

QUERY1:

SELECT

date,

SUM(amount) OVER (ORDER BY date_parse(date, '%m-%d-%y')) AS cumulative_sales

FROM raw

WHERE year(date_parse(date, '%m-%d-%y')) = 2022

LIMIT 10;

QUERY2:

SELECT

COALESCE(NULLIF("ship-state", ""), 'Unknown') AS state,

SUM(

CASE

WHEN lower(status) IN ('cancelled','canceled','refunded','returned','return requested','refund initiated')

THEN -ABS(amount)

ELSE 0

END

) AS total_negative_profit

FROM raw

GROUP BY COALESCE(NULLIF("ship-state", ""), 'Unknown')

HAVING SUM(

CASE

WHEN lower(status) IN ('cancelled','canceled','refunded','returned','return requested','refund initiated')

THEN -ABS(amount)

ELSE 0

END

) < 0

ORDER BY total_negative_profit ASC

LIMIT 10;

QUERY3:

SELECT

category,

sku AS sub_category,

ROUND(AVG(rand() * 0.3), 2) AS avg_discount, -- simulate discount between
0%–30%

CAST(SUM(CAST(amount AS DOUBLE)) AS DOUBLE) AS total_sales,

CAST(SUM(CAST(amount AS DOUBLE)) * (1 - AVG(rand() * 0.3)) AS DOUBLE) AS
est_profit,

(CAST(SUM(CAST(amount AS DOUBLE)) * (1 - AVG(rand() * 0.3)) AS DOUBLE) /

NULLIF(CAST(SUM(CAST(amount AS DOUBLE)) AS DOUBLE), 0)) AS profit_ratio

FROM raw

GROUP BY category, sku

ORDER BY profit_ratio DESC

LIMIT 10;

QUERY4:

WITH ranked_products AS (

SELECT

category,

sku AS product_name,

CAST(SUM(CAST(amount AS DOUBLE) * 0.25) AS DOUBLE) AS total_profit,

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        RANK() OVER (PARTITION BY category ORDER BY SUM(CAST(amount AS DOUBLE) *
0.25) DESC) AS rank_in_category

    FROM raw

    GROUP BY category, sku
)

SELECT

    category,

    product_name,

    total_profit,

    rank_in_category

FROM ranked_products

WHERE rank_in_category <= 3

ORDER BY category, rank_in_category

LIMIT 10;

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QUERY5:

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WITH monthly_summary AS (
    SELECT
        date_format(date_parse(date, '%m-%d-%y'), '%Y-%m') AS month,
        CAST(SUM(CAST(amount AS DOUBLE)) AS DOUBLE) AS total_sales,
        CAST(SUM(CAST(amount AS DOUBLE) * 0.25) AS DOUBLE) AS total_profit -- assume 25% margin
    FROM raw
    GROUP BY date_format(date_parse(date, '%m-%d-%y'), '%Y-%m')
)

SELECT
    month,
    total_sales,
    total_profit,
    ROUND(
        ((total_sales - LAG(total_sales) OVER (ORDER BY month)) /
        NULLIF(LAG(total_sales) OVER (ORDER BY month), 0)) * 100, 2

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) AS sales_growth_rate,  
ROUND(  
    ((total_profit - LAG(total_profit) OVER (ORDER BY month)) /  
    NULLIF(LAG(total_profit) OVER (ORDER BY month), 0)) * 100, 2  
    ) AS profit_growth_rate  
FROM monthly_summary  
ORDER BY month  
LIMIT 10;
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