Part - 11

Data Retrieval Interview Questions and Answers..!

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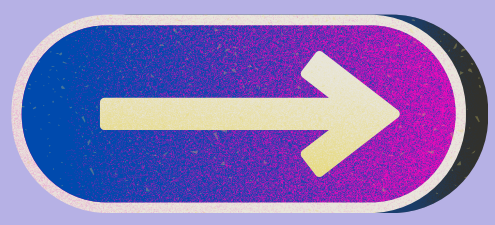
Can we use Aggregate functions as Window functions?



What is a Window function in SQL?

➡ **Yes, aggregate functions like SUM, AVG, COUNT, MIN, and MAX can be used as Window functions.**

A Window function performs calculations across a set of rows related to the current row without collapsing the data.

This lets you perform calculations over different sections of your dataset (windows) while still showing all the original rows

How are Window functions different from traditional Aggregate functions?

Window functions different from traditional Aggregate functions but how?

➡ **Aggregate functions, such as SUM or AVG, calculate values over a group of rows and return a single value for each group.**

When used with GROUP BY, the dataset is collapsed to one row per group.

In contrast, Window functions perform calculations across a subset of rows, defined by the OVER() clause, without collapsing the original rows.

Can you give an example of using SUM() as a Window function?

SUM() as a Window function:

➡ **This query calculates the total salary for each department and retains the original rows, showing each employee's individual salary and department along with the total salary for the department.**

```sql
SELECT
    EmployeeID,
    DepartmentID,
    Salary,
    SUM(Salary) OVER (PARTITION BY DepartmentID) AS TotalDepartmentSalary
FROM Employees;
```

What are some options you can use with the OVER() clause?

some options you can use with the OVER() clause

➡ **The OVER() clause can include:**

- **PARTITION BY: Splits the data into partitions for applying the Window function. Similar to GROUP BY, but rows are not collapsed.**

- **ORDER BY: Specifies the order of rows within each partition, useful for functions like ROW_NUMBER(), RANK(), or calculating running totals.**

- **ROWS/RANGE: Defines a sliding frame within the partition, allowing for calculations like moving averages.**

What are the similarities btw Aggregate and Window functions?

Similarities between Aggregate and Window functions

- **Both can use functions like SUM, AVG, COUNT, etc., to perform calculations.**

While Aggregate functions summarize data across groups of rows, Window functions apply the same calculations over a defined window without collapsing the rows.

wanna see some

Counter Questions

1. What happens if you don't specify PARTITION BY in a Window function?

➡ **Without PARTITION BY, the function applies to the entire dataset, calculating across all rows.**

This is useful for overall metrics, like getting a cumulative sum for all rows together.

2. Can you use Window functions and Aggregate functions together in a query?

➡️ **Yes, you can use both. While Aggregate functions summarize data (e.g., with GROUP BY),**

Window functions perform additional calculations, like rankings, on individual rows within the summarized groups.

3. How does the ORDER BY clause affect Window functions?

➡ **ORDER BY defines the sequence of rows within partitions,**

impacting functions like RANK() and running totals.

Without it, results may not follow the intended row order.

4. What are some common use cases for Window functions?

➡ **Window functions are used for running totals, moving averages, rankings, and percentiles.**

They’re helpful in time-series analysis and trend reporting without collapsing individual rows.

5. Can Window functions be nested?

➡️ **No, they can't be nested directly.**

However, you can use multiple Window functions separately or combine them with other functions in the same query.

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