMPARISON FILTER
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SELECT * FROM Employees;
SELECT FirstName, LastName, HireDate
FROM Employees
WHERE Title= 'Sales Representative';

SELECT * FROM [dbo].[Products];
SELECT ProductName, QuantityPerUnit, UnitPrice, UnitsInStock
FROM Products
WHERE UnitPrice >30;

SELECT * FROM [dbo].[Suppliers];
SELECT ContactName, ContactTitle, City, Phone, SupplierID, CompanyName
FROM Suppliers
WHERE Country IN ( 'USA', 'UK' )
ORDER BY City ASC;

SELECT * FROM Products;
SELECT ProductName, UnitPrice, UnitsInStock
FROM Products
ORDER BY UnitPrice DESC;

SELECT * FROM [dbo].[Orders];
SELECT OrderDate, ShipName, OrderID, ShipCountry
FROM Orders
WHERE ShipCountry= 'France' OR ShipCountry = 'Switzerland'
ORDER BY OrderDate ASC;

SELECT * FROM [dbo].[Shippers];

SELECT ProductID, ProductName
FROM Products
WHERE Discontinued = 'True'
ORDER BY ProductName ASC;

SELECT * FROM [dbo].[Orders];

SELECT FirstOrder =MIN(OrderDate)
FROM Orders;

SELECT OrderID, CustomerID, ShipCountry
FROM Orders
WHERE ShipCountry IN ( 'Brazil', 'Mexico', 'Argentina', 'Venezuela' );

SELECT * FROM Products;

SELECT ProductName, UnitPrice, UnitsInStock, UnitsOnOrder
FROM Products
ORDER BY UnitsInStock DESC;

-- REAL WORLD DATA ANALYSIS & BUSINESS INTELLIGENCE USING SQL

-- WRITE A QUERY TO GET PRODUCT NAME AND QUANTITY/UNIT .
SELECT * FROM [dbo].[Products];
SELECT ProductName, QuantityPerUnit
FROM Products
ORDER BY ProductName ASC;
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-- WRITE A QUERY TO GET CURRENT PRODUCT LIST ( PRODUCT ID & NAME )
SELECT ProductID, ProductName
FROM Products
ORDER BY ProductName ASC;

-- WRITE A QUERY TO COUNT CURRENT AND DISCONTINUED PRODUCTS. THEN GROUP THEM BY DISCONTINUED.
SELECT COUNT(Discontinued) AS [Discontinued Products ],COUNT(UnitsOnOrder) AS [Current Products]
FROM Products
GROUP BY Discontinued;

-- FINDOUT IF WE HAVE BEVERAGES OR SEAFOODS IN OUR CATEGORY NAME FIELD.
SELECT * FROM [dbo].[Categories];
SELECT CategoryName, Description
FROM Categories
WHERE CategoryName IN ( 'Beverages','Seafood')
ORDER BY CategoryID ASC;

-- PROVIDE A LIST OF ALL UK SALES REPRESENTATIVES
SELECT * FROM Employees;
SELECT FirstName,LastName
FROM Employees
WHERE Country IN ( 'UK')
ORDER BY FirstName ASC;

-- PROVIDE A LIST OF ALL ORDERS EVER PLACED BY EMPLOYEE ID 7
SELECT * FROM [dbo].[Orders];
SELECT OrderDate,OrderID
FROM [dbo].[Orders]
WHERE EmployeeID IN (7)
ORDER BY OrderDate ASC;

-- PROVIDE A LIST OF ALL ORDERS EVER SHIPPED TO LONDON
SELECT OrderID, OrderDate,CustomerID
FROM Orders
WHERE ShipCity IN ( 'London')
ORDER BY OrderID ASC;

-- STRING FUNCTIONS:--
-- WRITE A QUERY FULL NAME OF TOTOAL EMPLOYEE THOSE WHO'S Mr. & Ms.
SELECT CONCAT(FirstName, ' ',LastName) AS Full_Name
FROM Employees
WHERE TitleOfCourtesy IN ( 'Mr.','Ms.')
ORDER BY FirstName;

-- WRITE A QUERY PRODUCTNAME IN CAPITAL LETTER
SELECT UPPER(ProductName) AS [Products Name in Capital ] FROM [dbo].[Products];

-- WRITE A QUERY PRODUCTNAME IN SMALL LETTER;
SELECT LOWER(ProductName) AS [ Products Name in Small ] FROM [dbo].[Products];

-- WIRTE A QUERY OF LENGTH FOR PRODUCTNAME:--
SELECT ProductName, LEN(ProductName) AS [Products Name's Length ] FROM [dbo].[Products] WHERE CategoryID IN (2);
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-- CHANGE THE UNITPRICE IN DOLLAR:--
SELECT UnitPrice, REPLACE(UnitPrice, '18.00', '$18.00') AS [ Replace Unit Price in
Dollar ] FROM [dbo].[Products];

--SELECT ProductName,ProductID, SUBSTRING(ProductName for 4) AS [ProductName's
Substr]FROM [dbo].[Products] WHERE SUBSTRING(ProductName for 4)='___';
SELECT ProductID,STRING_AGG(SupplierID,',') AS [Supplier Total ]FROM [dbo].
[Products] GROUP BY ProductID ORDER BY ProductID;

USE NORTHWND
GO
SELECT * FROM Employees;
SELECT * FROM [dbo].[Orders];
GO

-- EXTRACTING DATA FROM MULTIPLE TABLE USING JOIN:--
-- EXTRACTING WITH INNER JOINS:--
SELECT
    Emp.Title,Emp.HireDate,Emp.City,Ord.OrderID,Ord.OrderDate,Ord.CustomerID,Ord.Ship
City,Ord.ShipName
FROM [dbo].[Employees] Emp
INNER JOIN [dbo].[Orders] Ord
ON Emp.EmployeeID = Ord.EmployeeID;

-- EXTRACTING WITH LEFT OUTER JOINS:--
SELECT
    Emp.Title,Emp.HireDate,Emp.City,Ord.OrderID,Ord.OrderDate,Ord.CustomerID,Ord.Ship
City,Ord.ShipName
FROM [dbo].[Employees] Emp
LEFT OUTER JOIN [dbo].[Orders] Ord
ON Emp.EmployeeID = Ord.EmployeeID;

-- EXTRACTING WITH RIGHT OUTER JOINS:--
SELECT
    Emp.Title,Emp.HireDate,Emp.City,Ord.OrderID,Ord.OrderDate,Ord.CustomerID,Ord.Ship
City,Ord.ShipName
FROM [dbo].[Employees] Emp
RIGHT OUTER JOIN [dbo].[Orders] Ord
ON Emp.EmployeeID = Ord.EmployeeID;

-- EXTRACTING WITH FULL OUTER JOINS:--
SELECT
    Emp.Title,Emp.HireDate,Emp.City,Ord.OrderID,Ord.OrderDate,Ord.CustomerID,Ord.Ship
City,Ord.ShipName
FROM [dbo].[Employees] Emp
FULL OUTER JOIN [dbo].[Orders] Ord
ON Emp.EmployeeID = Ord.EmployeeID;

-- CONDITIONAL STATEMENTS:--
SELECT *, CASE
    WHEN TitleOfCourtesy = 'Mr.' THEN 'Man'
    WHEN TitleOfCourtesy = 'Mrs.' THEN 'Woman'
    WHEN TitleOfCourtesy = 'Dr.' THEN 'Professional'
    ELSE 'Girl'
END AS Gender_Category
```

```
FROM [dbo].[Employees];

-- DATA-TIME FUNCTIONS:--
SELECT * FROM Products;

Select datepart(month, getdate()) as currentmonth;
Select datepart(DW, getdate()) as CURRENTDATE;

SELECT * FROM Customers;

-- MODIFYING DATA WITH SQL:--
-- HAVING FUNCTION:--
SELECT ShipRegion,COUNT(EmployeeID) AS Customer_Count
FROM Orders
GROUP BY ShipRegion
HAVING COUNT(EmployeeID)>= 5;

-- SUB QUERIES
SELECT* FROM [dbo].[Employees];
SELECT* FROM [dbo].[Orders];
SELECT * FROM [dbo].[Products];

SELECT FirstName,LastName,Title
FROM Employees
WHERE EmployeeID IN ( 5,6,7,8)
ORDER BY FirstName,LastName;

SELECT ProductName,UnitPrice,UnitsInStock,UnitsOnOrder
FROM Products
WHERE UnitPrice> ( SELECT MIN(UnitPrice )FROM Products);

SELECT *FROM [dbo].[Customers];
SELECT * FROM [dbo].[Orders];
SELECT * FROM [dbo].[CustomerDemographics];

-- UNION CLAUSE:
SELECT CustomerID
FROM Customers
UNION
SELECT CustomerID
FROM Orders
ORDER BY CustomerID DESC;

-- SQL FETCH / LIMIT CLAUSE:--
SELECT * FROM [dbo].[Employees];
SELECT FirstName,LastName,EmployeeID,City,Title
FROM Employees
ORDER BY Title ASC
OFFSET 0 ROWS
FETCH NEXT 5 ROWS ONLY;

-- TOP KEYWORD:--
SELECT TOP 7 FirstName,LastName,EmployeeID,City,Title
FROM Employees
--WHERE City<> 'London'
ORDER BY FirstName ASC;
```

```
SELECT EOMONTH('1948-12-08') AS [LastDay];

-- RETURNS THE LAST DAY ,YEAR & MONTH OF THE MONTH FROM THE DATE OF BIRTH OF EVERY
EMPLOYEE:--
SELECT FirstName,LastName,City,BirthDate, DATEPART(YEAR, EOMONTH(BirthDate)) AS
LastDay
FROM [dbo].[Employees];

SELECT FirstName,LastName,City,BirthDate, DATEPART(DD, EOMONTH(BirthDate)) AS
LastDay
FROM [dbo].[Employees];

SELECT FirstName,LastName,City,BirthDate, DATEPART(MONTH, EOMONTH(BirthDate)) AS
LastDay
FROM [dbo].[Employees];

-- SUBSTRING:--
SELECT SUBSTRING(CompanyName,1,11) AS [Company Name ]FROM Customers;

--STUFF A STRING INTO ANOTHER:
SELECT STUFF(CompanyName,6,6,'Roy')AS [New Name]FROM Customers;

-- STORE PROCEDURE
SELECT * FROM [dbo].[Customers];

/*GO
CREATE PROCEDURE selectall_Employee
@LastName nvarchar(50),
@FirstName nvarchar(50)
AS
BEGIN
SELECT FirstName,LastName,Title,City
FROM [dbo].[Employees]
WHERE FirstName=@FirstName AND LastName=@LastName
End ;

EXECUTE selectall_Employee @FirstName = 'Nancy', @LastName = 'Davolio';
GO */

-- INTERSECTION & EXCEPT:--
SELECT * FROM [dbo].[Orders];
SELECT * FROM [dbo].[Customers];

SELECT CustomerID,ShipCity,ShipCountry,ShipName
FROM [dbo].[Orders]
INTERSECT
SELECT CustomerID,City,Country,CompanyName
FROM [dbo].[Customers];

SELECT CustomerID,ShipCity,ShipCountry,ShipName
FROM [dbo].[Orders]
EXCEPT
SELECT CustomerID,City,Country,CompanyName
FROM [dbo].[Customers];
```

```
-- LIKE clause with '%' and '_' operators:
SELECT * FROM Employees;
SELECT * FROM Products;
SELECT * FROM [dbo].[CustomerDemographics];
SELECT * FROM Orders;

-- Finds UnitsPrice values that start with 18.00
SELECT productID, ProductName, UnitPrice
FROM Products
WHERE UnitPrice LIKE (18.00)
ORDER BY ProductName;

--FIND THE TITLE THAT START WITH SALES FROM THE PRODUCT TABLE
SELECT FirstName, LastName, EmployeeID, Title
FROM Employees
WHERE Title LIKE 'Sale%'
ORDER BY Title;
-- FIND THE TITLE THAT END WITH 'SALE'

SELECT FirstName, LastName, EmployeeID, Title
FROM Employees
WHERE Title LIKE '%SALES'
ORDER BY FirstName;

SELECT FirstName, LastName, EmployeeID, Title, PostalCode
FROM Employees
WHERE PostalCode LIKE ('__0%')
ORDER BY FirstName;

SELECT FirstName, LastName, EmployeeID, Title, PostalCode
FROM Employees
WHERE PostalCode LIKE ('9_%')
ORDER BY FirstName;

SELECT FirstName, LastName, EmployeeID, Title, HomePhone
FROM Employees
WHERE HomePhone LIKE ('%555_9%')
ORDER BY FirstName;

SELECT FirstName, LastName, EmployeeID, Title, Extension
FROM Employees
WHERE Extension LIKE ('5__%')
ORDER BY FirstName;

SELECT FirstName, LastName, EmployeeID, Title, Extension
FROM Employees
WHERE Extension LIKE ('%__7')
ORDER BY FirstName;

-- VIEWS;
/*GO
CREATE VIEW [Employee of London] AS
SELECT FirstName, LastName, City, Title
FROM Employees
WHERE City = 'London';
```

```
GO
SELECT * FROM [Employee of London]; */
GO
/*CREATE VIEW [Products Top Price] AS
SELECT ProductName, UnitPrice,ProductID
FROM Products
WHERE UnitPrice > (30.00);
GO

SELECT * FROM [Products Top Price];
GO

DROP VIEW [Products Above Average Price];*/

SELECT * FROM Orders;
SELECT * FROM Products;

UPDATE Orders
SET ShipCountry='United States'
WHERE ShipCountry= 'USA';
SELECT * FROM Orders;

SELECT TOP 10 ProductName,UnitPrice,UnitsInStock,ProductID FROM Products WHERE
    UnitPrice >=(45.00) ORDER BY UnitPrice DESC,ProductName ASC;
SELECT DISTINCT (ShipCity) AS [Ship City Count] FROM Orders ;
SELECT COUNT(City) FROM Employees;
SELECT COUNT(DISTINCT ShipCountry) AS [Distinct No. Ship Country] FROM Orders;
SELECT * FROM Orders WHERE EmployeeID BETWEEN 4 AND 6;

SELECT * FROM Orders;

--MATHEMATICAL FUNCTION
SELECT * FROM [dbo].[Customers];

SELECT ContactTitle + '--' + City AS [New Info ]FROM Customers;

-- STRING FUNCTION:
SELECT * FROM Customers;
SELECT * FROM Orders;
SELECT * FROM Products;

-- Real World Data Analysis and Business Intelligence using SQL:

-- BUILD A QUERY TO SHOW CONTACT TITLES FOR CUSTOMERS:
SELECT ContactTitle, TotalContactTitle =COUNT(*)
FROM Customers
GROUP BY ContactTitle
ORDER BY COUNT(*) DESC;

-- BUILD A QUERY TO SHOW CUSTOMERS AND EMPLOYEE COUNT:
SELECT TotalEmployees = COUNT(*)
FROM Employees;

SELECT * FROM Customers;
SELECT TotalCustomer = COUNT(*)
FROM Customers;
```



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-- Analysing and Extracting data from Multiple data:
-- A list of Products shown in their supplier:
-- Create a New Data Model then select from Add Table which table I want to ↗
create a data modelling.
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SELECT ProductID, ProductName, Suppliers = CompanyName
FROM Products
JOIN Suppliers
ON Products.SupplierID = Suppliers.SupplierID;
```

```
-- BUILD A QUERY TO SHOW SALES REP:
SELECT FirstName, LastName, HireDate
FROM Employees
WHERE Title = 'Sales Representative';
```

```
-- BUILD A QUERY TO CHECK A SPECIFIC PRODUCTS:
SELECT ProductID, ProductName, QuantityPerUnit, UnitsInStock
FROM Products
WHERE UnitsInStock <= 25;
```

```
SELECT ProductID, ProductName, QuantityPerUnit, UnitsInStock
FROM Products
WHERE ProductName LIKE 'C%';
```

```
-- BUILD A QUERY TO CHECK SUPPLIERS DETAILS:
SELECT CompanyName, ContactName, ContactTitle, Phone
FROM Suppliers;
```

```
-- BUILD A QUERY TO CHECK LEAST AND EXPENSIVE PRODUCTS:
SELECT ProductName, UnitPrice
FROM Products
ORDER BY UnitPrice DESC;
```

```
-- BUILD A QUERY TO CHECK ORDERS SHIPPED:
SELECT OrderID, CustomerID, ShipCountry
FROM Orders
WHERE ShipCountry = 'France' OR ShipCountry = 'Belgium';
```

```
SELECT OrderID, CustomerID, ShipCountry
FROM Orders
WHERE ShipCountry IN ('France', 'Belgium');
```

```
-- BUILD A QUERY TO LIST SHIPPERS:
SELECT * FROM Shippers;
```

```
-- BUILD A QUERY TO SHOW DISCONTINUED PRODUCTS:
SELECT ProductID, ProductName
FROM Products
WHERE Discontinued = 'True'
ORDER BY ProductName;
```

```
-- BUILD A QUERY TO CHECK FIRST ORDER PLACED:
SELECT FirstOrder = MIN(OrderDate)
FROM Orders;
```

```
-- BUILD A QUERY TO CHECK ORDERS SHIPPED TO LATIN AMERICA:
SELECT OrderID, CustomerID, ShipCountry
FROM Orders
WHERE ShipCountry IN ('Brazil','Mexico','Argentina','Venezuela');

-- BUILD A QUERY TO SHOW SALES REP IN A COUNTRY:
SELECT FirstName, LastName, HireDate, Title, Country
FROM Employees
WHERE Title='Sales Representative' AND Country= 'USA';

-- BUILD A QUERY TO CHECK A PRODUCT STOCK:
SELECT ProductName, QuantityPerUnit, UnitsInStock
FROM Products
WHERE UnitsInStock >=50
ORDER BY UnitsInStock DESC;

-- BUILD A QUERY TO SHOW COUNTRIES WITH CUSTOMERS:
SELECT Country
FROM Customers
GROUP BY Country;
```