

Part - 1

Data Analysis Interview

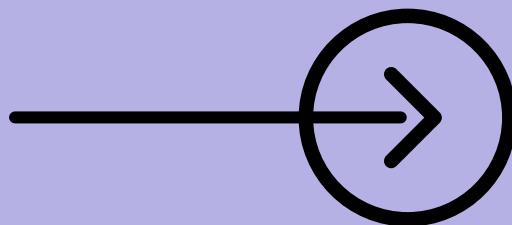
Q & A



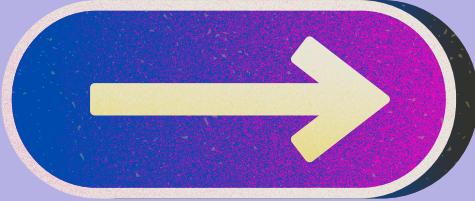
Sharing with
Counter questions



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What is a subquery?



Subquery:

→ **A subquery is a query nested within another SQL query. It allows you to perform more complex operations by retrieving data based on the results of another query.**

Subqueries can be particularly useful when you want to filter or aggregate data based on specific criteria defined by the inner query.



Let's understand it with an example

Example Scenario:

→ imagine you have two tables:

Employees :

ID	Name	DepartmentID
1	Krishna	1
2	Manisha	2
3	Radhika	1
4	Manish	3
5	Puneet	2

Departments Table:

DepartmentID	DepartmentName
1	HR
2	IT
3	Sales

Let's find the names of employees

who work in the 'IT' department.

Example of a Subquery:

→ Let's find the names of employees who work in the 'IT' department.

```
SELECT Name  
FROM Employees  
WHERE DepartmentID = (  
    SELECT DepartmentID  
    FROM Departments  
    WHERE DepartmentName = 'IT'  
);
```



Can you explain it with inner and outer Query? 😊

Explanation:

→ Inner Query (Subquery):

```
SELECT DepartmentID  
FROM Departments  
WHERE DepartmentName = 'IT';
```

- This retrieves the DepartmentID for the 'IT' department.

→ Outer Query:

```
SELECT Name  
FROM Employees  
WHERE DepartmentID = (...);
```

- This uses the result of the inner query to filter employees who belong to the 'IT' department.

What are the benefits of Subqueries 

Benefits of Subqueries:

- **Modularity:** Subqueries break down complex queries into simpler, manageable parts, making them easier to understand.
- **Flexibility:** They can be used in various clauses like **SELECT**, **WHERE**, **FROM**, and **HAVING**, allowing for versatile query construction.
- **Readability:** Using subqueries can enhance the readability of SQL queries, making it easier to follow the logic of data retrieval.



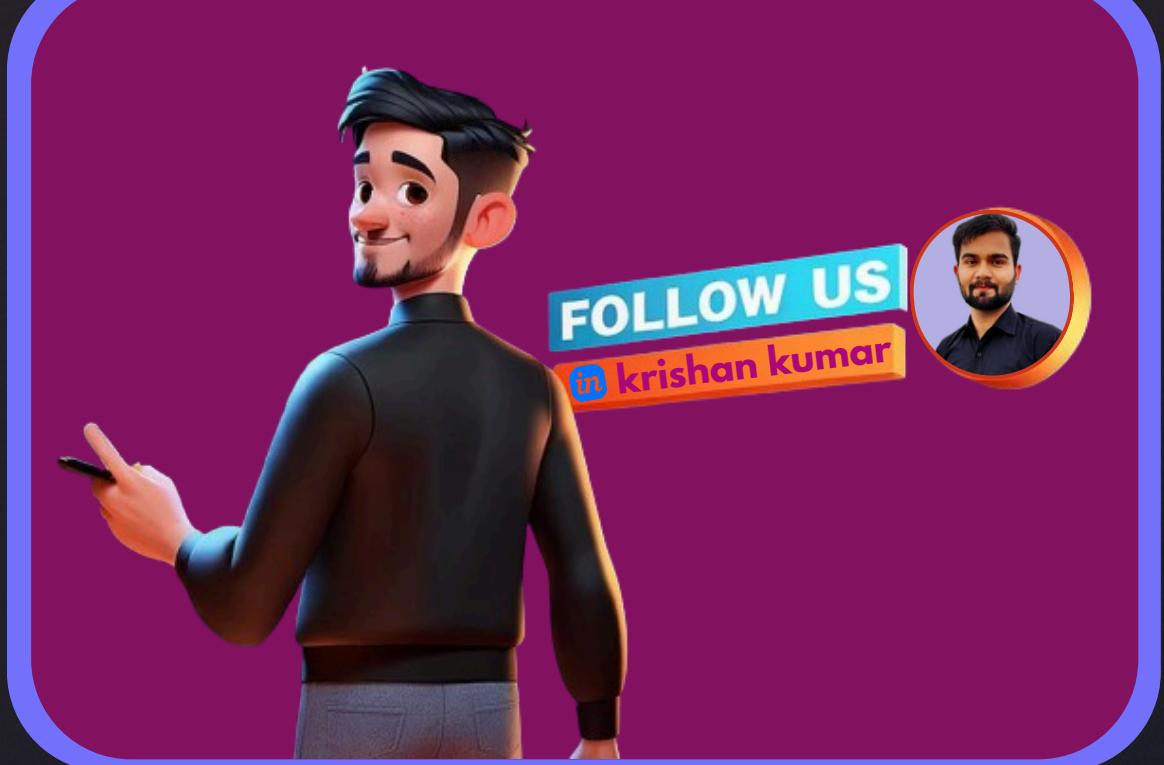
Swipe right for the surprise! 😊

Swipe right for the jackpot of the day! 😊





wanna see some
Counter Questions



1. What is the difference between a subquery and a JOIN?

- A **subquery** is a nested query that retrieves data based on the results of another query, while a **JOIN** combines rows from two or more tables based on a related column.

Subqueries can be less efficient than JOINs for large datasets, but they can simplify complex filtering criteria.

Next Question



2. Can you use a subquery in the SELECT clause?

- Yes, you can use subqueries in the SELECT clause to compute values dynamically for each row returned by the outer query.

```
SELECT Name,  
       (SELECT DepartmentName  
        FROM Departments  
        WHERE DepartmentID = Employees.DepartmentID)  
     AS DeptName  
  FROM Employees;
```



Next Question

3. What happens if a subquery returns more than one row?

- If a subquery returns more than one row and it is used in a context where only one value is expected (like in a WHERE clause), it will result in an error. To handle multiple rows, you can use operators like IN instead of =:



Next Question

4. Are subqueries always executed before the outer query?

- Yes, subqueries are executed first, and their results are used in the outer query.

However, SQL engines may optimize query execution plans, which can affect performance, especially with nested subqueries.



5. How do you avoid using subqueries for performance improvement?

- To improve performance, you can often rewrite a subquery as a JOIN.

This can be especially useful for large datasets, as JOINs may allow the database engine to optimize data retrieval more efficiently than subqueries.



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