SESSION WILL BE DIVIDED INTO

1. What are SUBQUERIES in SQL?
2. Syntax of SUBQUERIES
3. Understanding it with examples
4. When to use Sub Queries.
5. Drawbacks of Sub Queries.
6. Introduction to CTE
7. Syntax of CTE
8. Understanding with Example
9. Difference between CTE and Sub Queries.

SECTION 1

WHAT ARE SUBQUERIES

Definition

- Subqueries, also known as nested queries or inner queries, are SQL queries embedded within another query.
- In simple terms, subqueries are nothing but queries within queries.

SECTION 2

SYNTAX

1. SUBQUERIES are enclosed within parentheses and can be used in various SQL statements such as SELECT, INSERT, UPDATE, DELETE, and more.
2. A subquery typically appears within the WHERE clause, though it can also be used in other clauses like SELECT and FROM.

EXAMPLE

```
SELECT column1
FROM table1
WHERE column2 = (SELECT column2 FROM table2 WHERE
condition);
```

SECTION 4

WHEN TO USE?

1. Subqueries can help optimize queries by breaking down complex logic into smaller, more manageable parts.

2. They are versatile and can be used in various SQL operations such as SELECT, INSERT, UPDATE, DELETE, and even in data definition language (DDL) statements.

3. Correlated subqueries are a special type that references columns from the outer query, allowing for row-by-row comparisons or calculations.

SECTION 5

DRAWBACKS

DRAWBACKS OF SUBQUERIES

1. Readability: Not good when reading query

2. Reusability: Subqueries are not reusable, meaning that if the same logic needs to be used in multiple places within a query or across multiple queries, it must be repeated.

3. Complexity: Subqueries can lead to complex SQL statements, which may be challenging to understand and debug.

SECTION 6

WHAT IS CTE?

Definition

A **Common Table Expression (CTE)**, also referred to as a **WITH clause**, is a temporary named result set that you can reference anywhere in your query.

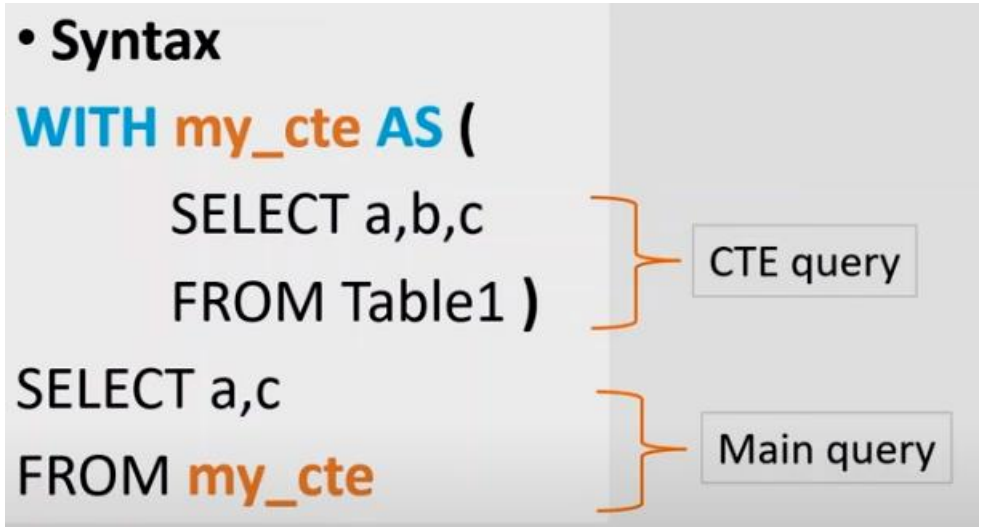
In contrast to subqueries, which are inserted exactly where you need them, all CTEs are defined before the main query and are then referenced in the query using the assigned name.

SECTION 7

SYNTAX

The syntax of a Common Table Expression (CTE) in SQL is as follows:

A **Common Table Expression (CTE)**, is defined by adding a WITH clause.



SECTION 8

DIFFERENCE IN ONE TABLE

Topic	Subqueries	CTE
Definition	Nested queries within main query	Temporary result sets with WITH keyword
Reusability	Not reusable, limited to query scope	Reusable, can be referenced multiple times
Readability	May make queries complex	Enhances readability by modularizing code
Optimization	May lead to poor performance, especially correlated	Can optimize execution plan
Scope	Limited to query scope	Broader scope, accessible multiple times
Debugging	Challenging due to nested logic and complexity	Facilitates easier debugging by modularity