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01

CTEs

Time to level up your SQL queries!!

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What is a CTE?

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- A CTE, or Common Table Expression, is a temporary named result set that can then be referenced later.

- A CTE allows you to break down a complex query into smaller, more manageable parts

- A CTE can be reused multiple times within the same query or in other queries.

WITH AS

03

- The WITH AS syntax is how you define a CTE.

- It starts with the keyword WITH, followed by the name of the CTE, then AS, and finally the query that defines the CTE.

Example:

```
WITH cte_name AS (
    SELECT column1, column2
    FROM table_name )
```

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Call the CTE

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- Now you can call your CTE called cte_name without having to type the whole thing out again.

Example:

```
SELECT * FROM cte_name
```

OUTPUT:

column1	column2
data1	data2

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Benefits

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Obviously we dont want to use a CTE for simple queries.. BUT they become powerful when you tie them with complex calculations, especially across multiple columns.

You can also chain CTEs together to make your calculations easier to understand.

Example:

```
WITH
cte1 AS (
SELECT column1, column2, column3 FROM table1
WHERE column1 > 'value1'
),
cte2 AS (
SELECT column4, column5, column6 FROM table1
WHERE column4 < 'value2'
),
cte3 AS (
SELECT cte1.column1, cte2.column4, COUNT(*) AS count
FROM cte1
INNER JOIN cte2 ON cte1.column2 = cte2.column5
GROUP BY cte1.column1, cte2.column4
)
SELECT * FROM cte3
WHERE count > 10
```

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Benefits cont.

06

You could use subqueries, but CTEs are so much better AND easier to use.

1. You can test the query to get the results and THEN put it in a CTE by adding the WITH AS.

2. After you get one CTE done, you can leave it sitting in its brackets ( ) and start testing your next query without ever calling it.

3. CTEs are separate from your main query so it doesnt get over complicated. Its easier to read, and its easier to adjust.

4. A CTE performs better than subqueries. When a CTE is used multiple times in a query, the database can cache the result.

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Limitations

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- CTEs are only visible within the query that defines them, so they can't be referenced in other queries.

- They also have a limited scope and are only valid for the duration of the query that defines them.

- Stored procedures may be better for you depending on your use case.

Lets save Stored procedures for another time...

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