



Common Table Expressions



Common Table Expressions (CTE)

As queries get more complicated, requiring subqueries, they can get much harder to read and understand. One way to mitigate this complexity is through a CTE.

A CTE is a temporary result set that can be referenced in a SELECT statement.

Can be used in place of a subquery to manage a more complicated query / improve readability of a complicated query.

Declared using a **WITH** statement prior to the main query and named (so that it can be referenced later).

Common Table Expressions (CTE)

```
SELECT
    c.name AS country,
    COUNT(s.id) AS matches
FROM country AS c
INNER JOIN (
    SELECT country_id, id
    FROM match
    WHERE (home_goal + away_goal) >= 10) AS s
ON c.id = s.country_id
GROUP BY country;
```

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```
SELECT
```

```
    c.name AS country,  
    COUNT(s.id) AS matches
```

```
FROM country AS c
```

```
INNER JOIN (
```

```
    SELECT country_id, id  
    FROM match
```

```
    WHERE (home_goal + away_goal) >= 10) AS s
```

```
ON c.id = s.country_id
```

```
GROUP BY country;
```

Take this
subquery



Common Table Expressions (CTE)

```
SELECT
```

```
    c.name AS country,  
    COUNT(s.id) AS matches
```

```
FROM country AS c
```

```
INNER JOIN (
```

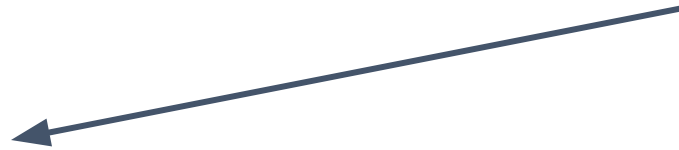
```
    SELECT country_id, id  
    FROM match
```

```
    WHERE (home_goal + away_goal) >= 10) AS s
```

```
ON c.id = s.country_id
```

```
GROUP BY country;
```

Take this
subquery



Common Table Expressions (CTE)

```
WITH s AS (  
    SELECT country_id, id  
    FROM match  
    WHERE (home_goal + away_goal) >= 10  
)  
SELECT  
    c.name AS country,  
    COUNT(s.id) AS matches  
FROM country AS c  
INNER JOIN s  
ON c.id = s.country_id  
GROUP BY country;
```



Move it up
here

Common Table Expressions (CTE)

```
SELECT
```

```
    c.name AS country,  
    COUNT(s.id) AS matches
```

```
FROM country AS c
```

```
INNER JOIN (
```

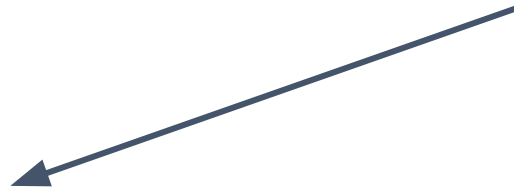
```
    SELECT country_id, id  
    FROM match
```

```
    WHERE (home_goal + away_goal) >= 10) AS s
```

```
ON c.id = s.country_id
```

```
GROUP BY country;
```

Move the
alias from
after...



Common Table Expressions (CTE)

WITH s AS (

SELECT country_id, id

FROM match

WHERE (home_goal + away_goal) >= 10

)

SELECT

c.name AS country,

COUNT(s.id) AS matches

FROM country AS c

INNER JOIN s

ON c.id = s.country_id

GROUP BY country;

← To before, using the keyword "WITH"


Common Table Expressions (CTE)

```
WITH s AS (  
    SELECT country_id, id  
    FROM match  
    WHERE (home_goal + away_goal) >= 10  
)  
SELECT  
    c.name AS country,  
    COUNT(s.id) AS matches  
FROM country AS c  
INNER JOIN s  
ON c.id = s.country_id  
GROUP BY country;
```

Common Table Expressions (CTE)

```
WITH s AS (  
    SELECT country_id, id  
    FROM match  
    WHERE (home_goal + away_goal) >= 10  
)  
SELECT  
    c.name AS country,  
    COUNT(s.id) AS matches  
FROM country AS c  
INNER JOIN s  
ON c.id = s.country_id  
GROUP BY country;
```

It can be
referenced
as part of
your main
query using
its alias.



Common Table Expressions (CTE)

```
WITH s1 AS (  
  SELECT country_id, id  
  FROM match  
  WHERE (home_goal + away_goal) >= 10),
```

```
s2 AS (  
  SELECT country_id, id  
  FROM match  
  WHERE (home_goal + away_goal) <= 1)
```

```
SELECT  
  c.name AS country,  
  COUNT(s1.id) AS high_scores,  
  COUNT(s2.id) AS low_scores  
FROM country AS c  
INNER JOIN s1  
  ON c.id = s1.country_id  
INNER JOIN s2  
  ON c.id = s2.country_id  
GROUP BY country;
```

CTE #1

CTE #2

Main Query

Queries can even include multiple CTEs.

The CTEs should be separated by a comma, but no comma between the last one and the main query.

You can even reference one CTE from a later one if you have a particularly complicated query.