**Important SQL Queries:**

* GUI client: User Interface
* Command Line client: Command Prompt.

**Commands**

* Show databases -> list out all databases.
* Use <databasename> -> point towards particular database.
* Describe >tablename> -> displays structure of table.

**DISTINCT:**  returns only unique values from specified column.

* select DISTINCT region from country;

**WHERE:** is used to filter records.

* select <columnname> from <tablename> WHERE condition;

select \* from country WHERE name='India'; [ single quote for character].

Used with =, >, <, >=, <=, <>, BETWEEN, LIKE, IN operators.

**AND, OR, NOT operator:** is used to filter records based on more than one condition.

* select \* from <tablename> WHERE condition1 **AND** condition2;
* select \* from <tablename> WHERE condition1 **OR** condition2;
* select \* from <tablename> WHERE **NOT** condition;

**LIMIT:** used to limit the records to display number of rows.

* select \* from country **LIMIT** 10**;** -> displays 10 records.;

**ORDER BY:** used to sort result-set in ascending or descending order.

* select \* from country ORDER BY <columnname> ASC/DESC;

select \* from country ORDER BY localname DESC;

select \* from country ORDER BY localname DESC, name ASC;

**IS NULL, IS NOT NULL:**  used to test for empty values. [ not possible with **comparison operators**.]

* select region from country IS NULL; -> returns null values records.
* select \* from country IS NOT NULL; -> returns not null records.

**TOP, ROWNUM:** limits number of records. Similar to LIMIT.

* select TOP 5 \* from <tablename> -> retrieves top 5 records.
* select \* from <tablename> WHERE ROWNUM =5; -> retrieves top 5 records.
* Select TOP 3 \* from <tablename> WHERE country=’Germany’; -> top 3 records of cond.

**MIN()** function**:** returns the smallest value of selected column.

* select MIN(columnname) from <tablename> where cond. – returns smallest value record.

**MAX()** functionreturns the largest value of selected column.

* select MAX(columnname) from <tablename> where cond. – returns largest value record.

**COUNT()** function: returns the number of rows that matched a condiotnon-

* select COUNT(cloumnname) from <tablename> where marks<=50;

**AVG()** function: returns the average value of a numeric column.

* select AVG(cloumnname) from <tablename> WHERE condition;

**SUM()** function: returns the total sum of a numeric column.

* select SUM(cloumnname) from <tablename> WHERE condition;

**LIKE** operator: used to search for specified pattern in the column.

* WHERE <columnname> LIKE ‘a%’ -> finds any values start with ‘a’.
* WHERE <columnname> LIKE ‘%a’ -> finds any values end with ‘a’.
* WHERE <columnname> LIKE ‘%a%’ -> finds any values have ‘a’ at any position.
* WHERE <columnname> LIKE ‘a\_%’ -> finds any values start with ‘a’ and are 3 chars.
* WHERE <columnname> LIKE ‘a%o’ -> finds any values start with ‘a’ and ends with ‘o’.

**Wildcards Characters:** used to substitute one or more characters in a String.

* \* -> represents zero or more characters. (bl\* finds all bl chars in String).
* ? -> represent a single character. (h?t finds hot, hat and hit).
* [] -> represents any single character within brackets. ( h[oa] finds hot, hat, but not hit).
* ! -> represents any character not in brackets. (h[oa] finds hit, but not hat and hot).
* - > represents a range of character. ( c[a-b]t finds cat and cbt).
* # -> represents any single numeric character. (2#5 finds 202,215.225 etc.).

**IN**, **NOT IN** operator: allows to specify multiple values in a WHERE clause.

* Select <columnname> from <tablename> WHERE columnname IN ( val1, val2);

SELECT \* FROM Customers WHERE Country IN (SELECT Country FROM Suppliers);

**BETWEEN** operator: selects values within a given range.

* SELECT \* FROM Products WHERE Price BETWEEN 10 AND 20;
* SELECT \* FROM Products WHERE Price BETWEEN 10 AND 20 AND NOT CategoryID IN (1,2,3);

**Aliases**: used to give a table or column in table a temporary name. (exists for duration of the query).

* SELECT <columnname> AS <aliasname> FROM tablename;
* SELECT <columnname(s)> FROM <tablename> AS <aliasname>;

**GROUP BY**: is a statement groups rows that have the same values into summary rows,

* SELECT COUNT(CustomerID), Country FROM Customers GROUP BY Country;
* SELECT COUNT(CustomerID), Country FROM Customers GROUP BY Country ORDER BY COUNT(CustomerID) DESC;

**HAVING**: WHERE keyword could not be used with aggregate functions.

* SELECT column\_name(s) FROM table\_name WHERE condition GROUP BY column\_name(s) HAVING condition ORDER BY column\_name(s);

**EXISTS**: used to test for the existence of any record in a subquery. Return true if condition is meet.

**ANY, ALL**: return true, if ANY subquery values meet condition whereas ALL of subquery meets

**JOIN**: is used to combine rows from two or more tables based on a related column between them.

INNER JOIN: returns all records that having matching values in both tables.

* SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDateFROM Orders

INNER JOIN Customers ON Orders.CustomerID=Customers.CustomerID;

LEFT (OUTER) JOIN: returns all records from the left table and the matched records for right table.

* SELECT column\_name(s) FROM table1 LEFT JOIN table2 ON table1.column\_name = table2.column\_name;

RIGHT (OUTER) JOIN: returns all records from the right table and matched records for left table.

* SELECT column\_name(s) FROM table1 RIGHT JOIN table2 ON table1.column\_name = table2.column\_name;

FULL (OUTER) JOIN: returns all records when there is a match in either left or right table.

* SELECT column\_name(s) FROM table1 FULL OUTER JOIN table2 ON table1.column\_name = table2.column\_name WHERE condition;

SELF JOIN: is a regular join but the table is joined with itself

* SELECT column\_name(s) FROM table1 T1, table1 T2 WHERE condition;

UNION operator: is used to combine the result of two or more select statements.

* SELECT column\_name(s) FROM table1 UNION SELECT column\_name(s) FROM table2;

**Views:** view is a virtual table based on the result-set of an SQL statement.