BASIC RETRIEVAL QUERIES IN SQL

SELECT STATEMENT

- The SELECT statement is probably the most important SQL command.

- SQL has one basic statement for retrieving information from a database: **the SELECT statement.**

- The SQL SELECT statement is used to retrieve records **from one or more tables in your database**.

- The SQL **SELECT** statement is used to fetch the data from a database table.

- The data that is returned by the SELECT statement is stored in a result table, called the **result-set.**

  - The records retrieved are known as a **result set.**

SELECT STATEMENT - SYNTAX

- **Basic Syntax:**

    SELECT<attribute list>

    FROM<table list>

    WHERE<condition>;

 where :

- **<attribute list>** is a list of attribute names whose values are to be retrieved by the query.

- **<table list>** is a list of the relation names required to process the query.

- **<condition>** is a conditional (Boolean) expression that identifies the tuples to be retrieved by the query.

SELECT STATEMENT - EXAMPLE

⦿ Consider the CUSTOMERS table having the following records:

```
+----+----------+-----+-----------+----------+
| ID | NAME     | AGE | ADDRESS   | SALARY   |
+----+----------+-----+-----------+----------+
|  1 | Ramesh   |  32 | Ahmedabad |  2000.00 |
|  2 | Khilan   |  25 | Delhi     |  1500.00 |
|  3 | kaushik  |  23 | Kota      |  2000.00 |
|  4 | Chaitali |  25 | Mumbai    |  6500.00 |
|  5 | Hardik   |  27 | Bhopal    |  8500.00 |
|  6 | Komal    |  22 | MP        |  4500.00 |
|  7 | Muffy    |  24 | Indore    | 10000.00 |
+----+----------+-----+-----------+----------+
```

SELECT STATEMENT - EXAMPLE

⦿ Fetch the ID, Name and Salary fields of the customers available in CUSTOMERS table.

```
SQL> SELECT ID, NAME, SALARY FROM CUSTOMERS;
```

⦿ This would produce the following result:

```
+----+----------+----------+
| ID | NAME     | SALARY   |
+----+----------+----------+
|  1 | Ramesh   |  2000.00 |
|  2 | Khilan   |  1500.00 |
|  3 | kaushik  |  2000.00 |
|  4 | Chaitali |  6500.00 |
|  5 | Hardik   |  8500.00 |
|  6 | Komal    |  4500.00 |
|  7 | Muffy    | 10000.00 |
+----+----------+----------+
```

SELECT STATEMENT - EXAMPLE

◉ If you want to fetch all the fields of the CUSTOMERS table, then you should use the following query.

```
SQL> SELECT * FROM CUSTOMERS;
```

◉ This would produce the following result:

```
+----+----------+-----+-----------+----------+
| ID | NAME     | AGE | ADDRESS   | SALARY   |
+----+----------+-----+-----------+----------+
|  1 | Ramesh   |  32 | Ahmedabad |  2000.00 |
|  2 | Khilan   |  25 | Delhi     |  1500.00 |
|  3 | kaushik  |  23 | Kota      |  2000.00 |
|  4 | Chaitali |  25 | Mumbai    |  6500.00 |
|  5 | Hardik   |  27 | Bhopal    |  8500.00 |
|  6 | Komal    |  22 | MP        |  4500.00 |
|  7 | Muffy    |  24 | Indore    | 10000.00 |
+----+----------+-----+-----------+----------+
```

SELECT STATEMENT – WHERE CLAUSE

SELECT column1, column2, columnN

FROM table_name

WHERE [condition];

- The SQL **WHERE** clause is used to specify a condition while fetching the data from a single table or by joining with multiple tables. If the given condition is satisfied, then only it returns a specific value from the table.

- **The WHERE clause is used to filter the records and fetch only the necessary records.**

- The WHERE clause is not only used in the SELECT statement, but it is also used in the UPDATE, DELETE statement, etc., which we would examine later .

- A condition is specified by using the comparison or logical operators .

- The basic logical comparison operators for comparing attribute values with one another and with literal constants are =, <, <=, >, >=, and <>.

SELECT STATEMENT - EXAMPLE

◉ Consider the CUSTOMERS table having the following records:

```
+----+----------+-----+-----------+----------+
| ID | NAME     | AGE | ADDRESS   | SALARY   |
+----+----------+-----+-----------+----------+
|  1 | Ramesh   |  32 | Ahmedabad |  2000.00 |
|  2 | Khilan   |  25 | Delhi     |  1500.00 |
|  3 | kaushik  |  23 | Kota      |  2000.00 |
|  4 | Chaitali |  25 | Mumbai    |  6500.00 |
|  5 | Hardik   |  27 | Bhopal    |  8500.00 |
|  6 | Komal    |  22 | MP        |  4500.00 |
|  7 | Muffy    |  24 | Indore    | 10000.00 |
+----+----------+-----+-----------+----------+
```

SELECT STATEMENT - EXAMPLE

⊙ Fetch the ID, Name and Salary fields from the CUSTOMERS table, where the salary is greater than 2000

```
SQL> SELECT ID, NAME, SALARY
FROM CUSTOMERS
WHERE SALARY > 2000;
```

⊙ This would produce the following result:

```
+----+----------+----------+
| ID | NAME     | SALARY   |
+----+----------+----------+
|  4 | Chaitali |  6500.00 |
|  5 | Hardik   |  8500.00 |
|  6 | Komal    |  4500.00 |
|  7 | Muffy    | 10000.00 |
+----+----------+----------+
```

SELECT STATEMENT

- The SQL **AND & OR** operators are used to combine multiple conditions to narrow data in an SQL statement.

- These two operators are called as the conjunctive operators.

- These operators provide a means to make multiple comparisons with different operators in the same SQL statement.

- **The AND Operator**

  - The AND operator allows the existence of multiple conditions in an SQL statement's WHERE clause.

  - The basic syntax of the AND operator with a WHERE clause is as follows :

```
SELECT column1, column2, columnN
FROM table_name
WHERE [condition1] AND [condition2]...AND [conditionN];
```

SELECT STATEMENT

- **The OR Operator**

- The OR operator is used to combine multiple conditions in an SQL statement's WHERE clause.

- The basic syntax of the OR operator with a WHERE clause is as follows :

```
SELECT column1, column2, columnN
FROM table_name
WHERE [condition1] OR [condition2]...OR [conditionN]
```

- You can combine N number of conditions using the OR operator. For an action to be taken by the SQL statement, whether it be a transaction or query, the only any ONE of the conditions separated by the OR must be TRUE.

SELECT STATEMENT - SYNTAX

- In SQL, the basic logical comparison operators for comparing attribute values with one another and with literal constants are =, <, <=, >, >=, and <>.

- These correspond To the C/C++ programming language operators =, <, <=, >, >=, and !=

SELECT STATEMENT - EXAMPLE

⊙ fetch the ID, Name and Salary fields from the CUSTOMERS table, where the salary is greater than 2000 OR the age is less than 25 years.

```
SQL> SELECT ID, NAME, SALARY
FROM CUSTOMERS
WHERE SALARY > 2000 OR age < 25;
```

⊙ This would produce the following result:

```
+----+----------+----------+
| ID | NAME     | SALARY   |
+----+----------+----------+
|  3 | kaushik  |  2000.00 |
|  4 | Chaitali |  6500.00 |
|  5 | Hardik   |  8500.00 |
|  6 | Komal    |  4500.00 |
|  7 | Muffy    | 10000.00 |
+----+----------+----------+
```