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TASK 3

INTERVIEW QUESTIONS

1. What is the difference between WHERE and HAVING?

- **WHERE** is used to filter data **before** any grouping happens.
- **HAVING** is used to filter data **after** the data has been grouped using GROUP BY.
- WHERE works on **individual rows**, while HAVING works on **groups of rows**.

2. What are the different types of joins?

There are several types of joins used to combine data from two or more tables:

- **Inner Join**: Returns only the matching rows from both tables.
- **Left Join**: Returns all rows from the left table and matching rows from the right table.
- **Right Join**: Returns all rows from the right table and matching rows from the left table.
- **Full Join**: Returns all rows when there is a match in either table.
- **Cross Join**: Returns every possible combination of rows from both tables.
- **Self Join**: A table is joined with itself.

3. How do you calculate average revenue per user in SQL?

To find the average revenue per user:

- First, add up all the revenue (total revenue).
- Then, count the number of **unique users**.
- Finally, divide the total revenue by the number of unique users.

4. What are subqueries?

- A **subquery** is a query placed inside another query.
- It is used to provide data to the main query.
- Subqueries can return single values, rows, or entire tables.
- They help in breaking down complex logic into manageable parts.

5. How do you optimize a SQL query?

To make a SQL query run faster and more efficiently:

- Use **indexes** on frequently searched columns.
- Avoid retrieving unnecessary columns or rows.
- Simplify complex logic and reduce the number of nested subqueries.
- Use the most efficient join types.
- Analyze the query's execution plan to find bottlenecks.
- Avoid unnecessary calculations or functions in filter conditions.

6. What is a view in SQL?

- A **view** is like a virtual table.
- It is based on the result of a stored query.
- It doesn't store data itself but displays data from one or more tables.
- Views are used to simplify complex queries or hide sensitive information.

7. How would you handle null values in SQL?

- **NULL** means missing or unknown data.
- You can check for NULLs using special functions or conditions.
- You can replace NULLs with default values when needed.
- You need to be careful when performing calculations or comparisons because NULL can affect the results (e.g., adding a number to NULL gives NULL).