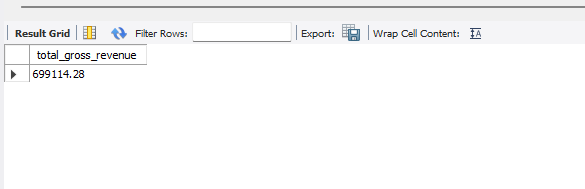
**Task – 02: Business Questions**

1. **What is the total gross revenue?**

SELECT

SUM(gross\_revenue) AS total\_gross\_revenue

FROM fact\_transaction;

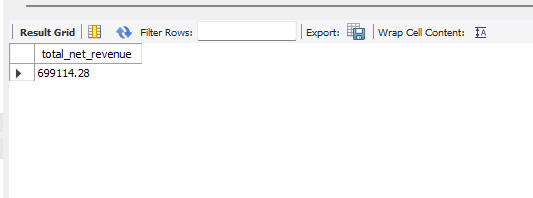
****

1. **What is the total net revenue?**

SELECT

SUM(net\_revenue) AS total\_net\_revenue

FROM fact\_transaction;

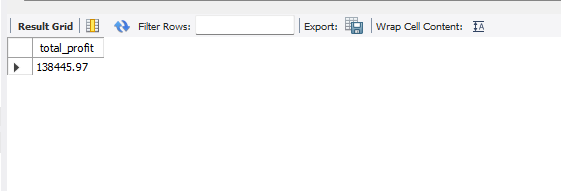
****

1. **What is the total profit?**

SELECT

SUM(profit) AS total\_profit

FROM fact\_transaction;



1. **How many orders were placed by each customer segment?**

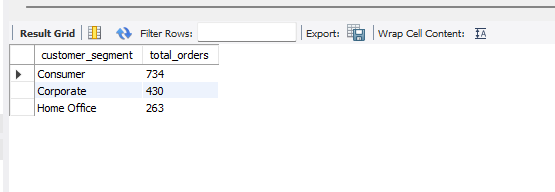
SELECT

customer\_segment,

COUNT(DISTINCT order\_id) AS total\_orders

FROM fact\_transaction

GROUP BY customer\_segment;



1. **What are the top 5 best-selling products by quantity?**

SELECT

dp.product\_name,

SUM(ft.quantity) AS total\_quantity

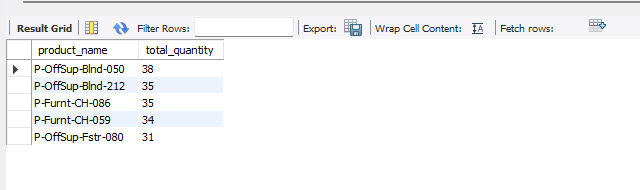
FROM fact\_transaction ft

JOIN dim\_product dp ON ft.product\_sk = dp.product\_sk

GROUP BY dp.product\_name

ORDER BY total\_quantity DESC

LIMIT 5;



1. **What is the monthly gross revenue trend for 2015?**

SELECT

DATE\_FORMAT(order\_date, '%Y-%m') AS month,

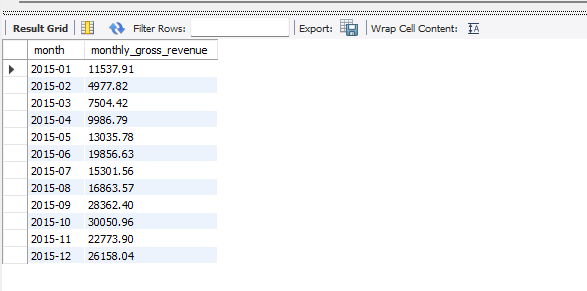
SUM(gross\_revenue) AS monthly\_gross\_revenue

FROM fact\_transaction

WHERE YEAR(order\_date) = 2015

GROUP BY month

ORDER BY month;



1. **Which sub-category has the highest profit margin?**

SELECT

dsc.sub\_category\_name,

ROUND(SUM(profit) / SUM(net\_revenue) \* 100, 2) AS profit\_margin\_pct

FROM fact\_transaction ft

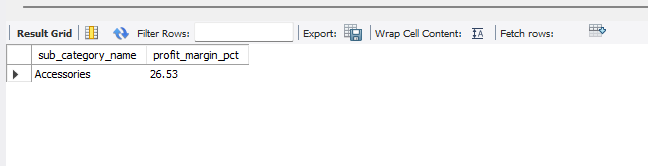
JOIN dim\_product dp ON ft.product\_sk = dp.product\_sk

JOIN dim\_sub\_category dsc ON dp.sub\_category\_id = dsc.sub\_category\_id

GROUP BY dsc.sub\_category\_name

ORDER BY profit\_margin\_pct DESC

LIMIT 1;



1. **Which continents experience the most product returns as a percentage of total products sold?**

SELECT

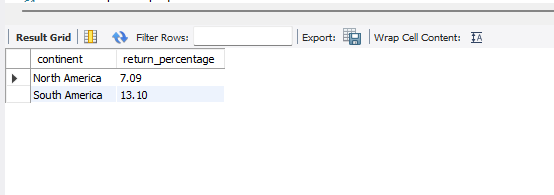
dl.continent,

ROUND(SUM(CASE WHEN return\_flag = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(DISTINCT ft.order\_id), 2) AS return\_percentage

FROM fact\_transaction ft

JOIN dim\_location dl ON ft.location\_id = dl.location\_id

GROUP BY dl.continent;



1. **Which products have a negative profit?**

SELECT

dp.product\_name,

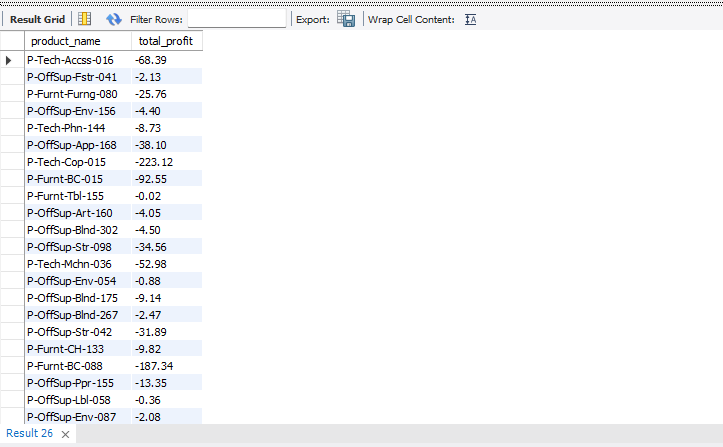
SUM(profit) AS total\_profit

FROM fact\_transaction ft

JOIN dim\_product dp ON ft.product\_sk = dp.product\_sk

GROUP BY dp.product\_name

HAVING total\_profit < 0;



1. **How does discount percentage correlate with order volume?**

SELECT

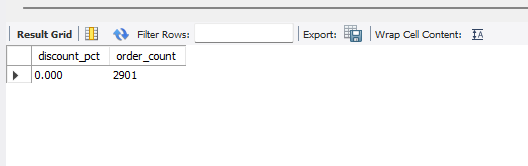
discount\_pct,

COUNT(\*) AS order\_count

FROM fact\_transaction

GROUP BY discount\_pct

ORDER BY discount\_pct;



1. **What is the return rate by product category?**

SELECT

dc.category\_name,

ROUND(SUM(CASE WHEN return\_flag = 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(DISTINCT ft.order\_id), 2) AS return\_rate\_pct

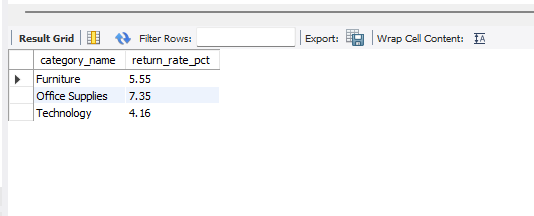
FROM fact\_transaction ft

JOIN dim\_product dp ON ft.product\_sk = dp.product\_sk

JOIN dim\_sub\_category dsc ON dp.sub\_category\_id = dsc.sub\_category\_id

JOIN dim\_category dc ON dsc.category\_id = dc.category\_id

GROUP BY dc.category\_name;



1. **Which shipping mode is most profitable?**

SELECT

ship\_mode,

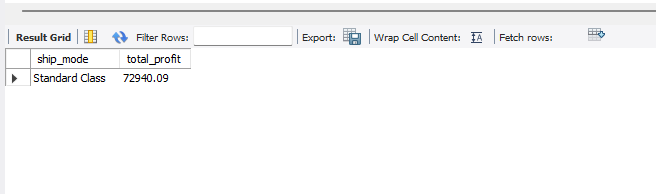
SUM(profit) AS total\_profit

FROM fact\_transaction

GROUP BY ship\_mode

ORDER BY total\_profit DESC

LIMIT 1;

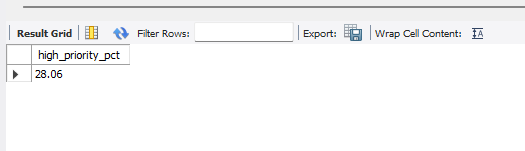


1. **What percentage of orders are high priority?**

SELECT

ROUND(SUM(CASE WHEN order\_priority = 'High' THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*), 2) AS high\_priority\_pct

FROM fact\_transaction;



1. **Which city generates the highest revenue per order?**

SELECT

dl.city,

ROUND(SUM(net\_revenue) / COUNT(DISTINCT ft.order\_id), 2) AS revenue\_per\_order

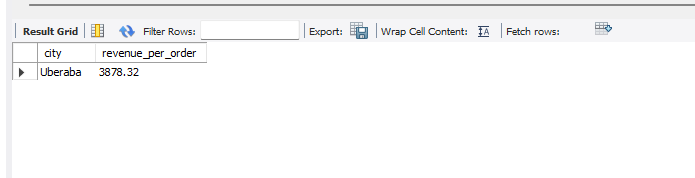
FROM fact\_transaction ft

JOIN dim\_location dl ON ft.location\_id = dl.location\_id

GROUP BY dl.city

ORDER BY revenue\_per\_order DESC

LIMIT 1;



1. **What is the average profit per customer segment?**

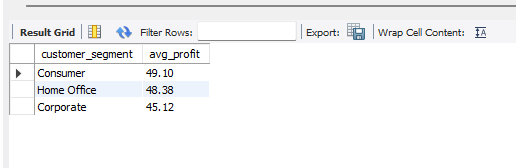
SELECT

customer\_segment,

ROUND(AVG(profit), 2) AS avg\_profit

FROM fact\_transaction

GROUP BY customer\_segment;



1. **What is the year-over-year (YoY) revenue growth by category?**

SELECT

dc.category\_name,

YEAR(order\_date) AS year,

SUM(net\_revenue) AS revenue,

LAG(SUM(net\_revenue)) OVER (PARTITION BY dc.category\_name ORDER BY YEAR(order\_date)) AS prev\_year\_revenue,

ROUND((SUM(net\_revenue) - LAG(SUM(net\_revenue)) OVER (PARTITION BY dc.category\_name ORDER BY YEAR(order\_date))) \* 100.0 / LAG(SUM(net\_revenue)) OVER (PARTITION BY dc.category\_name ORDER BY YEAR(order\_date)), 2) AS yoy\_growth\_pct

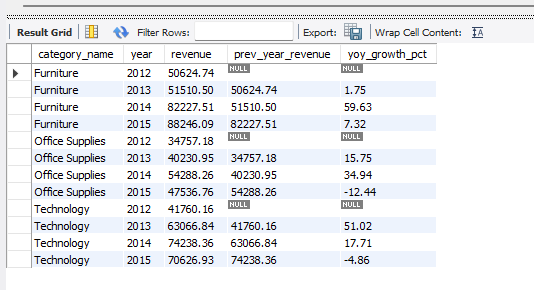
FROM fact\_transaction ft

JOIN dim\_product dp ON ft.product\_sk = dp.product\_sk

JOIN dim\_sub\_category dsc ON dp.sub\_category\_id = dsc.sub\_category\_id

JOIN dim\_category dc ON dsc.category\_id = dc.category\_id

GROUP BY dc.category\_name, YEAR(order\_date);



1. **Which products are frequently purchased together?**

SELECT

a.product\_name AS product\_1,

b.product\_name AS product\_2,

COUNT(\*) AS times\_bought\_together

FROM (

SELECT order\_id, product\_sk FROM fact\_transaction GROUP BY order\_id, product\_sk

) o1

JOIN (

SELECT order\_id, product\_sk FROM fact\_transaction GROUP BY order\_id, product\_sk

) o2 ON o1.order\_id = o2.order\_id AND o1.product\_sk < o2.product\_sk

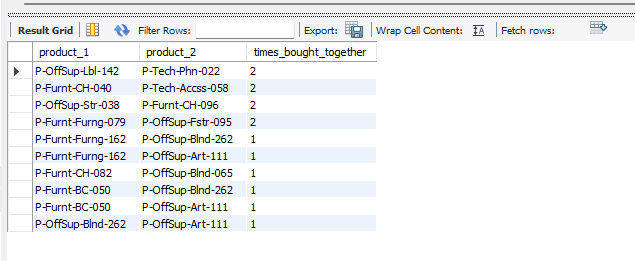
JOIN dim\_product a ON o1.product\_sk = a.product\_sk

JOIN dim\_product b ON o2.product\_sk = b.product\_sk

GROUP BY product\_1, product\_2

ORDER BY times\_bought\_together DESC

LIMIT 10;



1. **What percentage of orders contain multiple products?**

SELECT

ROUND(SUM(CASE WHEN product\_count > 1 THEN 1 ELSE 0 END) \* 100.0 / COUNT(\*), 2) AS multi\_product\_order\_pct

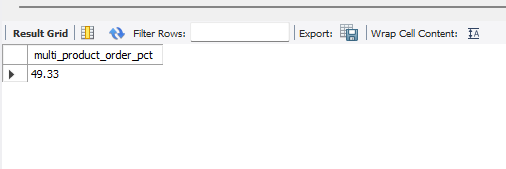
FROM (

SELECT order\_id, COUNT(DISTINCT product\_sk) AS product\_count

FROM fact\_transaction

GROUP BY order\_id

) t;



1. **Which orders have abnormally high shipping costs?**

SELECT

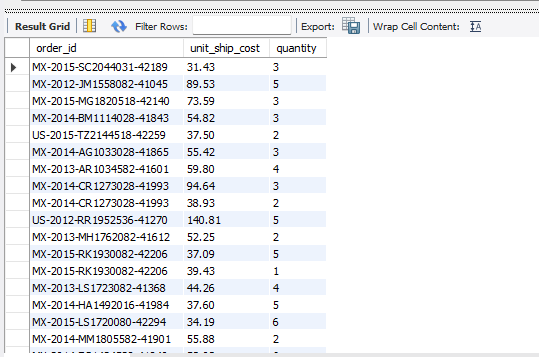
order\_id,

unit\_ship\_cost,

quantity

FROM fact\_transaction

WHERE unit\_ship\_cost > (SELECT AVG(unit\_ship\_cost) + 2 \* STD(unit\_ship\_cost) FROM fact\_transaction);



1. **How are orders distributed by value segments (Low/Medium/High)?**

SELECT

order\_id,

CASE

WHEN net\_revenue < 100 THEN 'Low'

WHEN net\_revenue BETWEEN 100 AND 500 THEN 'Medium'

ELSE 'High'

END AS value\_segment,

net\_revenue

FROM fact\_transaction;

