**SQL Clauses**

SQL clauses are keywords used to define specific conditions or limits in a query.

**1. SELECT Clause**

Retrieves data from a table.

SELECT name, age FROM employees;

**2. WHERE Clause**

Filters records based on a condition.

SELECT \* FROM employees WHERE age > 30;

**3. ORDER BY Clause**

Sorts the result set in ascending (ASC) or descending (DESC) order.

SELECT name, salary FROM employees ORDER BY salary DESC;

**4. GROUP BY Clause**

Groups rows that have the same values in specified columns.

SELECT department, COUNT(\*) FROM employees GROUP BY department;

**5. HAVING Clause**

Filters records after grouping.

SELECT department, COUNT(\*) FROM employees GROUP BY department HAVING COUNT(\*) > 5;

**6. LIMIT Clause**

Limits the number of returned records.

SELECT \* FROM employees LIMIT 10;

**SQL Operators**

Operators allow comparisons and logical operations in SQL queries.

**1. Arithmetic Operators**

Perform mathematical operations.

SELECT salary + 500 AS new\_salary FROM employees;

| **Operator** | **Description** |
| --- | --- |
| + | Addition |
| - | Subtraction |
| \* | Multiplication |
| / | Division |

**2. Comparison Operators**

Compare values in queries.

SELECT \* FROM employees WHERE salary >= 50000;

| **Operator** | **Description** |
| --- | --- |
| = | Equal to |
| != or <> | Not equal to |
| > | Greater than |
| < | Less than |
| >= | Greater than or equal to |
| <= | Less than or equal to |

**3. Logical Operators**

Used for complex conditions.

SELECT \* FROM employees WHERE age > 30 AND department = 'HR';

| **Operator** | **Description** |
| --- | --- |
| AND | Both conditions must be true |
| OR | Either condition must be true |
| NOT | Negates a condition |

**4. LIKE Operator**

Used for pattern matching.

SELECT \* FROM employees WHERE name LIKE 'A%'; -- Names starting with 'A'

| **Pattern** | **Description** |
| --- | --- |
| % | Any number of characters |
| \_ | Single character |

**5. IN Operator**

Checks if a value exists in a set.

SELECT \* FROM employees WHERE department IN ('HR', 'Finance', 'IT');

**6. BETWEEN Operator**

Checks if a value is within a range.

SELECT \* FROM employees WHERE salary BETWEEN 40000 AND 70000;