SQL: COUNT

The `COUNT()` function in SQL is used to count the number of rows that match a specified condition. It is commonly used in queries to determine how many records exist that meet certain criteria. `COUNT()` is an aggregate function, which means it performs a calculation on a set of values and returns a single value.

Syntax

The basic syntax for using the `COUNT()` function is:

```
SELECT COUNT(column_name)
FROM table_name
WHERE condition;
```

Examples of Using `COUNT()`

Let's go through some examples to illustrate how the `COUNT()` function works.

Example Table: Employees

employee_id	first_name	last_name	department	salary
1	John	Doe	Sales	60000
2	Jane	Smith	Marketing	55000
3	Alice	Johnson	Sales	50000
4	Bob	Brown	IT	70000
5	Carol	White	Marketing	52000

1. **Counting All Rows in a Table**:COUNT(*)5

   Suppose you want to count the total number of employees in the table:

   ```
   SELECT COUNT(*)
   FROM Employees;
   ```

   Result:

   COUNT(*)

5

This query counts all rows in the `Employees` table, returning 5.

2. **Counting Rows that Meet a Specific Condition**:COUNT(*)2

Suppose you want to count the number of employees in the Sales department:

```sql
SELECT COUNT(*)
FROM Employees
WHERE department = 'Sales';
```

Result:

COUNT(*)

2

This query returns the count of employees whose department is 'Sales'.

3. **Counting Non- `NULL` Values in a Column**:COUNT(salary)5

Suppose you want to count the number of employees with a salary recorded (i.e., non- `NULL` salaries):

```sql
SELECT COUNT(salary)
FROM Employees;
```

Result:

COUNT(salary)

5

This counts all non- `NULL` entries in the `salary` column. Since all employees have a salary listed, the result is 5.

4. **Counting Unique Values in a Column**:COUNT(DISTINCT department)3

Suppose you want to count the number of distinct departments:

```
SELECT COUNT(DISTINCT department)
FROM Employees;
```

Result:

COUNT(DISTINCT department)

3

This query returns the number of unique departments in the `Employees` table, which is 3 (Sales, Marketing, IT).

Key Points

- `COUNT(*)` **counts all rows**: It includes rows with `NULL` values in any column.

- `COUNT(column_name)` **counts non-`NULL` values**: It ignores `NULL` values in the specified column.

- `COUNT(DISTINCT column_name)` **counts unique non-`NULL` values**: It returns the number of distinct values in the specified column, excluding `NULL`s.

- **Use `WHERE` to filter rows**: You can specify conditions to count only rows that meet certain criteria.

The `COUNT()` function is a powerful tool for summarizing data and understanding the composition of your datasets in SQL.