

Part - 4

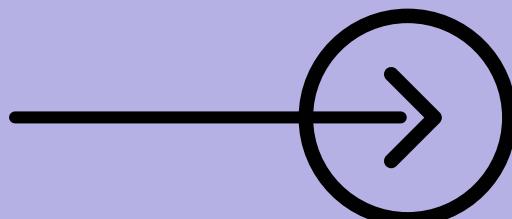
# Data Retrieval

## Interview

## Questions and Answers...!



*krishna kumar*  
@Krishan kumar



# **What are aggregate functions in SQL?**

**Aggregate functions in SQL perform calculations on multiple rows of a table's column and return a single value. These functions are used to perform summary operations and are vital in data analysis and reporting.**



# 1. COUNT():

→ **Purpose:** Counts the number of rows in a result set.

→ **Example:**

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

→ **Explanation:** Counts the total number of employees in the Employees table. It can also count non-NULL values in a specific column.



Let's talk about SUM() Function

## 2. SUM():

→ **Purpose:** Adds up the values in a numeric column.

→ **Example:**

```
SELECT SUM(Salary) AS TotalSalary  
FROM Employees;
```

→ **Explanation:** Calculates the total sum of all salaries in the Employees table. Useful for financial and numeric aggregations.



Let's talk about AVG() Function

## 3. AVG():

→ **Purpose:** Calculates the average value of a numeric column.

→ **Example:**

```
SELECT AVG(Salary) AS AverageSalary  
FROM Employees;
```

→ **Explanation:** Computes the average salary of employees in the Employees table. Important for finding mean values



Let's talk about MIN() Function

## 4. MIN():

→ **Purpose:** Finds the minimum value in a column.

→ **Example:**

```
SELECT MIN(Salary) AS LowestSalary  
FROM Employees;
```

→ **Explanation:** Identifies the lowest salary in the Employees table. Helps in identifying the minimum values in datasets.



Let's talk about MAX() Function

## 5. MAX():

→ **Purpose:** Finds the maximum value in a column.

→ **Example:**

```
SELECT MAX(Salary) AS HighestSalary  
FROM Employees;
```

→ **Explanation:** Identifies the highest salary in the Employees table. Useful for finding maximum values in datasets.



How do Aggregate Functions work with GROUP BY?

# Work with GROUP BY

→ Aggregate functions are often used with GROUP BY to calculate values for specific groups,

such as:

- counting employees by department or
- averaging sales by region.

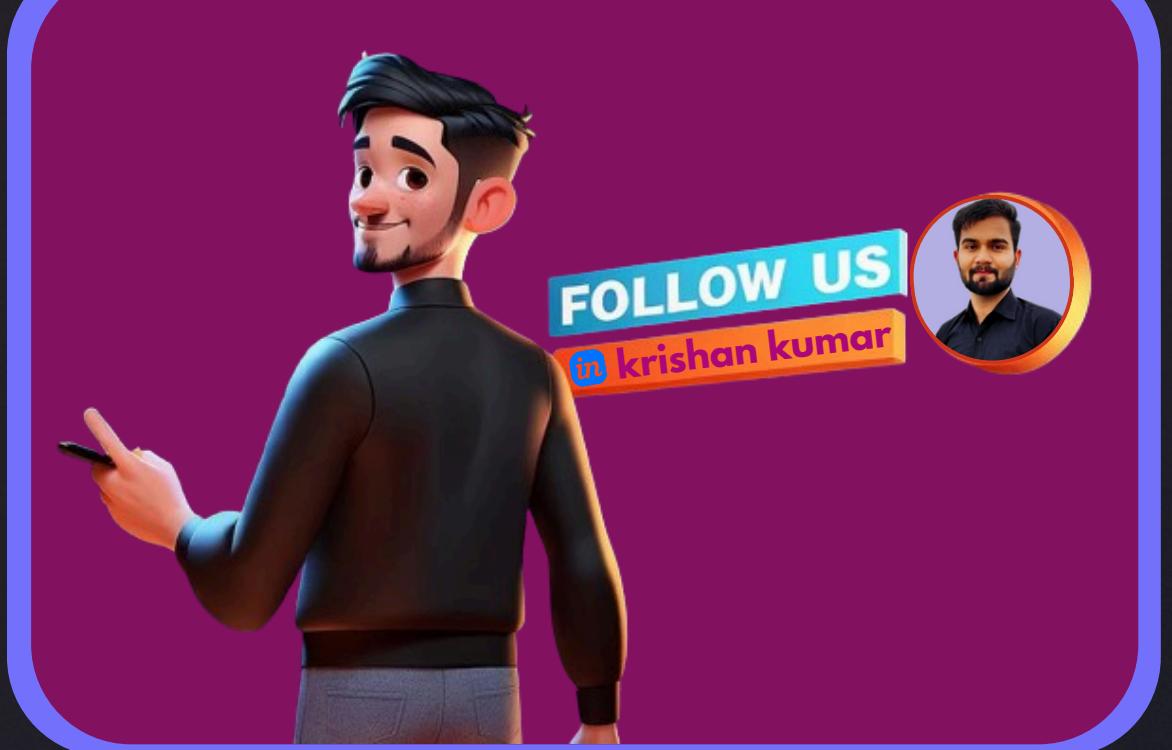
→ Example with GROUP BY:



```
SELECT employees.name, departments.department_name  
FROM employees  
RIGHT JOIN departments  
ON employees.department_id = departments.id;
```



wanna see some  
Counter Questions



# **1. Can aggregate functions be used with non-numeric data?**

→ Yes, but only certain aggregate functions like **COUNT()** or **MIN()/MAX()** can be used on non-numeric data.

**For example, COUNT() can count the number of rows in a column containing strings.**



## **2. What happens if there are NULL values in a column when using aggregate functions?**

→ Aggregate functions like **SUM()**, **AVG()**, **MIN()**, and **MAX()** ignore **NULL** values by default.

However, **COUNT()** can include or exclude **NULL** values depending on how it's used.



*Next Question*

### **3. How is GROUP BY different from ORDER BY when using aggregate functions?**

→ **GROUP BY** groups rows that share a value into summary rows, allowing aggregate functions to work on each group.

**ORDER BY** simply sorts the result set based on specified columns but doesn't affect aggregation.



*Next Question*

## **4. Can we use multiple aggregate functions in a single query?**

→ **Yes, you can use multiple aggregate functions in one query.**

**For example, you can calculate both SUM() and COUNT() in the same query to get the total salary and the number of employees.**



## **5. What is the difference between COUNT(\*) and COUNT(column\_name)?**

→ **COUNT(\*) counts all rows, including those with NULL values.**

**COUNT(column\_name) counts only non-NULL values in a specific column.**

**This distinction is important when you have incomplete data.**



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