MICROSOFT SQL SERVER

QUERIES AND NOTES

BHARAT SINGH RAJPUT

B.C.A. III SEMESTER

NATIONAL POST GRADUATE COLLEGE,
LUCKNOW

Microsoft®
SQL Server®

Create Database

```
CREATE DATABASE <Database_name>;
```

```
CREATE DATABASE  npgcbca3;
```

Listing Databases/Tables

```
SHOW DATABASES
SHOW TABLES
```

Selecting database

```
USE <database_name>
```

```
Use npgcbca3;
```

Deleting database

```
DROP <database_name>;
```

```
Drop npgcbca3;
```

Creating table

```
CREATE TABLE <Table_name>
      (<Column_name_1> <data_type> <constraints>,
       <Column_name_2> <data_type> <constraints>,
       ..);
```

```
CREATE TABLE Employee
      (emp_id INT PRIMARY KEY,
       dept_id INT,
       emp_name VARCHAR(30),
       emp_address VARCHAR(30),
       emp_sal INT);
```

Constraints :

- ***NOT NULL*** - Ensures that a column cannot have a NULL value
- ***UNIQUE*** - Ensures that all values in a column are different
- ***PRIMARY KEY*** - A combination of a NOT NULL and UNIQUE. Uniquely identifies each row in a table

- ***FOREIGN KEY*** - Uniquely identifies a row/record in another table. The FOREIGN KEY constraint is used to prevent actions that would destroy links between tables. E.g.

```
     CREATE TABLE Orders (
          OrderID int NOT NULL PRIMARY KEY,
          PersonID int FOREIGN KEY REFERENCES Persons(PersonID));
```

- ***CHECK*** - Ensures that all values in a column satisfies a specific condition

```
          CREATE TABLE Persons (
               ID int NOT NULL,
               LastName varchar(255) NOT NULL,
               FirstName varchar(255),
               Age int CHECK (Age>=18));
```

- ***DEFAULT*** - Sets a default value for a column when no value is specified

```
          CREATE TABLE Persons (
               ID int NOT NULL,
               LastName varchar(255) NOT NULL,
               FirstName varchar(255),
               Age int,
               City varchar(255) DEFAULT 'Sandnes');
```

- ***INDEX*** - Used to create and retrieve data from the database very quickly

```
          CREATE INDEX idx_lastname ON Persons (LastName);

          -- TO REMOVE INDEX USE
          DROP INDEX table_name.index_name;
```

- ***AUTO_INCREMENT*** – Auto-increment allows a unique number to be generated automatically when a new record is inserted into a table.

```
          CREATE TABLE Persons (
               ID int NOT NULL AUTO_INCREMENT = 100,
               LastName varchar(255) NOT NULL,
               FirstName varchar(255),
               Age int,
               PRIMARY KEY (ID));
```

-- INITIAL VALUE IS 100. SQL SETS IT TO 1 IF NOT SPECIFIED

Delete Table

```
DROP <table_name>
```

DROP Employee

Truncate Table (Deletes only data but not table)

```
TRUNCATE <table_name>
```

`TRUNCATE Employee`

Alter Table

1. Inserting new column

   ```
   ALTER TABLE <table_name> Add <column_name> <data_type>
   ```

   `ALTER TABLE Employee Add DOB datetime`

2. Deleting a column

   ```
   ALTER TABLE <table_name> DROP COLUMN <column_name>
   ```

   `ALTER TABLE Employee DROP COLUMN DOB`

3. Changing datatype of column

   ```
   ALTER TABLE <table_name> ALTER COLUMN <column_name> <data_type>
   ```

   `ALTER TABLE Employee ALTER COLUMN emp_salary BIGINT`

4. Changing column name

   ```
   EXEC sp_RENAME '<table_name.old_column_name>', '<new_name>', 'COLUMN'
   ```

5. Change table name

   ```
   EXEC sp_RENAME '<table_name.old_table_name>', '<new_name>', 'COLUMN'
   ```

Create View

In SQL, a view is a virtual table based on the result-set of an SQL statement.
A view contains rows and columns, just like a real table. The fields in a view are fields from one or more real tables in the database.

```
CREATE VIEW [<view_name>] AS
SELECT column1, column2, ...
FROM table_name
WHERE condition;
```

Examples :

The view "Current Product List" lists all active products (products that are not discontinued) from the "Products" table. The view is created with the following SQL:

```
CREATE VIEW [Current Product List] AS
SELECT ProductID, ProductName
FROM Products
WHERE Discontinued = No;
```

Then, we can query the view as follows:

```
SELECT * FROM [Current Product List];
```

Another view in the Northwind sample database selects every product in the "Products" table with a unit price higher than the average unit price:

```
CREATE VIEW [Products Above Average Price] AS
SELECT ProductName, UnitPrice
FROM Products
WHERE UnitPrice > (SELECT AVG(UnitPrice) FROM Products);
```

We can query the view above as follows:

```
SELECT * FROM [Products Above Average Price];
```

Another view in the Northwind database calculates the total sale for each category in 1997. Note that this view selects its data from another view called "Product Sales for 1997":

```
CREATE VIEW [Category Sales For 1997] AS
SELECT DISTINCT Category_Name, Sum(Product_Sales) AS Category_Sales
FROM [Product Sales for 1997]
GROUP BY CategoryName;
```

We can query the view above as follows:

```
SELECT * FROM [Category Sales For 1997];
```

We can also add a condition to the query. Let's see the total sale only for the category "Beverages":

```
SELECT * FROM [Category Sales For 1997]
WHERE CategoryName = 'Beverages';
```

Inserting data into table

```
INSERT INTO <table_name> VALUES(<column1_value>, <column2_value>, ..);

INSERT INTO <table_name> (<Column_name1>, <column_name_2>, …)
Values (<column1_value>, <column2_value>, …);
```

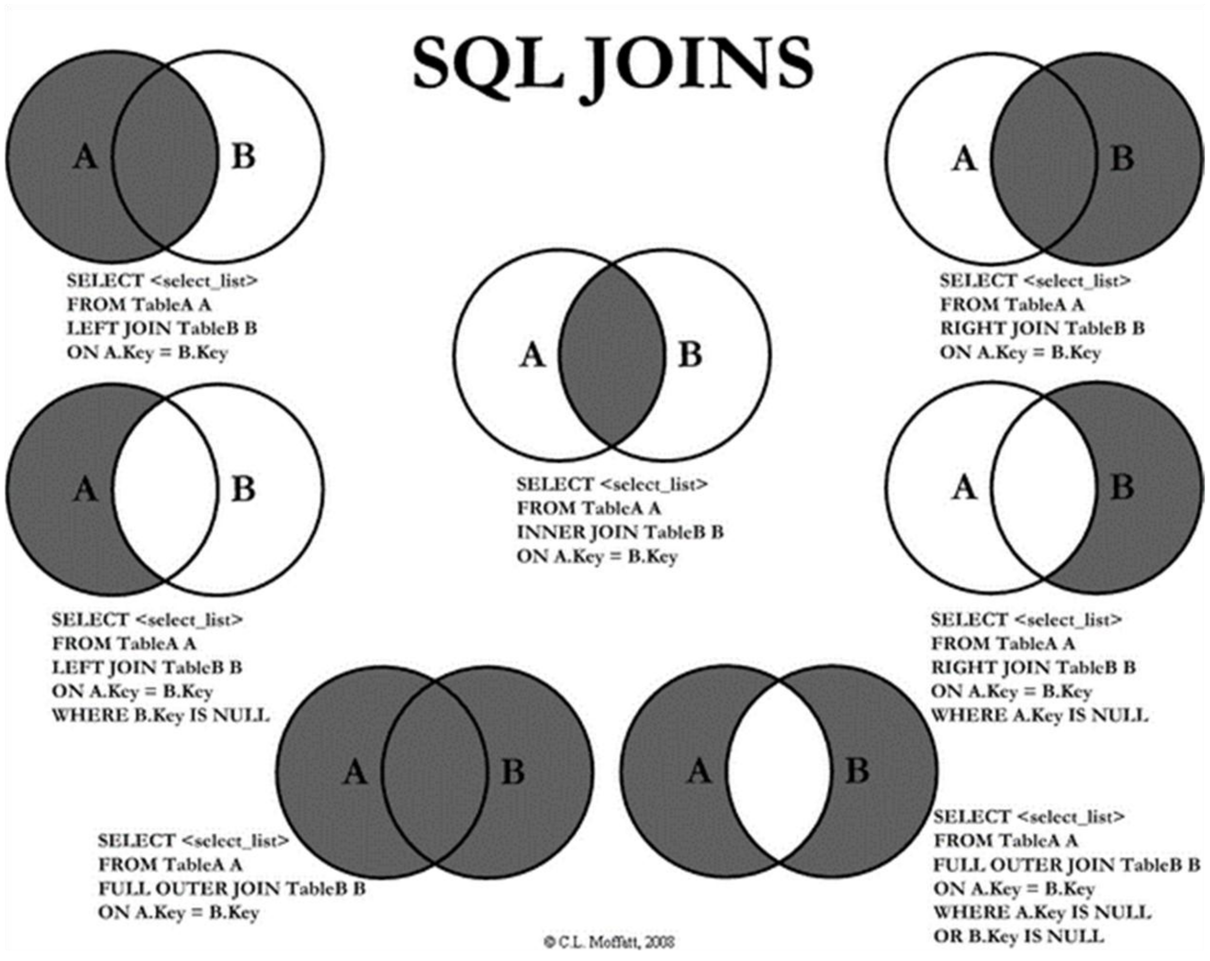
```
INSERT INTO Department VALUES(100, 'SALES');
INSERT INTO Department VALUES(200, 'MARKETING');
INSERT INTO Department VALUES(300, 'ADMINISTRATION');
INSERT INTO Department VALUES(400, 'PRODUCTION');

INSERT INTO Employee VALUES(1000, 100, 'Satish Kumar', 'Lucknow', 10000);
INSERT INTO Employee VALUES(1001, 100, 'Abhay Bhist', 'Delhi', 12000);
INSERT INTO Employee VALUES(1002, 100, 'Kapil Rajput', 'Mumbai', 15000);
INSERT INTO Employee VALUES(1003, 100, 'Ravi Mishra', 'Kanpur', 11400);
INSERT INTO Employee VALUES(1004, 100, 'Neeraj Yadav', 'Banaras', 16500);
```

Printing String/Expression

```
SELECT “String”;
SELECT <Expression>
```

Joins



Exercise

Retrieve data From tables

Write a SQL statement to display all the information of all salesmen.

```
SELECT * FROM Salesman;
```

Write a SQL statement to display a string "This is SQL Exercise, Practice and Solution".

```
SELECT "This is SQL Exercise, Practice and Solution";
```

Write a query to display three numbers in three columns.

```
SELECT 1,2,3;
```

Write a query to display the sum of two numbers 10 and 15 from RDMS server.

```
SELECT 10+15;
```

Write a query to display the result of an arithmetic expression.

```
SELECT (10+1)*5/3+2;
```

Write a SQL statement to display specific columns like name and commission for all the salesmen.

```
SELECT Name, Commission FROM Salesman;
```

Write a query to display the columns in a specific order like order date, salesman id, order number and purchase amount from for all the orders.

```
SELECT * From Orders ORDER BY Ord_Date DESC;
SELECT * From Orders ORDER BY Salesman_ID;
```

Write a query which will retrieve the value of salesman id of all salesmen, getting orders from the customers in orders table without any repeats.

```
SELECT DISTINCT (Salesman_id)  FROM Orders;
```

Write a SQL statement to display names and city of salesman, who belongs to the city of Paris.

```
SELECT Name, City FROM Salesman WHERE city = 'Paris';
```

Write a SQL statement to display all the information for those customers with a grade of 200.

```
SELECT * FROM CUSTOMER WHERE Grade = 200;
```

Write a SQL query to display the order number followed by order date and the purchase amount for each order which will be delivered by the salesman who is holding the ID 5001.

```
SELECT Ord_No, Ord_Date, Purch_Amt FROM Orders WHERE Salesman_ID = 5001;
```

Write a SQL query to display the Nobel prizes for 1970.

```
SELECT * FROM Nobel_Win Where Year = 1970;
```

Write a SQL query to know the winner of the 1971 prize for Literature.

```
SELECT * FROM Nobel_Win Where Year = 1971 AND Subject = 'Literature';
```

Write a SQL query to display the year and subject that won 'Dennis Gabor' his prize.

```
SELECT Year, Subject FROM Nobel_Win Where Winner = 'Dennis Gabor';
```

Write a SQL query to give the name of the 'Physics' winners since the year 1950.

```
SELECT Name FROM Nobel_Win WHERE Year >= 1950 AND Subject = ‘Physics’;
```

Write a SQL query to Show all the details (year, subject, winner, country) of the Chemistry prize winners between the year 1965 to 1975 inclusive.

```
SELECT * FROM Nobel_Win
WHERE Year BETWEEN 1965 AND 1975 AND Subject = 'Chemistry';
```

Write a SQL query to show all details of the Prime Ministerial winners after 1972 of Menachem Begin and Yitzhak Rabin.

```
SELECT * FROM Nobel_Win
WHERE Year > 1972 AND Winner IN('Menachem Begin', 'Yitzhak Rabin');
```

Write a SQL query to show all the details of the winners with first name Louis.

```
SELECT * FROM Nobel_Win WHERE Winner LIKE 'Louis%';
```

Write a SQL query to show all the winners in Physics for 1970 together with the winner of Economics for 1971.

```
SELECT * FROM Nobel_Win
WHERE (Year = 1970 AND Subject = 'Physics')
      OR (Year = 1971 AND Subject = 'Economics');
```

OR

```
SELECT * FROM Nobel_Win
WHERE (Year = 1970 AND Subject = 'Physics')
UNION
SELECT * FROM Nobel_Win
WHERE (Year = 1971 AND Subject = 'Economics')
```

Write a SQL query to show all the winners of nobel prize in the year 1970 except the subject Physiology and Economics.

```
SELECT * FROM Nobel_Win WHERE Subject NOT IN('Physiology', 'Economics');
```

Write a SQL query to show the winners of a 'Physiology' prize in an early year before 1971 together with winners of a 'Peace' prize in a later year on and after the 1974.

```
SELECT * FROM Nobel_Win
```

```
WHERE(Year < 1971 AND Subject = 'Physiology')
UNION
SELECT * FROM Nobel_Win
WHERE (Year > 1974 AND Subject = 'Peace')
```

Write a SQL query to find all details of the prize won by Johannes Georg Bednorz.

```
SELECT * FROM Nobel_Win Where Winner = 'Johannes Georg Bednorz';
```

Write a SQL query to find all the details of the nobel winners for the subject not started with the letter 'P' and arranged the list as the most recent comes first, then by name in order.

```
SELECT * FROM Nobel_Win
WHERE Subject Not Like 'P%' ORDER BY Year DESC, Winner;
```

Write a SQL query to find all the details of 1970 winners by the ordered to subject and winner name; but the list contain the subject Economics and Chemistry at last.

```
SELECT * FROM Nobel_Win
WHERE YEAR = 1970 ORDER BY
CASE WHEN Subject IN ('Chemistry', 'Economics') THEN 1 ELSE 0
END, Subject, Winner;
```

Write a SQL query to find all the products with a price between Rs.200 and Rs.600

```
SELECT * FROM Item_Mast WHERE Pro_Price BETWEEN 200 AND 600;
```

Write a SQL query to calculate the average price of all products of the manufacturer which code is 16.

```
SELECT AVG(Pro_Price) FROM Item_Mast Where Pro_Com = 16;
```

Write a SQL query to find the item name and price in Rs.

```
SELECT Pro_Name AS "Item Name", Pro_Price AS "Price In Rs." From Item_Mast;
```

Write a SQL query to display the name and price of all the items with a price is equal or more than Rs.250, and the list contain the larger price first and then by name in ascending order.

```
SELECT Pro_Name, Pro_Price FROM Item_Mast
WHERE Pro_Price >= 250 ORDER BY Pro_Price DESC, Pro_Name;
```

Write a SQL query to display the average price of the items for each company, showing only the company code.

```
SELECT Pro_Com, AVG(Pro_Price) FROM Item_Mast GROUP BY Pro_Com;
```

Write a SQL query to find the name and price of the cheapest item(s).

```
SELECT Pro_Price, Pro_Name FROM Item_Mast
Where Pro_Price = (SELECT MIN(Pro_Price) FROM Item_Mast);
```

Write a query in SQL to find the last name of all employees, without duplicates.

```
SELECT DISTINCT Emp_Lname FROM EMP_DETAILS
```

Write a query in SQL to find the data of employees whose last name is 'Snares'

```
SELECT * FROM EMP_DETAILS WHERE Emp_Lname = 'Snares'
```

Write a query in SQL to display all the data of employees that work in the department 57.

```
SELECT * FROM EMP_DETAILS WHERE Emp_Dept = 57
```

Write a query in SQL to display name, salary and department ID of employees having maximum salary in their respective department.

```
SELECT Emp_Name, Emp_Sal, Dept_ID FROM Employee
WHERE Emp_Sal IN (Select MAX(Emp_Sal) FROM Employee GROUP BY Dept_ID);
```

Boolean and Relational operators

Write a query to display all customers with a grade above 100.

```
SELECT * FROM Customer WHERE Grade > 100;
```

Write a query statement to display all customers in New York who have a grade value above 100.

```
SELECT * FROM Customer WHERE Grade > 100 AND City = 'New York';
```

Write a SQL statement to display all customers, who are either belongs to the city New York or had a grade above 100.

```
SELECT * FROM Customer WHERE Grade > 100 OR City = 'New York';
```

Write a SQL statement to display all the customers, who are either belongs to the city New York or not had a grade above 100.

```
SELECT * FROM Customer WHERE City = 'New York' OR NOT GRADE > 100;
```

Write a SQL query to display those customers who are neither belongs to the city New York nor grade value is more than 100.

```
SELECT * FROM Customer WHERE Grade <= 100 AND City <> 'New York';
OR
SELECT * FROM Customer WHERE NOT (Grade > 100 OR City = 'New York');
```

Write a SQL statement to display either those orders which are not issued on date 2012-09-10 and issued by the salesman whose ID is 505 and below or those orders which purchase amount is 1000.00 and below.

```
SELECT * FROM Orders
WHERE NOT ((Ord_Date = '2012-09-10' AND Salesman_ID > 505)
OR Purch_Amt > 1000);
```

Write a SQL statement to display salesman_id, name, city and commission who gets the commission within the range more than 0.10% and less than 0.12%.

```
SELECT Salesman_ID, Name, City, Commission FROM Salesman
```

```
WHERE Commission > 0.10 AND Commission < 0.12;
```

Write a SQL query to display all orders where purchase amount less than 200 or exclude those orders which order date is on or greater than 10th Feb,2012 and customer id is below 3009.

```
SELECT * FROM Orders
WHERE (Purch_Amt < 200) OR
NOT (Ord_Date >= '2012/02/10' AND Customer_ID < 3009);
```

Write a SQL statement where
i) order dates are anything but 2012-08-17, or customer id is not greater than 3005
ii) and purchase amount is not below 1000.

```
SELECT * FROM Orders
WHERE NOT ((Ord_Date = '2012/08/17' OR Customer_ID > 3005)
AND Purch_Amt < 1000)
```

Write a SQL query to display order number, purchase amount, archived, the unachieved percentage for those order which exceeds the 50% of the target value of 6000.

```
SELECT Ord_No, Purch_Amt,
(100 * Purch_Amt)/6000 AS ‘Achieved %’,
(100 * (6000 - Purch_Amt))/6000 AS ‘Unachieved %’
FROM Orders
WHERE (100 * Purch_Amt)/6000 > 50
```

NOTE : (Achieved And Unachieved % are calculated using purchase amount)

Write a query in SQL to find the data of employees whose last name is Dosni or Mardy.

```
SELECT * FROM Emp_Details WHERE Emp_Lname IN ('Dosni', 'Mardy')
```

Write a query in SQL to display all the data of employees that work in department 47 or department 63.

```
SELECT * FROM Emp_Details WHERE Emp_Dept IN (47, 63)
```

Wildcard and Special operators

Write a SQL statement to find those salesmen with all information who come from the city either Paris or Rome.

```
SELECT * FROM Salesman WHERE City IN ('Paris', 'Rome');
```

Write a query to filter those salesmen with all information who comes from any of the cities Paris and Rome.

```
SELECT * FROM Salesman WHERE City = 'Paris' OR City = 'Rome';
```

Write a query to produce a list of salesman_id, name, city and commision of each salesman who live in cities other than Paris and Rome.

```
SELECT Salesman_ID, Name, City, Commission FROM Salesman
```

```
      WHERE NOT City IN ('Paris', 'Rome');
```

Write a query to sort out those customers with all information whose ID value is within any of 3007, 3008 and 3009.

```
      SELECT * FROM Customer WHERE Customer_ID IN(3007, 3008, 3009);
```

Write a SQL statement to find those salesmen with all information who gets the commission within a range of 0.12 and 0.14.

```
      SELECT * FROM Salesman WHERE Commission BETWEEN 0.12 AND 0.14
```

Write a query to filter all those orders with all information which purchase amount value is within the range 500 and 4000 except those orders of purchase amount value 948.50 and 1983.43.

```
      SELECT * FROM Orders WHERE (Purch_Amt BETWEEN 500 AND 4000)
      AND NOT Purch_Amt IN (948.50, 1983.43);
```

Write a SQL statement to find those salesmen with all other information and name started with any latter within 'A' and 'K'.

```
      SELECT * FROM Salesman WHERE Name BETWEEN 'A%'AND 'K%'
```

Write a SQL statement to find those salesmen with all other information and name started with other than any latter within 'A' and 'L'.

```
      SELECT * FROM Salesman WHERE NOT Name BETWEEN 'A%'AND 'L%'
```

Write a SQL statement to find that customer with all information whose name begin with the letter 'B'.

```
      SELECT * FROM Customer WHERE Cust_Name LIKE 'B%'
```

Write a SQL statement to find all those customers with all information whose names are ending with the letter 'n'.

```
      SELECT * FROM Customer WHERE Cust_Name LIKE '%n'
```

Write a SQL statement to find those salesmen with all information whose name containing the 1st character is 'N' and the 4th character is 'l' and rests may be any character.

```
      SELECT * FROM Salesman WHERE Name LIKE 'N__l%'
```

Write a SQL statement to find those rows from the table testtable which contain the escape character underscore (_) in its column 'col1'.

```
      SELECT * FROM TestTable WHERE Col1 Like '%/_%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which does not contain the character underscore (_) in its column 'col1'.

```
      SELECT * FROM TestTable WHERE NOT Col1 Like '%/_%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which contain the escape character (/) in its column 'col1'.

```
      SELECT * FROM TestTable WHERE Col1 Like '%//%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which does not contain the escape character (/) in its column 'col1'.

```
SELECT * FROM TestTable WHERE NOT Col1 Like '%//%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which contain the string (_/) in its column 'col1'.

```
SELECT * FROM TestTable WHERE Col1 Like '%/_//%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which does not contain the string (_/) in its column 'col1'.

```
SELECT * FROM TestTable WHERE NOT Col1 Like '%/_//%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which contain the character (%) in its column 'col1'.

```
SELECT * FROM TestTable WHERE Col1 Like '%/%%' ESCAPE '/'
```

Write a SQL statement to find those rows from the table testtable which does not contain the character (%) in its column 'col1'.

```
SELECT * FROM TestTable WHERE NOT Col1 Like '%/%%' ESCAPE '/'
```

Write a SQL statement to find that customer with all information who does not get any grade except NULL.

```
SELECT * FROM Customer WHERE Grade IS NULL
```

Write a SQL statement to find that customer with all information who gets a grade except NULL value.

```
SELECT * FROM Customer WHERE NOT Grade IS NULL
```

Write a query in SQL to display all the data of employees whose last name begins with an 'D'.

```
SELECT * FROM Emp_Details WHERE Emp_Lname LIKE 'D%'
```

Aggregate Functions

Write a SQL statement to find the total purchase amount of all orders.

```
SELECT SUM(Purch_Amt) FROM Orders
```

Write a SQL statement to find the average purchase amount of all orders.

```
SELECT AVG(Purch_Amt) FROM Orders
```

Write a SQL statement to find the number of salesmen currently listing for all of their customers.

```
SELECT COUNT(DISTINCT Salesman_ID) FROM Orders
```

Write a SQL statement know how many customer have listed their names.

```
SELECT COUNT(*) FROM Customer
```

Write a SQL statement find the number of customers who gets at least a gradation for his/her performance.

```
      SELECT COUNT (ALL GRADE) FROM CUSTOMER
```

Write a SQL statement to get the maximum purchase amount of all the orders.

```
      SELECT MAX(Purch_Amt) FROM Orders
```

Write a SQL statement to get the minimum purchase amount of all the orders.

```
      SELECT MIN(Purch_Amt) FROM Orders
```

Write a SQL statement which selects the highest grade for each of the cities of the customers.

```
      SELECT MAX(Grade), City FROM Customer GROUP BY City
```

Write a SQL statement to find the highest purchase amount ordered by the each customer with their ID and highest purchase amount.

```
      SELECT MAX(Purch_Amt), Customer_ID FROM Orders GROUP BY Customer_ID
```

Write a SQL statement to find the highest purchase amount ordered by the each customer on a particular date with their ID, order date and highest purchase amount.

```
      SELECT MAX(Purch_Amt), Customer_ID, Ord_Date FROM Orders
      GROUP BY Customer_ID, Ord_Date
```

Write a SQL statement to find the highest purchase amount on a date '2012-08-17' for each salesman with their ID.

```
      SELECT MAX(Purch_Amt), Salesman_ID FROM Orders
      WHERE Ord_Date = '2012-08-17' GROUP BY Salesman_ID
```

Write a SQL statement to find the highest purchase amount with their ID and order date, for only those customers who have highest purchase amount in a day is more than 2000.

```
      SELECT MAX(Purch_Amt), Customer_ID, Ord_Date FROM Orders
      GROUP BY Customer_ID, Ord_Date HAVING MAX(Purch_Amt) > 2000
```

Write a SQL statement to find the highest purchase amount with their ID and order date, for those customers who have a higher purchase amount in a day is within the range 2000 and 6000.

```
      SELECT MAX(Purch_Amt), Customer_ID, Ord_Date FROM Orders
      GROUP BY Customer_ID, Ord_Date HAVING MAX(Purch_Amt) BETWEEN 2000 AND 6000
```

Write a SQL statement to find the highest purchase amount with their ID and order date, for only those customers who have a higher purchase amount in a day is within the list 2000, 3000, 5760 and 6000.

```
      SELECT MAX(Purch_Amt), Customer_ID, Ord_Date FROM Orders
      GROUP BY Customer_ID, Ord_Date HAVING MAX(Purch_Amt) IN(2000, 3000, 5760, 
6000)
```

Write a SQL statement to find the highest purchase amount with their ID, for only those customers whose ID is within the range 3002 and 3007.

```
      SELECT MAX(Purch_Amt), Customer_ID FROM Orders
      WHERE Customer_ID BETWEEN 3002 AND 3007 GROUP BY Customer_ID
```

Write a SQL statement to display customer details (ID and purchase amount) whose IDs are within the range 3002 and 3007 and highest purchase amount is more than 1000.

```
      SELECT MAX(Purch_Amt), Customer_ID FROM Orders
```

```
WHERE Customer_ID BETWEEN 3002 AND 3007
GROUP BY Customer_ID HAVING Max(Purch_Amt) > 1000
```

Write a SQL statement to find the highest purchase amount with their ID, for only those salesmen whose ID is within the range 5003 and 5008.

```
SELECT MAX(Purch_Amt), Salesman_ID FROM Orders
WHERE Salesman_ID BETWEEN 5003 AND 5008 GROUP BY Salesman_ID
```

Write a SQL statement that counts all orders for a date August 17th, 2012.

```
SELECT COUNT(*) FROM Orders WHERE Ord_Date = '2012/08/17'
```

Write a SQL statement that count the number of salesmen for whom a city is specified. Note that there may be spaces or no spaces in the city column if no city is specified.

```
SELECT COUNT(*) FROM Salesman WHERE City IS NOT NULL
```

Write a query that counts the number of salesmen with their order date and ID registering orders for each day.

```
SELECT Ord_Date, Salesman_ID, COUNT(*) FROM Orders
GROUP BY Ord_Date, Salesman_ID
```

Write a SQL query to calculate the average price of all the products.

```
SELECT AVG(Pro_Price) FROM Item_Mast
```

Write a SQL query to find the number of products with a price more than or equal to Rs.350.

```
SELECT COUNT(*) FROM Item_Mast WHERE Pro_Price >= 350
```

Write a SQL query to display the average price of each company's products, along with their code.

```
SELECT AVG(Pro_Price), Pro_Com From Item_Mast GROUP BY Pro_Com
```

Write a query in SQL to find the sum of the allotment amount of all departments.

```
SELECT SUM(Dpt_Allotment) FROM Emp_Department
```

Write a query in SQL to find the number of employees in each department along with the department code.

```
SELECT COUNT(*), Emp_Dept FROM Emp_Details GROUP BY Emp_Dept
```

Formatting Output

Write a SQL statement to display the commission with the percent sign (%) with salesman ID, name and city columns for all the salesmen.

```
SELECT Salesman_ID, Name, City, CONCAT((100 * Commission),'%') AS "%
Commission" FROM Salesman
```

Write a SQL statement to find out the number of orders booked for each day and display it in such a format like "For 2001-10-10 there are 15 orders".

```
SELECT CONCAT('For ', Ord_Date, ' there are ', COUNT(*), ' Orders')
AS "Number Of Orders" FROM Orders GROUP BY Ord_Date
```

Write a query to display the orders according to the order number arranged by ascending order.

```
SELECT * FROM Orders ORDER BY Ord_No
```

Write a SQL statement to arrange the orders according to the order date in such a manner that the latest date will come first then previous dates.

```
SELECT * FROM Orders ORDER BY Ord_Date DESC
```

Write a SQL statement to display the orders with all information in such a manner that, the older order date will come first and the highest purchase amount of same day will come first.

```
SELECT * FROM Orders ORDER BY Ord_Date ASC, Purch_Amt DESC
```

Write a SQL statement to display the customer name, city, and grade, etc. and the display will be arranged according to the smallest customer ID.

```
SELECT Cust_Name, City, Grade FROM Customer ORDER BY Customer_ID
```

Write a SQL statement to make a report with salesman ID, order date and highest purchase amount in such an arrangement that, the smallest salesman ID will come first along with their smallest order date.

```
SELECT Salesman_ID, Ord_Date, MAX(Purch_Amt) FROM Orders
GROUP BY Salesman_ID, Ord_Date
ORDER BY Salesman_ID, Ord_Date
```

Write a SQL statement to display customer name, city and grade in such a manner that, the customer holding highest grade will come first.

```
SELECT Cust_Name, City, Grade FROM Customer ORDER BY Grade DESC
```

Write a SQL statement to make a report with customer ID in such a manner that, the largest number of orders booked by the customer will come first along with their highest purchase amount.

```
SELECT Customer_ID, COUNT(*), MAX(Purch_Amt) FROM Orders
GROUP BY Customer_ID ORDER BY COUNT DESC
```

Write a SQL statement to make a report with order date in such a manner that, the latest order date will come last along with the total purchase amount and total commission (15% for all salesmen) for that date.

```
SELECT Ord_Date, SUM(Purch_Amt), ((SUM(Purch_Amt)/100) * 15) AS "Commission"
FROM Orders GROUP BY Ord_Date ORDER BY Ord_Date
```

Query on Multiple Tables

Write a query to find those customers with their name and those salesmen with their name and city who lives in the same city.

```
SELECT Customer.Cust_Name, Salesman.Name, Salesman.City FROM Salesman,
Customer
WHERE Customer.City = Salesman.City
```

Write a SQL statement to find the names of all customers along with the salesmen who works for them.

```
SELECT Customer.Cust_Name, Salesman.Name FROM Salesman, Customer
WHERE Customer.Salesman_ID = Salesman.Salesman_ID
```

Write a SQL statement to display all those orders by the customers not located in the same cities where their salesmen live.

```
SELECT Orders.Ord_No, Customer.Cust_Name, Orders.Customer_ID,
Orders.Salesman_ID
FROM Orders, Customer, Salesman
WHERE Customer.City <> Salesman.City
AND Orders.Customer_ID = Customer.Customer_ID
AND Orders.Salesman_ID = Salesman.Salesman_ID
```

Write a SQL statement that finds out each order number followed by the name of the customers who made the order.

```
SELECT Orders.Ord_No, Customer.Cust_Name
FROM Orders, Customer
WHERE Orders.Customer_ID = Customer.Customer_ID
```

Write a SQL statement that sorts out the customer and their grade who made an order. Each of the customers must have a grade and served by at least a salesman, who belongs to a city.

```
SELECT Customer.Customer_ID, Customer.Grade, Salesman.City
FROM Customer, Salesman, Orders
WHERE Orders.Customer_ID = Customer.Customer_ID AND
Orders.Salesman_ID = Salesman.Salesman_ID
AND Customer.Grade IS NOT NULL
AND Salesman.City IS NOT NULL
```

Write a query that produces all customers with their name, city, salesman and commission, who served by a salesman and the salesman works at a rate of the commission within 12% to 14%.

```
SELECT Customer.Cust_Name, Customer.City, Salesman.Name,
Salesman.Salesman_ID, CONCAT(Salesman.Commission * 100, '%') AS "Commission
%" FROM Salesman, Customer
WHERE Customer.Salesman_ID = Salesman.Salesman_ID
AND Salesman.Commission BETWEEN 0.12 AND 0.14
```

Write a SQL statement that produces all orders with the order number, customer name, commission rate and earned commission amount for those customers who carry their grade is 200 or more and served by an existing salesman.

```
SELECT Orders.Ord_No, Customer.Cust_Name,
CONCAT((100 * Salesman.Commission), '%') AS "Commission %",
(Orders.Purch_Amt * Salesman.Commission) AS "Commission_Amt"
FROM Customer, Orders, Salesman
WHERE Orders.Salesman_ID = Salesman.Salesman_ID
AND Orders.Customer_ID = Customer.Customer_ID
AND Customer.Grade >= 200
```

SORTING and FILTERING on HR Database

Write a query in SQL to display the full name (first and last name), and salary for those employees who earn below 6000.

```
SELECT CONCAT(First_Name, ' ', Last_Name) AS "Full Name", Salary FROM
Employees WHERE SALARY < 6000
```

Write a query in SQL to display the first and last_name, department number and salary for those employees who earn more than 8000.

```
SELECT First_Name, Last_Name, Department_ID, Salary FROM Employees
WHERE SALARY > 8000
```

Write a query in SQL to display the first and last name, and department number for all employees whose last name is “McEwen”.

```
SELECT First_Name, Last_Name, Department_ID FROM Employees
WHERE Last_Name = 'McEwen'
```

Write a query in SQL to display all the information for all employees without any department number.

```
SELECT * FROM Employees WHERE Department_ID IS NULL
```

Write a query in SQL to display all the information about the department Marketing.

```
SELECT * FROM Departments WHERE Department_Name = 'Marketing'
```

Write a query in SQL to display the full name (first and last), hire date, salary, and department number for those employees whose first name does not containing the letter M and make the result set in ascending order by department number.

```
SELECT CONCAT(First_Name, ' ', Last_Name) AS "Full Name",
Hire_Date, Salary, Department_ID FROM Employees
WHERE NOT First_Name LIKE '%M%' ORDER BY Department_ID
```

Write a query in SQL to display all the information of employees whose salary is in the range of 8000 and 12000 and commission is not null or department number is except the number 40, 120 and 70 and they have been hired before June 5th, 1987.

```
SELECT * FROM Employees
WHERE (Salary BETWEEN 8000 AND 12000 AND Commission_PCT IS NOT NULL)
OR (Department_ID IN(40, 120, 70) AND Hire_Date < '1987/06/05')
```

Write a query in SQL to display the full name (first and last name), and salary for all employees who does not earn any commission.

```
SELECT CONCAT(First_Name, ' ', Last_Name) AS "Full Name", Salary
FROM Employees WHERE Commission_PCT = 0
```

Write a query in SQL to display the full name (first and last), the phone number and email separated by hyphen, and salary, for those employees whose salary is within the range of 9000 and 17000. The column headings assign with Full_Name, Contact_Details and Remuneration respectively.

```
SELECT CONCAT(First_Name, ' ', Last_Name) AS "Full_Name",
CONCAT(Phone_Number, '-', Email) AS "Contact_Details",
Salary AS "Remuneration"
FROM Employees WHERE Salary BETWEEN 9000 AND 17000
```

Write a query in SQL to display the first and last name, and salary for those employees whose first name is ending with the letter m.

```
SELECT First_Name, Last_Name, Salary FROM Employees
```

```
      WHERE First_Name Like '%m'
```

Write a query in SQL to display the full name (first and last) name, and salary, for all employees whose salary is out of the range 7000 and 15000 and make the result set in ascending order by the full name.

```
      SELECT CONCAT(First_Name, ' ', Last_Name) AS "Full_Name",
      Salary FROM Employees
      WHERE NOT Salary BETWEEN 7000 AND 15000
      ORDER BY CONCAT(First_Name, ' ', Last_Name)
```

Write a query in SQL to display the full name (first and last), job id and date of hire for those employees who was hired during November 5th, 2007 and July 5th, 2009.

```
      SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) AS "FULL_NAME",
      JOB_ID, HIRE_DATE FROM EMPLOYEES
      WHERE HIRE_DATE BETWEEN '2007-11-05' AND '2009-07-5'
```

Write a query in SQL to display the the full name (first and last name), and department number for those employees who works either in department 70 or 90.

```
      SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) AS "FULL_NAME",
      DEPARTMENT_ID FROM EMPLOYEES WHERE DEPARTMENT_ID IN (70, 90)
```

Write a query in SQL to display the full name (first and last name), salary, and manager number for those employees who is working under a manager.

```
      SELECT CONCAT(FIRST_NAME, ' ', LAST_NAME) AS "FULL_NAME",
      SALARY, MANAGER_ID FROM EMPLOYEES WHERE MANAGER_ID IS NOT NULL
```

Write a query in SQL to display all the information from Employees table for those employees who was hired before June 21st, 2002.

```
      SELECT * FROM EMPLOYEES WHERE HIRE_DATE < '2002-06-21'
```

Write a query in SQL to display the first and last name, email, salary and manager ID, for those employees whose managers are hold the ID 120, 103 or 145.

```
      SELECT FIRST_NAME, LAST_NAME, EMAIL, SALARY, MANAGER_ID FROM EMPLOYEES
      WHERE MANAGER_ID IN (120, 103, 145)
```

Write a query in SQL to display all the information for all employees who have the letters D, S, or N in their first name and also arrange the result in descending order by salary.

```
      SELECT * FROM EMPLOYEES
      WHERE FIRST_NAME LIKE '%D%'
      OR FIRST_NAME LIKE  '%S%'
      OR FIRST_NAME LIKE '%N%'
      ORDER BY  SALARY DESC
```

Write a query in SQL to display the full name (first name and last name), hire date, commission percentage, email and telephone separated by '-', and salary for those employees who earn the salary above 11000 or the seventh digit in their phone number equals 3 and make the result set in a descending order by the first name.

```
      SELECT CONCAT(FIRST_NAME, ‘ ‘, LAST_NAME) AS “FULL_NAME”,
      HIRE_DATE, COMMISSION_PCT,
      CONCAT(EMAIL, ‘-‘, PHONE_NUMBER) AS “CONTACT_DETAILS”
      FROM EMPLOYEES
      WHERE SALARY > 11000
```

```
OR PHONE_NUMBER LIKE ‘______7%’
ORDER BY FIRST_NAME DESC
```

Write a query in SQL to display the first and last name, and department number for those employees who holds a letter s as a 3rd character in their first name.

```
SELECT FIRST_NAME, LAST_NAME, DEPARTMENT_ID FROM EMPLOYEES
WHERE FIRST_NAME LIKE ‘__s%’
```

Write a query in SQL to display the employee ID, first name, job id, and department number for those employees who is working except the departments 50,30 and 80.

```
SELECT EMPLOYEE_ID, FIRST_NAME, JOB_ID, DEPARTMENT_ID FROM EMPLOYEES
WHERE NOT DEPARTMENT_ID IN (80, 30, 50)
```

Write a query in SQL to display the employee Id, first name, job id, and department number for those employees whose department number equals 30, 40 or 90.

```
SELECT EMPLOYEE_ID, FIRST_NAME, JOB_ID, DEPARTMENT_ID FROM EMPLOYEES
WHERE DEPARTMENT_ID IN (40, 30, 90)
```

Write a query in SQL to display the ID for those employees who did two or more jobs in the past.

```
SELECT COUNT(*), EMPLOYEE_ID FROM JOB_HISTORY
GROUP BY EMPLOYEE_ID
HAVING COUNT(*) > 1
```

Write a query in SQL to display job ID, number of employees, sum of salary, and difference between highest salary and lowest salary for a job.

```
SELECT JOB_ID, COUNT(*) AS "NUM_EMPLOYEES",
SUM(SALARY) AS "SUM_SALARY",
(MAX(SALARY) - MIN(SALARY)) AS "DIFFERENCE"
FROM EMPLOYEES GROUP BY JOB_ID
```

Write a query in SQL to display job ID for those jobs that were done by two or more for more than 300 days.

```
SELECT JOB_ID FROM JOB_HISTORY
WHERE (END_DATE - START_DATE) > 300
GROUP BY JOB_ID HAVING COUNT(*) > 1
```

Write a query in SQL to display the country ID and number of cities in that country we have.

```
SELECT COUNTRY_ID, COUNT(*) AS "# CITIES" FROM LOCATIONS
GROUP BY COUNTRY_ID
```

Write a query in SQL to display the manager ID and number of employees managed by the manager.

```
SELECT MANAGER_ID, COUNT(*) AS "NUM_EMPLOYEES" FROM EMPLOYEES
GROUP BY MANAGER_ID
```

Write a query in SQL to display the details of jobs in descending sequence on job title.

```
SELECT * FROM JOBS ORDER BY JOB_TITLE DESC
```

Write a query in SQL to display the first and last name and date of joining of the employees who is either Sales Representative or Sales Man.

```
SELECT FIRST_NAME, LAST_NAME, HIRE_DATE FROM EMPLOYEES
```

```
WHERE JOB_ID IN ('SA_MAN', 'SA_REP')
```

Write a query in SQL to display the average salary of employees for each department who gets a commission percentage.

```
SELECT AVG(SALARY), DEPARTMENT_ID FROM EMPLOYEES
WHERE COMMISSION_PCT IS NOT NULL GROUP BY DEPARTMENT_ID
```

Write a query in SQL to display those departments where any manager is managing 4 or more employees.

```
SELECT DEPARTMENT_ID FROM EMPLOYEES GROUP BY DEPARTMENT_ID
HAVING COUNT(*) >= 4
```

Write a query in SQL to display those departments where more than ten employees work who got a commission percentage.

```
SELECT DEPARTMENT_ID FROM EMPLOYEES WHERE COMMISSION_PCT IS NOT NULL
GROUP BY DEPARTMENT_ID HAVING COUNT(*) > 10
```

Write a query in SQL to display the employee ID and the date on which he ended his previous job.

```
SELECT EMPLOYEE_ID, MAX(END_DATE) FROM JOB_HISTORY GROUP BY EMPLOYEE_ID
```

Write a query in SQL to display the details of the employees who have no commission percentage and salary within the range 7000 to 12000 and works in that department which number is 50.

```
SELECT * FROM EMPLOYEES WHERE COMMISSION IS NULL
AND SALARY BETWEEN 7000 AND 12000
AND DEPARTMENT_ID = 50
```

Write a query in SQL to display the job ID for those jobs which average salary is above 8000.

```
SELECT JOB_ID FROM EMPLOYEES GROUP BY JOB_ID HAVING AVG(SALARY) > 8000
```

Write a query in SQL to display job Title, the difference between minimum and maximum salaries for those jobs which max salary within the range 12000 to 18000.

```
SELECT JOB_TITLE, (MAX_SALARY - MIN_SALARY) AS "DIFFERENCE"
FROM JOBS WHERE MAX_SALARY BETWEEN 12000 AND 18000
```

Write a query in SQL to display all those employees whose first name or last name starts with the letter D.

```
SELECT * FROM EMPLOYEES WHERE FIRST_NAME LIKE 'D%' OR LAST_NAME LIKE 'D%'
```

Write a query in SQL to display the details of jobs which minimum salary is greater than 9000.

```
SELECT * FROM JOBS WHERE MIN_SALARY > 9000
```

Write a query in SQL to display those employees who joined after 7th September, 1987.

```
SELECT * FROM EMPLOYEES WHERE HIRE_DATE > '1987-09-07'
```

JOINS

Write a SQL statement to prepare a list with salesman name, customer name and their cities for the salesmen and customer who belongs to the same city.

```
SELECT SALESMAN.NAME, CUSTOMER.CUST_NAME, SALESMAN.CITY
FROM SALESMAN INNER JOIN CUSTOMER ON SALESMAN.CITY = CUSTOMER.CITY
```

`THIS IS SAME AS`

```
SELECT SALESMAN.NAME, CUSTOMER.CUST_NAME, SALESMAN.CITY
FROM SALESMAN, CUSTOMER WHERE SALESMAN.CITY = CUSTOMER.CITY
```

Write a SQL statement to make a list with order no, purchase amount, customer name and their cities for those orders which order amount between 500 and 2000.

```
SELECT ORDERS.ORD_NO, ORDERS.PURCH_AMT, CUSTOMER.CUST_NAME, CUSTOMER.CITY
FROM CUSTOMER INNER JOIN ORDERS
ON CUSTOMER.CUSTOMER_ID = ORDERS.CUSTOMER_ID
WHERE ORDERS.PURCH_AMT BETWEEN 500 AND 2000
```

Write a SQL statement to know which salesman are working for which customer.

```
SELECT SALESMAN.NAME, CUSTOMER.CUST_NAME
FROM CUSTOMER INNER JOIN SALESMAN
ON SALESMAN.SALESMAN_ID = CUSTOMER.SALESMAN_ID
```

Write a SQL statement to find the list of customers who appointed a salesman for their jobs who gets a commission from the company is more than 12%.

```
SELECT CUSTOMER.CUST_NAME,
(100 * SALESMAN.COMMISSION) AS "COMMISSION %", SALESMAN.NAME
FROM CUSTOMER INNER JOIN SALESMAN
ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID
WHERE SALESMAN.COMMISSION > 0.12
```

Write a SQL statement to find the list of customers who appointed a salesman for their jobs who does not live in the same city where their customer lives, and gets a commission is above 12% .

```
SELECT CUSTOMER.CUST_NAME,
(100 * SALESMAN.COMMISSION) AS "COMMISSION %", SALESMAN.NAME
FROM CUSTOMER INNER JOIN SALESMAN
ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID
WHERE SALESMAN.COMMISSION > 0.12
AND SALESMAN.CITY <> CUSTOMER.CITY
```

Write a SQL statement to find the details of a order i.e. order number, order date, amount of order, which customer gives the order and which salesman works for that customer and how much commission he gets for an order.

```
SELECT ORDERS.ORD_NO, ORDERS.PURCH_AMT, ORDERS.ORD_DATE,
CUSTOMER.CUST_NAME, SALESMAN.NAME AS "SALESMAN_NAME",
(SALESMAN.COMMISSION * 100) AS "COMMISSION %"
FROM ORDERS INNER JOIN CUSTOMER
ON ORDERS.CUSTOMER_ID = CUSTOMER.CUSTOMER_ID
INNER JOIN SALESMAN
ON ORDERS.SALESMAN_ID = SALESMAN.SALESMAN_ID
```

Write a SQL statement to make a join on the tables salesman, customer and orders in such a form that the same column of each table will appear once and only the relational rows will come.

```
SELECT * FROM ORDERS NATURAL JOIN CUSTOMER NATURAL JOIN SALESMAN
```

Write a SQL statement to make a list in ascending order for the customer who works either through a salesman or by own.

```
SELECT CUSTOMER.CUSTOMER_ID, CUSTOMER.CUST_NAME, CUSTOMER.CITY,
SALESMAN.NAME AS "SALESMAN"
FROM CUSTOMER LEFT JOIN SALESMAN
ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID
ORDER BY CUSTOMER.CUSTOMER_ID
```

Write a SQL statement to make a list in ascending order for the customer who holds a grade less than 300 and works either through a salesman or by own.

```
SELECT CUSTOMER.CUSTOMER_ID, CUSTOMER.CUST_NAME, CUSTOMER.CITY,
CUSTOMER.GRADE, SALESMAN.NAME AS "SALESMAN"
FROM CUSTOMER LEFT JOIN SALESMAN
ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID
WHERE GRADE < 300
```

Write a SQL statement to make a report with customer name, city, order number, order date, and order amount in ascending order according to the order date to find that either any of the existing customers have placed no order or placed one or more orders.

```
SELECT CUSTOMER.CUST_NAME, CUSTOMER.CITY, ORDERS.ORD_NO,
ORDERS.ORD_DATE, ORDERS.PURCH_AMT
FROM CUSTOMER LEFT JOIN ORDERS
ON CUSTOMER.CUSTOMER_ID = ORDERS.CUSTOMER_ID
ORDER BY ORDERS.ORD_DATE
```

Write a SQL statement to make a report with customer name, city, order number, order date, order amount salesman name and commission to find that either any of the existing customers have placed no order or placed one or more orders by their salesman or by own.

```
SELECT CUSTOMER.CITY, CUSTOMER.CUST_NAME, ORDERS.ORD_NO,
ORDERS.PURCH_AMT, SALESMAN.NAME AS "SALESMAN",
SALESMAN.COMMISSION FROM  CUSTOMER LEFT JOIN ORDERS
ON CUSTOMER.CUSTOMER_ID = ORDERS.CUSTOMER_ID
LEFT JOIN SALESMAN ON SALESMAN.SALESMAN_ID = CUSTOMER.SALESMAN_ID
```

Write a SQL statement to make a list in ascending order for the salesmen who works either for one or more customer or not yet join under any of the customers.

```
SELECT SALESMAN.SALESMAN_ID, SALESMAN.NAME,
SALESMAN.CITY, CUSTOMER.CUST_NAME FROM SALESMAN LEFT JOIN CUSTOMER
ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID
ORDER BY SALESMAN.SALESMAN_ID
```

Write a SQL statement to make a list for the salesmen who works either for one or more customer or not yet join under any of the customers who placed either one or more orders or no order to their supplier.

```
SELECT SALESMAN.SALESMAN_ID, SALESMAN.NAME, SALESMAN.CITY,
CUSTOMER.CUST_NAME,CUSTOMER.GRADE, ORDERS.ORD_NO, ORDERS.PURCH_AMT
FROM SALESMAN
LEFT JOIN CUSTOMER ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID
LEFT JOIN ORDERS ON ORDERS.CUSTOMER_ID = CUSTOMER.CUSTOMER_ID
```

Write a SQL statement to make a list for the salesmen who either work for one or more customers or yet to join any of the customer. The customer may have placed, either one or more orders on or above order amount 2000 and must have a grade, or he may not have placed any order to the associated supplier.

```
SELECT CUSTOMER.CUST_NAME, CUSTOMER.CITY, CUSTOMER.GRADE,
SALESMAN.SALESMAN_NAME, ORDERS.ORD_NO, ORDERS.ORD_DATE, ORDERS.PURCH_AMT
FROM SALESMAN LEFT JOIN CUSTOMER
ON CUSTOMER.SALESMAN_ID = SALESMAN.SALESMAN_ID LEFT JOIN ORDERS
ON ORDERS.CUSTOMER_ID = CUSTOMER.CUSTOMER_ID
WHERE (PURCH_AMT >= 2000 AND GRADE IS NOT NULL)
OR ORDERS.ORD_NO IS NULL
```

Write a SQL statement to make a report with customer name, city, order no. order date, purchase amount for those customers from the existing list who placed one or more orders or which order(s) have been placed by the customer who is not on the list.

```
SELECT CUSTOMER.CUST_NAME, CUSTOMER.CITY, ORDERS.ORD_NO,
ORDERS.ORD_DATE, ORDERS.PURCH_AMT
FROM ORDERS LEFT JOIN CUSTOMER
ON ORDERS.CUSTOMER_ID = CUSTOMER.CUSTOMER_ID
```

Write a SQL statement to make a report with customer name, city, order no. order date, purchase amount for only those customers on the list who must have a grade and placed one or more orders or which order(s) have been placed by the customer who is neither in the list not have a grade.

```
SELECT CUSTOMER.CUST_NAME, CUSTOMER.CITY, ORDERS.ORD_NO, ORDERS.ORD_DATE,
ORDERS.PURCH_AMT
FROM  CUSTOMER FULL OUTER JOIN ORDERS
ON CUSTOMER.CUSTOMER_ID = ORDERS.CUSTOMER_ID
WHERE (CUSTOMER.CUSTOMER_ID IS NOT NULL AND CUSTOMER.GRADE IS NOT NULL)
OR (CUSTOMER.CUSTOMER_ID IS NULL AND CUSTOMER.GRADE IS NULL)
```

Write a SQL statement to make a cartesian product between salesman and customer i.e. each salesman will appear for all customer and vice versa.

```
SELECT SALESMAN.SALESMAN_NAME, CUSTOMER.CUST_NAME FROM SALESMAN, CUSTOMER
OR
SELECT SALESMAN.SALESMAN_NAME, CUSTOMER.CUST_NAME
FROM SALESMAN CROSS JOIN CUSTOMER
```

Write a SQL statement to make a cartesian product between salesman and customer i.e. each salesman will appear for all customer and vice versa for that customer who belongs to a city.

```
SELECT SALESMAN.SALESMAN_NAME, CUSTOMER.CUST_NAME , SALESMAN.CITY
FROM SALESMAN CROSS JOIN CUSTOMER
WHERE SALESMAN.CITY IS NOT NULL
```

Write a SQL statement to make a cartesian product between salesman and customer i.e. each salesman will appear for all customer and vice versa for those salesmen who belongs to a city and the customers who must have a grade.

```
SELECT SALESMAN.SALESMAN_NAME, CUSTOMER.* , SALESMAN.*
FROM SALESMAN CROSS JOIN CUSTOMER
WHERE SALESMAN.CITY IS NOT NULL AND CUSTOMER.GRADE IS NOT NULL
```

Write a SQL statement to make a cartesian product between salesman and customer i.e. each salesman will appear for all customer and vice versa for those salesmen who must belong a city which is not the same as his customer and the customers should have an own grade.

```
SELECT SALESMAN.SALESMAN_NAME, CUSTOMER.* , SALESMAN.*
FROM SALESMAN CROSS JOIN CUSTOMER
WHERE SALESMAN.CITY IS NOT NULL AND CUSTOMER.GRADE IS NOT NULL
AND CUSTOMER.CITY <> SALESMAN.CITY
```

Write a SQL query to display all the data from the item_mast, including all the data for each item's producer company.

```
SELECT * FROM ITEM_MAST INNER JOIN COMPANY_MAST
ON ITEM_MAST.PRO_COM = COMPANY_MAST.COM_ID
```

Write a SQL query to display the item name, price, and company name of all the products.

```
SELECT ITEM_MAST.PRO_NAME, ITEM_MAST.PRO_PRICE, COMPANY_MAST.COM_NAME
FROM ITEM_MAST INNER JOIN COMPANY_MAST
ON COMPANY_MAST.COM_ID = ITEM_MAST.PRO_COM
```

Write a SQL query to display the average price of items of each company, showing the name of the company.

```
SELECT COMPANY_MAST.COM_NAME, AVG(ITEM_MAST.PRO_PRICE) AS 'AVERAGE_PRICE'
FROM COMPANY_MAST INNER JOIN ITEM_MAST
ON COMPANY_MAST.COM_ID = ITEM_MAST.PRO_COM
GROUP BY COMPANY_MAST.COM_NAME
```

Write a SQL query to display the names of the company whose products have an average price larger than or equal to Rs. 350.

```
SELECT COMPANY_MAST.COM_NAME, AVG(ITEM_MAST.PRO_PRICE) AS 'AVERAGE_PRICE'
FROM COMPANY_MAST INNER JOIN ITEM_MAST
ON COMPANY_MAST.COM_ID = ITEM_MAST.PRO_COM
GROUP BY COMPANY_MAST.COM_NAME
HAVING AVG(ITEM_MAST.PRO_PRICE) > 350
```

Write a SQL query to display the name of each company along with the ID and price for their most expensive product.

```
SELECT COMPANY_MAST.COM_ID, COMPANY_MAST.COM_NAME,
MAX(ITEM_MAST.PRO_PRICE) AS 'MAX_PRICE'
FROM COMPANY_MAST INNER JOIN ITEM_MAST
ON COMPANY_MAST.COM_ID = ITEM_MAST.PRO_COM
GROUP BY COMPANY_MAST.COM_ID, COMPANY_MAST.COM_NAME
```

Write a query in SQL to display all the data of employees including their department.

```
SELECT * FROM EMP_DETAILS INNER JOIN EMP_DEPARTMENT ON
EMP_DEPARTMENT.DPT_CODE = EMP_DETAILS.EMP_DEPT
```

Write a query in SQL to display the first name and last name of each employee, along with the name and sacntion amount for their department.

```
SELECT EMP_DETAILS.EMP_FNAME, EMP_DETAILS.EMP_LNAME,
EMP_DEPARTMENT.DPT_NAME, EMP_DEPARTMENT.DPT_ALLOTMENT
FROM EMP_DETAILS INNER JOIN EMP_DEPARTMENT
ON EMP_DEPARTMENT.DPT_CODE = EMP_DETAILS.EMP_DEPT
```

Write a query in SQL to find the first name and last name of employees working for departments with a budget more than Rs. 50000.

```
SELECT EMP_DETAILS.EMP_FNAME, EMP_DETAILS.EMP_LNAME,
EMP_DEPARTMENT.DPT_NAME, EMP_DEPARTMENT.DPT_ALLOTMENT
```

```
FROM EMP_DETAILS INNER JOIN EMP_DEPARTMENT
ON EMP_DEPARTMENT.DPT_CODE = EMP_DETAILS.EMP_DEPT
WHERE EMP_DEPARTMENT.DPT_ALLOTMENT > 50000
```

Write a query in SQL to find the names of departments where more than two employees are working.

```
SELECT EMP_DEPARTMENT.DPT_NAME, COUNT(EMP_DETAILS.*) AS "NUM_EMPLOYEES"
FROM EMP_DETAILS INNER JOIN EMP_DEPARTMENT
ON EMP_DEPARTMENT.DPT_CODE = EMP_DETAILS.EMP_DEPT
GROUP BY EMP_DEPARTMENT.DPT_NAME
HAVING COUNT(EMP_DETAILS.*) > 1
```

SUBQUERIES

Write a query to display all the orders from the orders table issued by the salesman 'Paul Adam'

```
SELECT * FROM ORDERS WHERE
SALESMAN_ID = (SELECT SALESMAN_ID FROM SALESMAN WHERE SALESMAN_NAME = 'Paul Adam')
```

Write a query to display all the orders for the salesman who belongs to the city London.

```
SELECT * FROM ORDERS
WHERE SALESMAN_ID IN (SELECT SALESMAN_ID FROM SALESMAN WHERE CITY = 'London')
```

Write a query to find all the orders issued against the salesman who works for customer whose id is 3007.

```
SELECT * FROM ORDERS
WHERE SALESMAN_ID = (SELECT SALESMAN_ID FROM ORDERS WHERE CUSTOMER_ID = 3007)
```

Write a query to display all the orders which values are greater than the average order value for 10th October 2012.

```
SELECT * FROM ORDERS
WHERE PURCH_AMT > (SELECT AVG(PURCH_AMT) FROM ORDERS WHERE ORD_DATE = '2012-10-10')
```

Write a query to find all orders attributed to a salesman in New york.

```
SELECT * FROM ORDERS
WHERE SALESMAN_ID IN (SELECT SALESMAN_ID FROM SALESMAN WHERE CITY = 'New York')
```

Write a query to display the commission of all the salesmen servicing customers in Paris.

```
SELECT SALESMAN_ID, SALESMAN_NAME, COMMISSION FROM SALESMAN
WHERE SALESMAN_ID IN (SELECT SALESMAN_ID FROM CUSTOMER WHERE CITY = 'New York')
```

Write a query to display all the customers whose id is 2001 below the salesman ID of Mc Lyon.

```
SELECT * FROM CUSTOMER WHERE CUSTOMER_ID
IN (SELECT (SALESMAN_ID - 2001) FROM SALESMAN WHERE SALESMAN_NAME = 'Mc Lyon')
```

Write a query to count the customers with grades above New York's average.

```
SELECT * FROM CUSTOMER
WHERE GRADE > (SELECT AVG(GRADE) FROM CUSTOMER WHERE CITY = 'New York')
```

Write a query to display all customers with orders on October 5, 2012.

```
SELECT * FROM CUSTOMER
WHERE CUSTOMER_ID IN (SELECT CUSTOMER_ID FROM ORDERS WHERE ORD_DATE = '2012-10-5')
```

Write a query to display all the customers with orders issued on date 17th August, 2012.

```
SELECT * FROM CUSTOMER
WHERE CUSTOMER_ID IN (SELECT CUSTOMER_ID FROM ORDERS WHERE ORD_DATE = '2012-08-17'
```

Write a query to find the name and numbers of all salesmen who had more than one customer.

```
SELECT SALESMAN_NAME, SALESMAN_ID FROM SALESMAN WHERE SALESMAN_ID IN
(SELECT SALESMAN_ID FROM CUSTOMER GROUP BY SALESMAN_ID HAVING COUNT(*) > 1)
```

Write a query to find all orders with order amounts which are above-average amounts for their customers.

```
SELECT * FROM ORDERS A WHERE
PURCH_AMT > (SELECT AVG(PURCH_AMT)
FROM ORDERS B WHERE A.CUSTOMER_ID = B.CUSTOMER_ID)
```

Write a query to find all orders with order amounts which are on or above-average amounts for their customers.

```
SELECT * FROM ORDERS A WHERE
PURCH_AMT >= (SELECT AVG(PURCH_AMT)
FROM ORDERS B WHERE A.CUSTOMER_ID = B.CUSTOMER_ID)
```

Write a query to find the sums of the amounts from the orders table, grouped by date, eliminating all those dates where the sum was not at least 1000.00 above the maximum order amount for that date.

```
SELECT SUM(PURCH_AMT), ORD_DATE FROM ORDERS A
GROUP BY ORD_DATE
HAVING SUM(PURCH_AMT) > (SELECT MAX(PURCH_AMT) FROM ORDERS B
WHERE A.ORD_DATE = B.ORD_DATE) + 1000
```

Write a query to extract the data from the customer table if and only if one or more of the customers in the customer table are located in London.

```
SELECT * FROM CUSTOMER WHERE EXISTS (SELECT * FROM CUSTOMER WHERE CITY = 'London')
```

Write a query to find the salesmen who have multiple customers.

```
SELECT * FROM SALESMAN WHERE SALESMAN_ID IN
(SELECT SALESMAN_ID FROM CUSTOMER GROUP BY SALESMAN_ID HAVING COUNT(*) > 1)
```

Write a query to find all the salesmen who worked for only one customer.

```
SELECT * FROM SALESMAN WHERE SALESMAN_ID IN
(SELECT SALESMAN_ID FROM CUSTOMER GROUP BY SALESMAN_ID HAVING COUNT(*) = 1)
```

Write a query that extract the rows of all salesmen who have customers with more than one orders.

```
SELECT * FROM SALESMAN WHERE SALESMAN_ID IN
(SELECT SALESMAN_ID FROM CUSTOMER WHERE CUSTOMER_ID IN
(SELECT CUSTOMER_ID FROM ORDERS GROUP BY CUSTOMER_ID HAVING COUNT(*) > 1))
```

OR

```
SELECT * FROM SALESMAN A WHERE EXISTS
(SELECT * FROM CUSTOMER B WHERE A.SALESMAN_ID = B.SALESMAN_ID AND
        (SELECT COUNT(*) FROM ORDERS C WHERE B.CUSTOMER_ID = C.CUSTOMER_ID) > 1)
```

Write a query to find salesmen with all information who lives in the city where any of the customers lives.

```
        SELECT * FROM SALESMAN A WHERE EXISTS
        (SELECT * FROM CUSTOMER B WHERE A.CITY = B.CITY)
```

OR

```
        SELECT * FROM SALESMAN WHERE CITY IN (SELECT CITY FROM CUSTOMER)
```

Write a query to display the salesmen which name are alphabetically lower than the name of the customers.

```
        SELECT * FROM SALESMAN A WHERE EXISTS
        (SELECT * FROM CUSTOMER WHERE A.SALESMAN_NAME < CUSTOMER.CUST_NAME)
```

Write a query to display the customers who have a greater gradation than any customer who belongs to the alphabetically lower than the city New York.

```
        SELECT * FROM CUSTOMER WHERE
        GRADE > ANY(SELECT GRADE FROM CUSTOMER WHERE CITY < 'New York')
```

Write a query to display all the orders that had amounts that were greater than at least one of the orders on September 10th 2012.

```
        SELECT * FROM ORDERS WHERE PURCH_AMT > ANY
        (SELECT PURCH_AMT FROM ORDERS WHERE ORD_DATE = '2012-09-10')
```

Write a query to find all orders with an amount smaller than any amount for a customer in London.

```
        SELECT * FROM ORDERS WHERE PURCH_AMT < ANY
        (SELECT PURCH_AMT FROM ORDERS INNER JOIN CUSTOMER ON
        ORDERS.CUSTOMER_ID = CUSTOMER.CUSTOMER_ID WHERE CITY = 'London')
```

Write a query to display only those customers whose grade are, in fact, higher than every customer in New York.

```
        SELECT * FROM CUSTOMER WHERE GRADE > ALL
        (SELECT GRADE FROM CUSTOMER WHERE CITY = 'New York')
```

Write a query to get all the information for those customers whose grade is not as the grade of customer who belongs to the city London.

```
        SELECT * FROM CUSTOMER WHERE GRADE <> ANY
        (SELECT GRADE FROM CUSTOMER WHERE CITY = 'London')
```

Write a query to find all those customers whose grade are not as the grade, belongs to the city Paris.

```
        SELECT * FROM CUSTOMER WHERE GRADE <> ANY
        (SELECT GRADE FROM CUSTOMER WHERE CITY = 'Paris')
```

Write a query to find all those customers who hold a different grade than any customer of the city Dallas.

```
        SELECT * FROM CUSTOMER WHERE
        GRADE <> ANY(SELECT GRADE FROM CUSTOMER WHERE CITY = 'Dallas')
```

Write a SQL query to find the average price of each manufacturer's products along with their name.

```
SELECT COM_NAME, AVG(PRO_PRICE) FROM COMPANY_MAST INNER JOIN ITEM_MAST
ON  COMPANY_MAST.COM_ID = ITEM_MAST.PRO_COM GROUP BY COM_NAME
```

Write a SQL query to display the average price of the products which is more than or equal to 350 along with their names.

```
SELECT COM_NAME, AVG(PRO_PRICE) FROM
COMPANY_MAST INNER JOIN ITEM_MAST ON COMPANY_MAST.COM_ID = ITEM_MAST.PRO_COM
GROUP BY COM_NAME HAVING AVG(PRO_PRICE) >= 350
```

Write a SQL query to display the name of each company, price for their most expensive product along with their ID.

```
SELECT COM_NAME, PRO_PRICE, PRO_NAME
FROM COMPANY_MAST A INNER JOIN ITEM_MAST B ON A.COM_ID = B.PRO_COM
WHERE B.PRO_PRICE = (SELECT MAX(PRO_PRICE) FROM ITEM_MAST B
WHERE A.COM_ID = B.PRO_COM)
```

Write a query in SQL to find all the details of employees whose last name is Gabriel or Dosio.

```
SELECT * FROM EMP_DETAILS WHERE EMP_LNAME IN ('Gabriel', 'Dosio')
```

Write a query in SQL to display all the details of employees who works in department 89 or 63.

```
SELECT * FROM EMP_DETAILS WHERE EMP_DEPT IN (89,63)
```

Write a query in SQL to display the first name and last name of employees working for the department which allotment amount is more than Rs.50000.

```
SELECT EMP_FNAME, EMP_LNAME FROM EMP_DETAILS INNER JOIN EMP_DEPARTMENT
ON EMP_DEPT = DPT_CODE WHERE DPT_ALLOTMENT > 50000
```

Write a query in SQL to find the departments which sanction amount is larger than the average sanction amount of all the departments.

```
SELECT * FROM EMP_DEPARTMENT WHERE
DPT_ALLOTMENT > (SELECT AVG(DPT_ALLOTMENT) FROM EMP_DEPARTMENT)
```

Write a query in SQL to find the names of departments with more than two employees are working.

```
SELECT DPT_NAME, COUNT(*) AS "#EMP" FROM EMP_DETAILS INNER JOIN EMP_DEPARTMENT
ON EMP_DEPT = DPT_CODE GROUP BY DPT_CODE HAVING COUNT(*) > 2
```

Write a query in SQL to find the first name and last name of employees working for departments which sanction amount is second lowest.

```
SELECT EMP_FNAME, EMP_LNAME FROM EMP_DETAILS WHERE
EMP_DEPT = (SELECT DPT_CODE FROM EMP_DEPARTMENT WHERE
DPT_ALLOTMENT = (SELECT MIN(DPT_ALLOTMENT) FROM EMP_DEPARTMENT WHERE
DPT_ALLOTMENT > (SELECT MIN(DPT_ALLOTMENT) FROM EMP_DEPARTMENT)))

OR
SELECT EMP_FNAME, EMP_LNAME FROM EMP_DETAILS
WHERE EMP_DEPT = (SELECT DPT_CODE FROM (SELECT DPT_CODE, ROW_NUMBER() OVER (ORDER
BY DPT_ALLOTMENT ASC) AS 'ROW#' FROM EMP_DEPARTMENT) AS A WHERE ROW# = 2)
```

T-SQL

T-SQL (Transact-SQL) is a set of programming extensions from Sybase and Microsoft that add several features to the Structured Query Language (SQL), including transaction control, exception and error handling, row processing and declared variables. Transact-SQL is central to using Microsoft SQL Server. All applications that communicate with an instance of SQL Server do so by sending Transact-SQL statements to the server, regardless of the user interface of the application.

Variables:

- Transact-SQL provides the following statements to declare and set local variables: DECLARE, SET and SELECT

```
DECLARE @var1 VARCHAR(30)
SET @var1 = 'Some Name'
SELECT @var1 = Name
  FROM Sales.Store
  WHERE CustomerID = 100
```

Flow Control:

- IF and ELSE allow conditional execution. This batch statement will print "It is the weekend" if the current date is a weekend day, or "It is a weekday" if the current date is a weekday.

```
IF DATEPART(dw, GETDATE()) = 7 OR DATEPART(dw, GETDATE()) = 1
   PRINT 'It is the weekend.'
ELSE
   PRINT 'It is a weekday.'
```

- BEGIN and END mark a block of statements. If more than one statement is to be controlled by the conditional in the example above, we can use BEGIN and END like this:

```
IF DATEPART(dw, GETDATE()) = 7 OR DATEPART(dw, GETDATE()) = 1
BEGIN
   PRINT 'It is the weekend.'
   PRINT 'Get some rest on the weekend!'
END
ELSE
BEGIN
   PRINT 'It is a weekday.'
   PRINT 'Get to work on a weekday!'
END
```

- WAITFOR will wait for a given amount of time, or until a particular time of day. The statement can be used for delays or to block execution until the set time.

- RETURN is used to immediately return from a stored procedure or function.

- BREAK ends the enclosing WHILE loop, while CONTINUE causes the next iteration of the loop to execute. An example of a WHILE loop is given below.

```
DECLARE @i INT
SET @i = 0
WHILE @i < 5
BEGIN
   PRINT 'Hello world.'
   SET @i = @i + 1
END
```

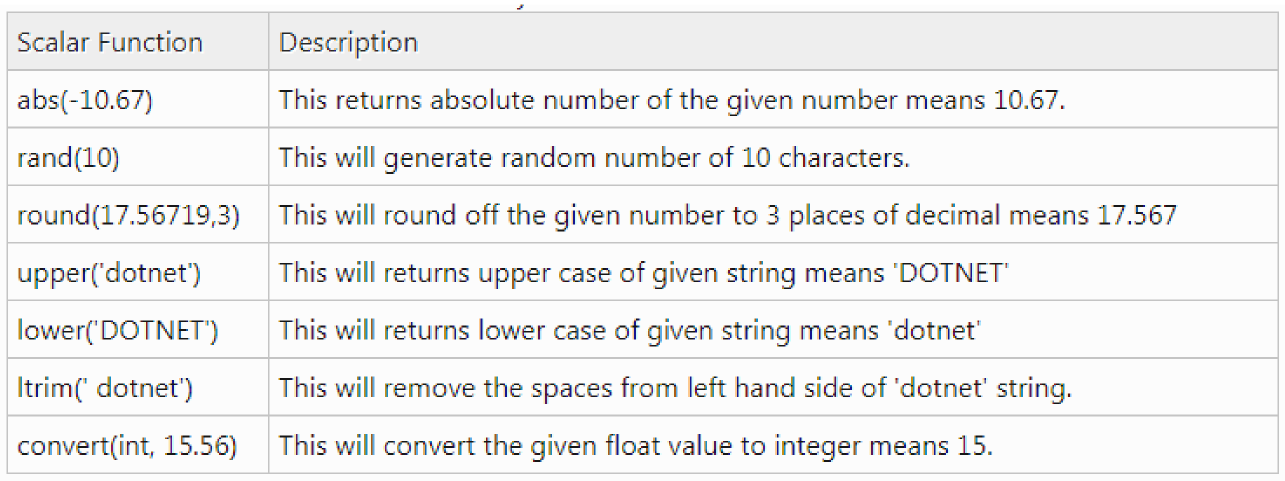
Functions:

Function is a database object in SQL Server. Basically it is a set of SQL statements that accepts only input parameters, perform actions and return the result. Function can return only single value or a table. We can't use function to Insert, Update, Delete records in the database table(s).

Types Of Functions:

- **System Defined Function:** These functions are defined by SQL Server for different purpose. We have two types of system defined function in SQL Server.

  1. **Scalar Function:** Scalar functions operates on a single value and returns a single value. Below is the list of some useful SQL Server Scalar functions.



Scalar Function	Description
abs(-10.67)	This returns absolute number of the given number means 10.67.
rand(10)	This will generate random number of 10 characters.
round(17.56719,3)	This will round off the given number to 3 places of decimal means 17.567
upper('dotnet')	This will returns upper case of given string means 'DOTNET'
lower('DOTNET')	This will returns lower case of given string means 'dotnet'
ltrim(' dotnet')	This will remove the spaces from left hand side of 'dotnet' string.
convert(int, 15.56)	This will convert the given float value to integer means 15.

2. **Aggregate Function:** Aggregate functions operates on a collection of values and returns a single value. Below is the list of some useful SQL Server Aggregate functions.

Aggregate Function	Description
max()	This returns maximum value from a collection of values.
min()	This returns minimum value from a collection of values.
avg()	This returns average of all values in a collection.
count()	This returns no of counts from a collection of values.

- **User Defined Functions:** These functions are created by user in system database or in user defined database. We three types of user defined functions.

  1. **Scalar Function:** User defined scalar function also returns single value as a result of actions perform by function. We return any datatype value from function.

Examples:

```
-- USER DEFINED FUNCTION TO CALCULARE NTH POWER OF A NUMBER.
CREATE FUNCTION POW(@NUMBER INT, @POWER INT) RETURNS INT AS
BEGIN
      DECLARE @RESULT INT
      SET @RESULT = 1
      WHILE @POWER > 0
      BEGIN
            SET @RESULT = @RESULT * @NUMBER
            SET @POWER = @POWER - 1
      END
      RETURN @RESULT
END

-- FUNCTION TO GET FULL NAME OF EMPLOYEE
CREATE FUNCTION GETFULLNAME(@FIRSTNAME VARCHAR(30), @LASTNAME VARCHAR(30)) RETURNS
VARCHAR(60) AS
BEGIN
      RETURN (SELECT @FIRSTNAME + ' ' + @LASTNAME)
END


-- FUNCTION TO REVERSE A STRING
CREATE FUNCTION STRREV(@STRING VARCHAR(30)) RETURNS VARCHAR(30) AS
BEGIN
      DECLARE @STRLEN INT
      DECLARE @REV VARCHAR(30)
      SET @STRLEN = LEN(@STRING)
      SET @REV = ''
      WHILE @STRLEN > 0
      BEGIN
            SET @REV = (SELECT (@REV + SUBSTRING(@STRING, @STRLEN, 1)))
            SET @STRLEN = @STRLEN - 1
      END
      RETURN @REV
END
```

2. **Inline Table-Valued:** User defined inline table-valued function returns a table variable as a result of actions perform by function. The value of table variable should be derived from a single SELECT statement

   Examples:

```sql
-- USER DEFINED INLINE TABLE VALUED FUNCTION TO RETURN A TABLE HAVING FULL NAMES OF ALL
EMPLOYEE AND THEIR SALARY
CREATE FUNCTION GETNAMES() RETURNS TABLE AS
RETURN SELECT (FIRSTNAME +  ' ' + LASTNAME) AS 'FULL NAME', SALARY FROM TEMPTABLE

-- CALLING THE FUNCTION
SELECT * FROM DBO.GETNAMES()
```

3. **Multi-Statement Table-Valued Function:** User defined multi-statement table-valued function returns a table variable as a result of actions perform by function. In this a table variable must be explicitly declared and defined whose value can be derived from a multiple SQL statements.

   Examples:

```sql
-- FUNCTION TO GENERATE MULTIPLICATION TABLE OF A NUMBER
CREATE FUNCTION GETMULTABLE(@NUM INT) RETURNS @MULTABLE TABLE (MUL VARCHAR(20)) AS
BEGIN
      DECLARE @COUNTER INT
      DECLARE @ENTRY VARCHAR(20)
      SET @COUNTER  = 1
      WHILE @COUNTER <= 10
      BEGIN
            SET @ENTRY =
                  (CONVERT(VARCHAR,@NUM) + ' X ' + CONVERT(VARCHAR, @COUNTER) + ' = ' +
                  CONVERT(VARCHAR, @NUM * @COUNTER))
            INSERT INTO @MULTABLE VALUES(@ENTRY)
            SET @COUNTER = @COUNTER + 1
      END
      RETURN
END
```

Stored Procedures:

- A stored procedure is a prepared SQL code that we can save, so the code can be reused over and over again. So if we have an SQL query that we write over and over again, we can save it as a stored procedure, and then just call it to execute it. We can also pass parameters to a stored procedure, so that the stored procedure can act based on the parameter value(s) that is passed.
- A Stored procedure is a collection and set of SQL statements and SQL command logic which is compiled and stored in the database. A store procedure is a kind of database object which is available under programmability section.

Syntax:

```
CREATE {PROCEDURE | PROC} [schema_name.]procedure_name
       [@parameter [type_schema_name.]datatype
       [VARYING] [= default] [OUT | OUTPUT | READONLY]]
       [WITH {ENCRYPTION | RECOMPILE | EXECUTE AS clause}]
       [FOR REPLICATION] AS
BEGIN
       [declaration_section]
        executable_section
END
```

- **schema_name:** The name of the schema that owns the stored procedure.
- **procedure_name:** The name to assign to this procedure in SQL Server.
- **@parameter:** One or more parameters passed into the procedure.
- **type_schema_name:** The schema that owns the data type, if applicable.
- **Datatype:** The data type for *@parameter*.
- **VARYING: i**t is specified for cursor parameters when the result set is an output parameter.
- **Default:** The default value to assign to *@parameter*.
- **OUT:** It means that *@parameter* is an output parameter.
- **OUTPUT:** It means that *@parameter* is an output parameter.
- **READONLY:** It means that @parameter can not be overwritten by the stored procedure.
- **ENCRYPTION:** It means that the source for the stored procedure will not be stored as plain text in the system views in SQL Server.
- **RECOMPILE:** It means that a query plan will not be cached for this stored procedure.
- **EXECUTE AS clause:** It sets the security context to execute the stored procedure.
- **FOR REPLICATION:** It means that the stored procedure is executed only during replication.