

# 14 – Common table expression (CTE)

# Common table expression (CTE) is a temporary named result set; it is like a temp table but dropped after execution

- CTE definition: `with [expression] as (...)`
  - Multiple CTE definitions may be used by separating CTEs with a comma (,)
- A query statement must follow the CTE definition and the CTE result may be used once only
- CTEs can be used for advanced data manipulation and analytics, such as recursion<sup>(1)</sup>

## CTE example (multiple definitions)

```
with shapeArea1 as(  
    select sa.*  
    from shapeArea sa  
    union all  
    select 'square', 9  
)  
, colorValue1 as(  
    select 'red' color, 255 redRGB, 0 greenRGB, 0 blueRGB  
)  
  
select  
    s.*  
    , sa.*  
    , cv.*  
from shapes s  
left join shapeArea1 sa  
    on s.shape = sa.shape  
left join colorValue1 cv  
    on s.color = cv.color  
;
```

	shape	color	value	entryDate	shape	area	color	redRGB	greenRGB	blueRGB
1	square	red	9	2021-04-03	square	9.00	red	255	0	0
2	triangle	blue	5	2021-03-04	triangle	12.54	NULL	NULL	NULL	NULL
3	triangle	red	1	2021-07-05	triangle	12.54	red	255	0	0
4	triangle	green	3	2021-08-01	triangle	12.54	NULL	NULL	NULL	NULL
5	square	blue	7	2021-09-26	square	9.00	NULL	NULL	NULL	NULL
6	circle	green	8	2021-10-31	circle	33.57	NULL	NULL	NULL	NULL
7	circle	red	10	2021-11-16	circle	33.57	red	255	0	0
8	square	red	13	2021-12-02	square	9.00	red	255	0	0
9	circle	red	16	2022-01-07	circle	33.57	red	255	0	0
10	triangle	red	12	2022-02-02	triangle	12.54	red	255	0	0
11	square	green	6	2022-03-15	square	9.00	NULL	NULL	NULL	NULL
12	circle	blue	2	2022-04-05	circle	33.57	NULL	NULL	NULL	NULL

(1) See Microsoft's with common\_table\_expression page ([here](#)) for more examples