

SQL Cheat Sheet: Using SUM with CASE WHEN

1. CASE inside SUM (Valid - for conditional totals)

Used to selectively sum values that meet a condition:

```
SELECT
    SUM(CASE WHEN category = 'Books' THEN revenue ELSE 0 END) AS books_revenue
FROM sales;
```

Explanation:

- Adds revenue only for rows where category = 'Books'
- This is called conditional aggregation

2. SUM inside CASE WHEN (Valid only after GROUP BY)

Used to categorize groups based on totals:

```
SELECT customer_id,
    CASE
        WHEN SUM(quantity * unit_price) > 1000 THEN 'High'
        ELSE 'Low'
    END AS spend_category
FROM orders
GROUP BY customer_id;
```

Explanation:

- SUM is allowed here because the query is already grouped
- You are labeling groups, not rows

3. SUM inside CASE WHEN (Invalid without GROUP BY)

This will cause an error:

```
SELECT
    CASE
        WHEN SUM(quantity * unit_price) > 1000 THEN 'High'
        ELSE 'Low'
    END
```

FROM orders;

Explanation:

- SUM() is an aggregate function
- You can't use it in row-level SELECT without GROUP BY

Rule of Thumb:

- Use CASE inside SUM for conditional totals (row filtering)
- Use SUM inside CASE only after GROUP BY (group labeling)