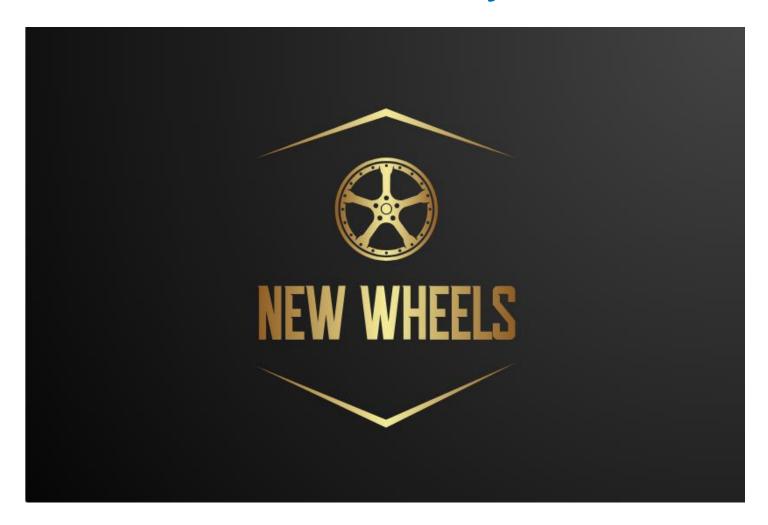


New Wheels Project



BUSINESS REPORT

Prepared by - Durgesh Bhargava

PGP-DSBA (PGPDSBA.O.JULY24.A)

1



CONTENTS

- 1. Introduction
 - Problem Statement
 - Business Context
 - Objective
- 2. Business Questions and Solutions
- 3. Business Metrics Overview
- 4. Business Recommendations



Introduction to SQL

Problem Statement

Business Context

A lot of people in the world share a common desire: to own a vehicle. A car or an automobile is seen as an object that gives the freedom of mobility. Many now prefer pre-owned vehicles because they come at an affordable cost, but at the same time, they are also concerned about whether the after-sales service provided by the resale vendors is as good as the care you may get from the actual manufacturers.

New-Wheels, a vehicle resale company, has launched an app with an end-to-end service from listing the vehicle on the platform to shipping it to the customer's location. This app also captures the overall after-sales feedback given by the customer.

Objective

New-Wheels sales have been dipping steadily in the past year, and due to the critical customer feedback and ratings online, there has been a drop in new customers every quarter, which is concerning to the business. The CEO of the company now wants a quarterly report with all the key metrics sent to him so he can assess the health of the business and make the necessary decisions.

As a data analyst, you see that there is an array of questions that are being asked at the leadership level that need to be answered using data. Import the dump file that contains various tables that are present in the database. Use the data to answer the questions posed and create a quarterly business report for the CEO.

3



Business Questions

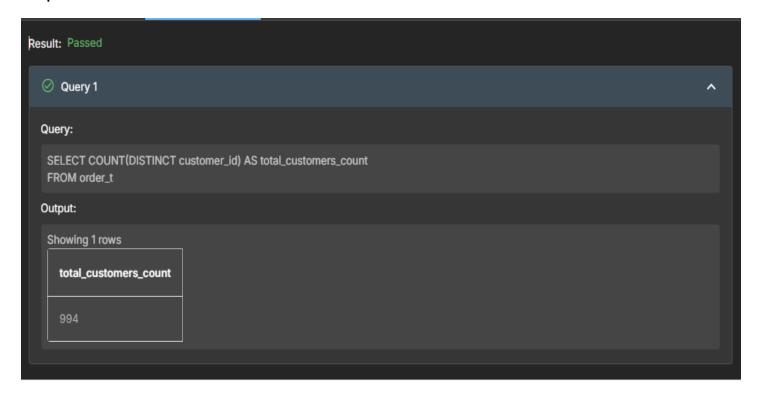
Question 1: Find the total number of customers who have placed orders. What is the distribution of the customers across states?

Solution:

Query 1: Total number of customers who have placed orders

```
SELECT COUNT(DISTINCT customer_id) AS total_customers_count
FROM order t;
```

Output:



Observations & Insights:

- The total number of unique customers who have placed at least one order is 994.
- This means that **994 distinct customers** have interacted with the platform and made a purchase.



Query 2: Distribution of the customers across states

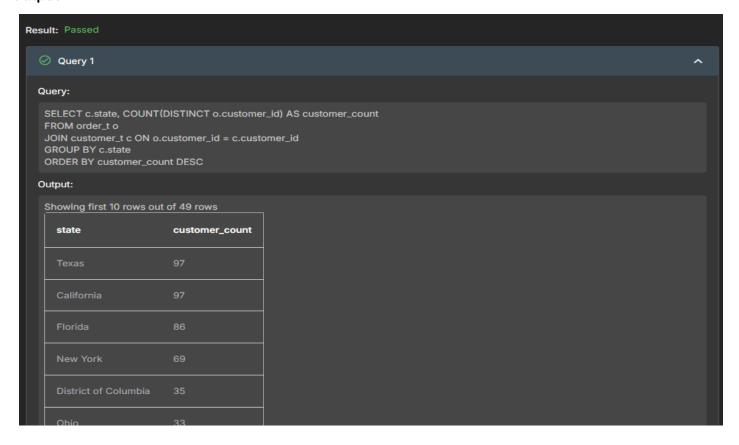
```
SELECT c.state, COUNT(DISTINCT o.customer_id) AS customer_count
FROM order_t o

JOIN customer_t c ON o.customer_id = c.customer_id

GROUP BY c.state

ORDER BY customer_count DESC;
```

Output:



Observations and Insights:

- Texas and California have the highest number of customers (97 each), followed by Florida (86) and New York (69), meaning the company already has a strong customer base there.
- These states might have better brand awareness, advertising efforts, or demand for used vehicles.
- District of Columbia (35), Ohio (33), and Alabama (29) have significantly fewer customers.
- Possible reasons may be lack of brand awareness in these areas, limited shipping options or higher shipping costs, lower demand for pre-owned vehicles



Question 2: Which are the top 5 vehicle makers preferred by the customers?

Solution:

Query: Top 5 vehicle makers preferred by the customers

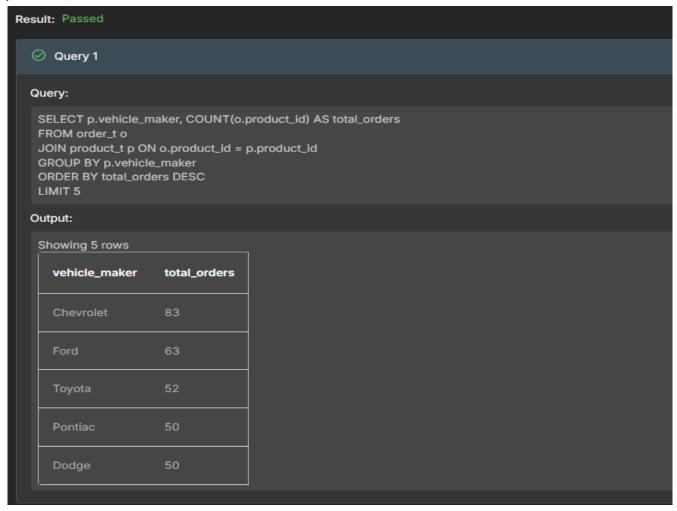
```
SELECT p.vehicle_maker, COUNT(o.product_id) AS total_orders
FROM order_t o

JOIN product_t p ON o.product_id = p.product_id

GROUP BY p.vehicle_maker

ORDER BY total_orders DESC

LIMIT 5;
```





Observations & Insights

1. Chevrolet is the Most Preferred Brand

- With 83 orders, Chevrolet leads the market, indicating high customer preference due to affordability, reliability, or resale value.
- Business Strategy: New-Wheels should ensure a steady supply of Chevrolet vehicles and run brand-specific promotions to maintain its dominance.

2. Strong Demand for American Brands

- The top 5 preferred vehicle makers—Chevrolet, Ford, Pontiac, Dodge, and Toyota—are mostly American brands.
- This suggests that customers favor domestic manufacturers, possibly due to lower maintenance costs, better availability, or brand trust.
- Business Strategy: New-Wheels can prioritize marketing American vehicles and highlight their benefits over imports.

3. Toyota Stands Out as the Only Non-American Brand

- Toyota, with 52 orders, is the only non-American brand in the top 5.
- This suggests strong demand despite competition, possibly due to Toyota's reputation for durability and fuel efficiency.
- Business Strategy: Expanding Toyota inventory and offering targeted promotions could further increase sales.

4. Close Competition Between Pontiac and Dodge

- Both Pontiac and Dodge have 50 orders, making them evenly matched in customer preference.
- Business Strategy: Analyzing customer preferences for specific Pontiac vs. Dodge models could help optimize stock and pricing.

Question 3: Which is the most preferred vehicle maker in each state?

Solution:

Query: Most preferred vehicle maker in each state



```
SELECT *

FROM

(

SELECT

state,

vehicle_maker,

COUNT(customer_id) AS total_customers,

RANK() OVER (PARTITION BY state ORDER BY COUNT(customer_id) DESC) AS ranking

FROM product_t

JOIN order_t USING(product_id)

JOIN customer_t USING(customer_id)

GROUP BY 1, 2

) AS preferred_vehicle

WHERE ranking = 1

ORDER BY 3 DESC;
```

ult: Passed			
Query 1			
uery:			
COUN RANK() OVEI FROM produ JOIN order_t JOIN custom GROUP BY) AS preferred_ WHERE ranking ORDER BY 3 DI	le_maker, NT(customer_id) AS R (PARTITION BY SI ct_t USING(product_id) er_t USING(custom (1, 2 vehicle g = 1	ate ORDER BY COUN	Γ(customer_id)
tput:	0 rows out of 143 ro	nwe	
state	vehicle_maker	total_customers	ranking
	Chevrolet		
	Toyota		
California	Nissan		
California			
California	Dodge	6	1
California	Chevrolet		



Observations & Insights:

1. Chevrolet is the Most Preferred Brand Across Multiple States

- Chevrolet is the most preferred vehicle maker in Texas (9 customers), Ohio (6 customers),
 Colorado (5 customers), and California (6 customers).
- This suggests strong demand for Chevrolet vehicles across different regions.
- Business Strategy:
 - Prioritize Chevrolet inventory in these states.
 - Offer regional promotions on Chevrolet models to attract more customers.

2. California Has a Diverse Customer Preference

- Unlike other states, California does not have a single dominant vehicle maker.
- Instead, it has multiple top brands tied at 6 customers each (Nissan, Ford, Dodge, Chevrolet, and Audi).
- Business Strategy:
 - Stock a variety of brands in California to cater to different customer segments.
 - Analyze which specific models within these brands are driving the demand.

3. Toyota Leads in Florida

- Florida's most preferred vehicle maker is Toyota (7 customers), making it the only non-American brand in the top rankings.
- o This aligns with Toyota's reputation for **fuel efficiency and reliability**, which might appeal to Florida's customer base.

Business Strategy:

- Increase the availability of Toyota vehicles in Florida.
- Target Florida customers with **fuel efficiency and reliability-focused marketing**.



4. Dodge is Strong in Alabama

- Dodge is the most preferred brand in Alabama (5 customers), indicating a strong presence in this state.
- o This could be due to a preference for **trucks and SUVs**, which Dodge is known for.
- Business Strategy:
 - Focus on Dodge's trucks and SUVs in Alabama.
 - Run marketing campaigns highlighting towing capacity, durability, and off-road capabilities.

Question 4: Find the overall average rating given by the customers. What is the average rating in each quarter?

Consider the following mapping for ratings: "Very Bad": 1, "Bad": 2, "Okay": 3, "Good": 4, "Very Good": 5

Solution

Query 1: Overall average rating given by the customers

SELECT

AVG(CASE

WHEN customer_feedback = 'Very Bad' THEN 1 $\,$

WHEN customer_feedback = 'Bad' THEN 2

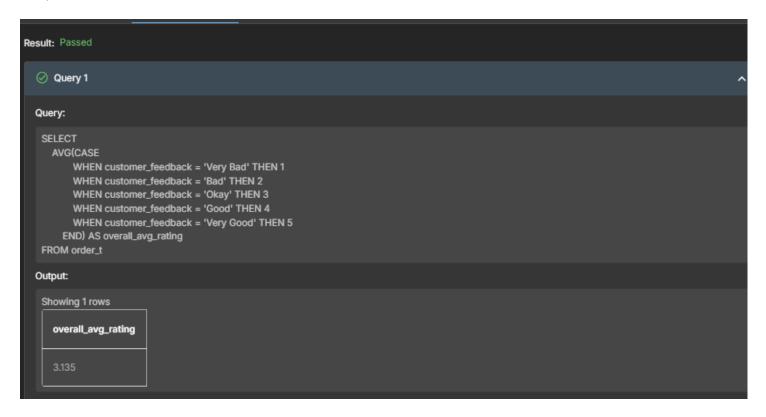
WHEN customer_feedback = 'Okay' THEN 3

WHEN customer_feedback = 'Good' THEN 4

WHEN customer_feedback = 'Very Good' THEN 5

END) AS overall_avg_rating FROM order_t;





Observations and Insights:

- 1. Overall Customer Satisfaction is Low (3.135/5)
 - Since the overall rating is **just above 3**, it suggests that most customers are **neutral or slightly dissatisfied** with their experience.
 - A score closer to 4 or 5 would indicate strong customer satisfaction, but 3.135 implies room for significant improvement.

2. Potential Issues Impacting Ratings

- Common factors affecting low ratings could be poor after-sales service, delays in vehicle delivery, or product quality issues.
- Negative customer experiences may be **impacting repeat purchases and new customer acquisitions**, which aligns with the company's declining sales.

3. Recommended Actions

 Analyse customer feedback to identify specific complaints (e.g., delivery delays, vehicle defects, postsale support).



- **Improve service quality**, ensuring better response times, smoother logistics, and effective issue resolution.
- Monitor ratings by quarter (as shown in the next query) to pinpoint when and why customer dissatisfaction spikes.

Query 2: The average rating in each quarter

```
SELECT

quarter_number,

AVG(CASE

WHEN customer_feedback = 'Very Bad' THEN 1

WHEN customer_feedback = 'Bad' THEN 2

WHEN customer_feedback = 'Okay' THEN 3

WHEN customer_feedback = 'Good' THEN 4

WHEN customer_feedback = 'Very Good' THEN 5

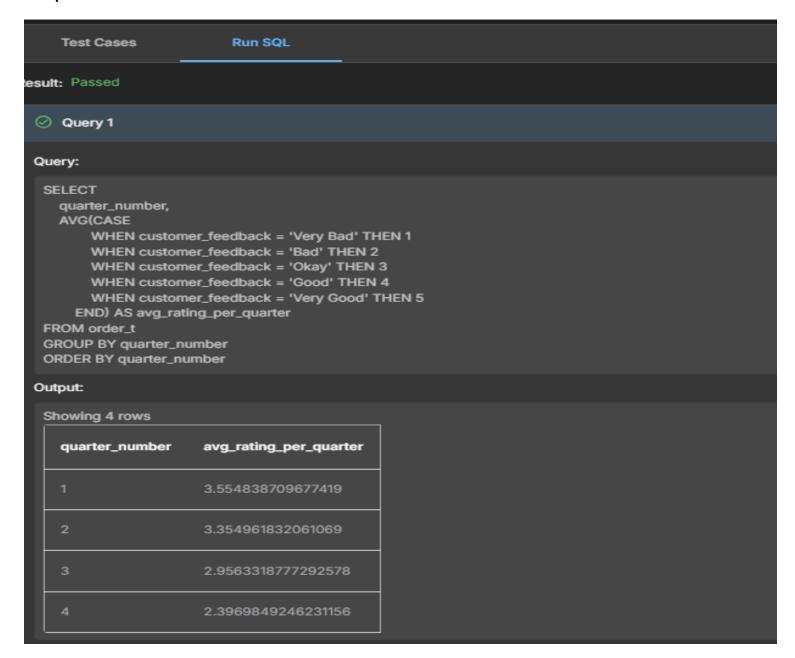
END) AS avg_rating_per_quarter
```

FROM order_t

GROUP BY quarter_number

ORDER BY quarter_number





Observations & Insights:

- 1. Declining Customer Satisfaction Over Time
 - $\bigcirc \quad \textbf{Q1: 3.55} \rightarrow \textbf{Q2: 3.35} \rightarrow \textbf{Q3: 2.96} \rightarrow \textbf{Q4: 2.39}$
 - The average rating steadily decreases each quarter, indicating worsening customer experiences as the year progresses.



2. Significant Drop in Q3 & Q4

- Q1 & Q2 have moderate satisfaction (above 3), but Q3 drops below 3, and Q4 is the worst (2.39).
- This suggests growing issues—perhaps with customer service, product quality, or shipping delays.

3. Possible Reasons for Decline

- o **Operational inefficiencies**: Delivery delays, stock issues, or declining service quality over time.
- Rising customer expectations: As more people use the platform, expectations increase, but the service may not be keeping up.
- Seasonal demand or end-of-year backlogs: Q4 could see a rise in orders, overwhelming the system and leading to worse service.

Question 5: Find the percentage distribution of feedback from the customers. Are customers getting more dissatisfied over time?

Solution

Query 1: The percentage distribution of feedback from the customers

SELECT

customer_feedback,

COUNT(*) AS feedback_count,

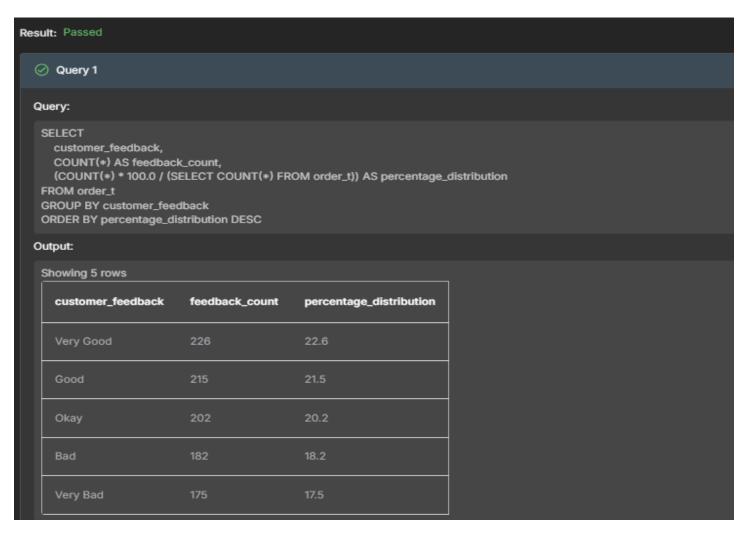
(COUNT(*) * 100.0 / (SELECT COUNT(*) FROM order_t)) AS percentage_distribution

FROM order_t

GROUP BY customer_feedback

ORDER BY percentage_distribution DESC;





Observations and Insights:

- 1. Customer Sentiment Overview:
- **Positive Feedback (44.1%)**: "Very Good" (22.6%) and "Good" (21.5%) indicate that nearly half of the customers are satisfied.
- **Neutral Feedback (20.2%)**: "Okay" feedback suggests that many customers had an average experience.
- **Negative Feedback (35.7%)**: "Bad" (18.2%) and "Very Bad" (17.5%) collectively show that over one-third of customers are dissatisfied, which can impact customer retention and business growth.
- 2. Potential Areas of Concern:
- The high percentage of **negative feedback (35.7%)** indicates service-related issues that require immediate attention.
- The large portion of "Okay" (20.2%) feedback suggests that many customers had a mediocre experience, meaning there is an opportunity to improve and convert them into satisfied customers.



- 3. Business Impact & Recommendations:
- Investigate Reasons for Dissatisfaction: A deeper analysis of complaints, particularly from "Bad" and "Very Bad" categories, can help pinpoint issues like service quality, vehicle condition, or shipping delays.
- Improve After-Sales Service: Addressing common concerns (e.g., response time, vehicle condition upon delivery, warranty support) can help shift customer sentiment positively.
- Enhance Customer Experience: Focus on converting "Okay" feedback customers into "Good" or "Very Good" by improving touchpoints such as customer support, faster issue resolution, and better communication.

Query 2: Are customers getting more dissatisfied over time

SELECT

quarter_number,

ROUND(SUM(CASE WHEN customer_feedback = 'Very Bad' THEN 1 ELSE 0 END) * 100.0 / COUNT(*)) AS very_bad_percentage,

ROUND(SUM(CASE WHEN customer_feedback = 'Bad' THEN 1 ELSE 0 END) * 100.0 / COUNT(*)) AS bad_percentage,

ROUND(SUM(CASE WHEN customer_feedback = 'Okay' THEN 1 ELSE 0 END) * 100.0 / COUNT(*)) AS okay_percentage,

 $ROUND(SUM(CASE\ WHEN\ customer_feedback = 'Good'\ THEN\ 1\ ELSE\ 0\ END)\ *\ 100.0\ /\ COUNT(*))\ AS\ good_percentage,$

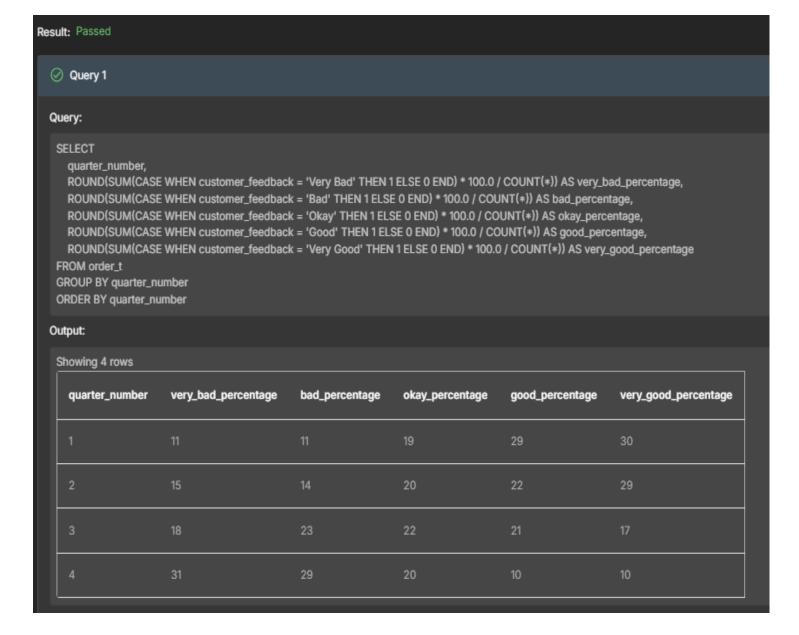
ROUND(SUM(CASE WHEN customer_feedback = 'Very Good' THEN 1 ELSE 0 END) * 100.0 / COUNT(*)) AS very_good_percentage

FROM order_t

GROUP BY quarter_number

ORDER BY quarter_number;







Observations and Insights:

Observations:

- 1. Customer dissatisfaction is increasing over time:
 - The percentage of "Very Bad" feedback has increased from 11% in Q1 to 31% in Q4.
 - Similarly, "Bad" feedback has also risen from 11% in Q1 to 29% in Q4.
- 2. Positive feedback is declining:
 - "Very Good" ratings dropped significantly from 30% in Q1 to just 10% in Q4.
 - "Good" ratings also saw a decline from 29% in Q1 to 10% in Q4.
- 3. The "Okay" ratings remain relatively stable at around 19-22%, indicating a consistent neutral sentiment.

Insights:

- 1. **Service or product quality might be deteriorating over time.** The sharp increase in "Very Bad" and "Bad" feedback suggests growing dissatisfaction.
- 2. **Potential issues in Q3 and Q4:** Since negative feedback spiked in these quarters, it's crucial to analyze whether operational inefficiencies, delays, or product defects contributed to this decline.
- 3. **Investigate and address key problem areas** by collecting more granular feedback from customers. Areas like customer service, shipping delays, or product quality could be leading to dissatisfaction.
- 4. **A targeted improvement strategy is required**, such as improving quality control, enhancing customer support, or offering incentives to regain customer trust.



Question 6: What is the trend of the number of orders by quarter?

Solution

Query: Trend of the number of orders by quarter

SELECT

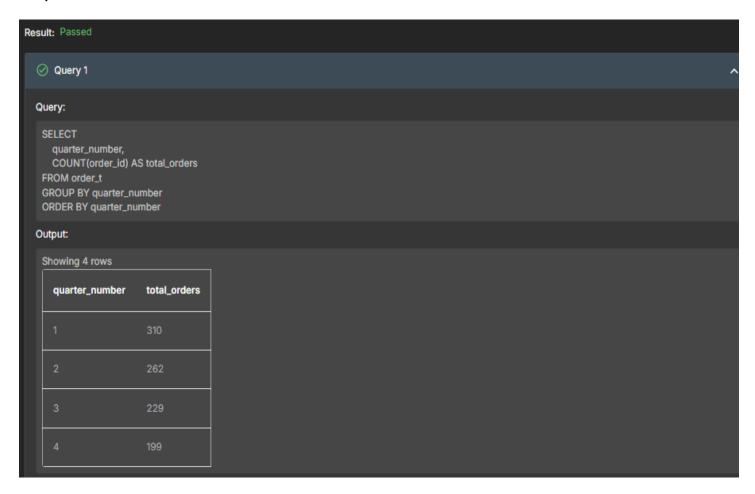
quarter_number,

COUNT(order_id) AS total_orders

FROM order_t

GROUP BY quarter_number

ORDER BY quarter_number;





Observations and Insights:

Observations:

- 1. The total number of orders has been decreasing over the quarters:
 - o **Q1**: 310 orders
 - o **Q2:** 262 orders
 - o **Q3**: 229 orders
 - o **Q4:** 199 orders
- 2. There is a clear **downward trend** in the number of orders across the quarters.
- 3. The most orders were placed in Q1, while the least were placed in Q4.
- 4. The drop in orders from **Q1 to Q4** is approximately **35.8%**, indicating a consistent decline.

Insights:

- 1. The decline in orders over time may indicate **reduced customer demand, operational inefficiencies, or seasonal trends** affecting sales.
- 2. Possible reasons for this downward trend could be **customer dissatisfaction** (as seen in increasing "Bad" and "Very Bad" feedback percentages), **pricing issues**, or **competition**.
- 3. It may be beneficial to analyze marketing strategies, customer retention initiatives, and product pricing to identify ways to boost sales.
- 4. Further investigation into specific customer segments, product categories, and external factors (e.g., economic conditions, promotions, or competitor actions) can help understand the root cause of this decline.

Question 7: Calculate the net revenue generated by the company. What is the quarter-over-quarter % change in net revenue?

Solution

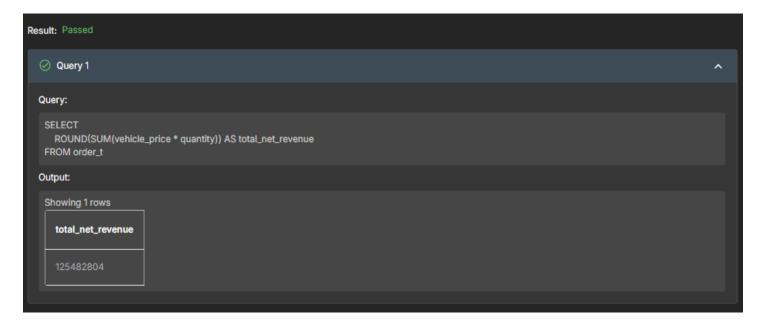
Query 1: Net revenue generated by the company

SELECT

ROUND(SUM(vehicle_price * quantity)) AS total_net_revenue

FROM order_t;





Observations and Insights:

Observations:

- 1. The total net revenue generated by the company is \$125,482,804.
- 2. This value represents the cumulative revenue from all customer orders, calculated based on the **vehicle price** and **quantity sold**.
- 3. The revenue figure is significant, indicating a strong sales performance.

Insights:

- 1. The company has successfully generated over **\$125 million in revenue**, which reflects a well-performing business model.
- 2. Further analysis can help determine the **top revenue-generating vehicle makers** or **products contributing the most to sales**.
- 3. It would be useful to compare this revenue with **costs and profit margins** to assess overall profitability.
- 4. Analyzing revenue trends over quarters or years can help in forecasting and strategic planning.



Query 2: Quarter-over-quarter % change in net revenue

```
SELECT
 quarter_number,
 ROUND(SUM(vehicle_price * quantity)) AS net_revenue,
 LAG(ROUND(SUM(vehicle_price * quantity))) OVER (ORDER BY quarter_number) AS
previous_quarter_revenue,
 CASE
    WHEN LAG(SUM(vehicle_price * quantity)) OVER (ORDER BY quarter_number) IS NOT NULL
    THEN ROUND(
      ((SUM(vehicle_price * quantity)) - LAG(SUM(vehicle_price * quantity)) OVER (ORDER BY
quarter_number))
     /LAG(SUM(vehicle_price * quantity)) OVER (ORDER BY quarter_number)) * 100, 2)
    ELSE NULL
 END AS quarter_over_quarter_change
FROM order_t
GROUP BY quarter_number
ORDER BY quarter_number;
```







Observation and Insight:

- 1. Quarterly Revenue Decline:
 - Q1 had the highest revenue: ₹39,637,631.
 - Revenue consistently declined in subsequent quarters.
- 2. Quarter-over-Quarter % Change:
 - Q2 saw a -16.96% drop from Q1.
 - Q3 revenue fell by -10.57% from Q2.
 - Q4 experienced the sharpest decline, -20.18% from Q3.
- 3. Consistent Downward Trend:
 - There was no quarter with revenue growth, indicating a persistent decline.
- 4. Potential Causes for Revenue Drop:
 - Customer Dissatisfaction: Declining feedback ratings could have impacted sales.
 - Seasonal or Market Trends: Certain periods might see reduced demand.
 - Competitive Pricing: Other companies may be offering better deals or discounts.

Question 8: What is the trend of net revenue and orders by quarters?

Solution

Query: Trend of net revenue and orders by quarters

SELECT

quarter_number,

ROUND(SUM(quantity*vehicle_price), 0) AS revenue,

PGPDSBA.O. JULY24.A

COUNT(order_id) AS total_order

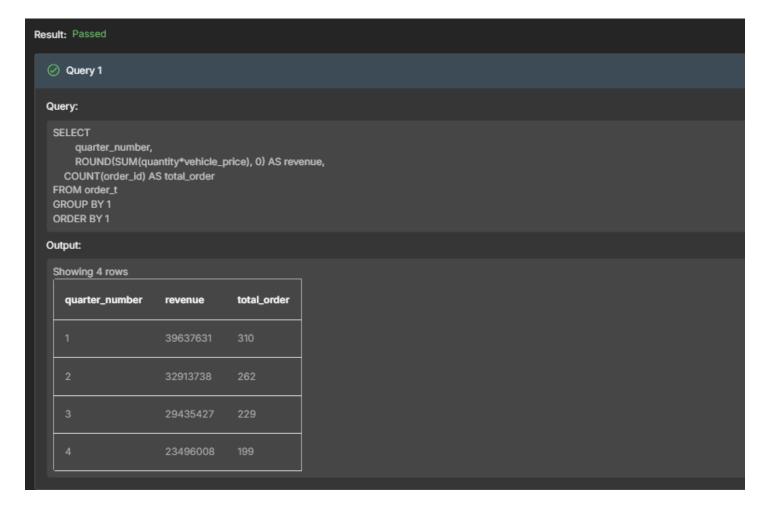


FROM order t

GROUP BY 1

ORDER BY 1:

Output:



Observations and Insights:

- 1. Revenue & Order Volume Decline:
 - Q1 had the highest revenue (₹39,637,631) and total orders (310).
 - Q4 recorded the lowest revenue (₹23,496,008) and orders (199).
 - This indicates a **consistent drop** in both **sales revenue** and **order volume** throughout the quarters.
- 2. Order Count vs. Revenue Correlation:
 - The number of orders **directly correlates with revenue**—as orders decreased, revenue followed a similar trend.
 - However, the rate of decline in revenue is higher than the rate of decline in orders, suggesting:
 - o A possible shift in customer preferences to lower-priced vehicles.
 - o The company might be **losing high-value orders** more than smaller ones.



- 3. Quarter-over-Quarter Revenue Drop:
 - Q1 \rightarrow Q2: -16.96% decrease in revenue.
 - Q2 \rightarrow Q3: -10.57% decrease in revenue.
 - Q3 → Q4: -20.18% decrease in revenue (largest drop).
 - The decline is accelerating, especially in Q4, which indicates deeper issues affecting sales performance.
- 4. Possible Reasons for the Decline:
 - Customer Dissatisfaction: Declining feedback ratings may have led to fewer repeat purchases.
 - Market Trends or Seasonality: Demand may naturally fluctuate based on industry trends.
 - Competitive Factors: Rival companies might be offering better prices or promotions.

Question 9: What is the average discount offered for different types of credit cards?

Solution

Query: The average discount offered for different types of credit cards

```
SELECT
```

```
ct.credit_card_type,

ROUND(AVG(ot.discount), 2) AS avg_discount_per_credit_card

FROM customer_t AS ct

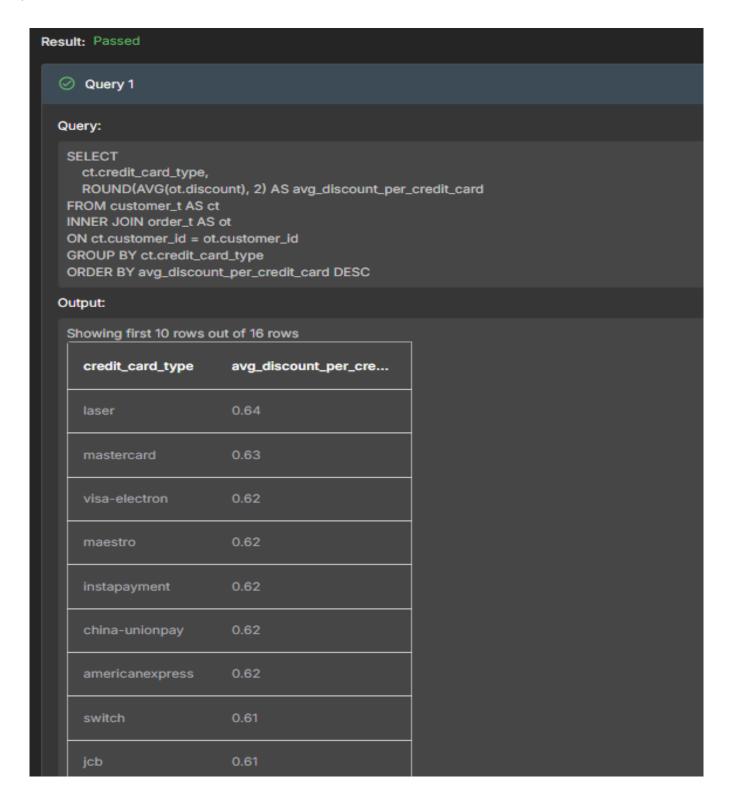
INNER JOIN order_t AS ot

ON ct.customer_id = ot.customer_id

GROUP BY ct.credit_card_type

ORDER BY avg_discount_per_credit_card_DESC;
```







Observations and Insights:

- Laser credit cards have the highest average discount at 0.64.
- Mastercard follows closely with an average discount of 0.63.
- The remaining credit card types, such as Visa Electron, Maestro, and Instapayment, have slightly lower but similar average discounts, ranging from 0.61 to 0.62.

Insights:

- Laser cards tend to offer the highest discounts, which may indicate their higher preference or popularity among customers for discounts.
- The average discount difference between most credit card types is relatively small, indicating similar discount offerings across different cards.
- The American Express, JCB, and Diners Club types have slightly lower discounts compared to other cards, which might suggest a less competitive discount structure for these card types.

Question 10: What is the average time taken to ship the placed orders for each quarter?

Solution:

Query: The average time taken to ship the placed orders for each quarter

SELECT

quarter_number,

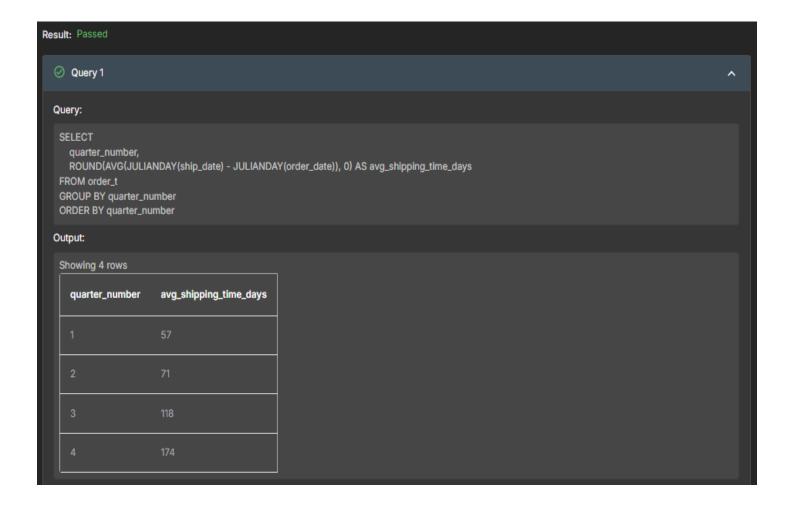
ROUND(AVG(JULIANDAY(ship_date) - JULIANDAY(order_date)), 0) AS avg_shipping_time_days

FROM order_t

GROUP BY quarter_number

ORDER BY quarter_number;







Observations and Insights:

Observation:

- The average time taken to ship orders has been progressively increasing each quarter.
- In **Q1**, the average shipping time was 57 days.
- In Q2, the shipping time increased to 71 days.
- By Q3, the shipping time had further increased to 118 days.
- In **Q4**, the shipping time reached 174 days, the highest in the year.

Insights:

- There is a noticeable **increase in shipping times** over the quarters, which may indicate challenges in meeting shipping deadlines or increasing demand.
- A **rising trend** in shipping time could be attributed to various factors such as inventory issues, logistics challenges, or external factors like supply chain disruptions.
- The company might need to **investigate the cause** of this delay to improve operational efficiency and customer satisfaction.
- It's crucial to **optimize shipping processes** in future quarters to avoid delays and ensure timely delivery, especially with the increase in shipping time.



Business Metrics Overview

Total Revenue	Total Orders	Total Customers	Average Rating
12.5M	1K	994	3.1
Last Quarter Revenue	Last quarter Orders	Average Days to Ship	% Good Feedback
2.3M	199	98	21.5%

Business Recommendations

1. Revenue and Orders Performance

• **Observation**: The total net revenue has been consistently decreasing each quarter. Q1 had the highest revenue, but it showed a decline in Q2, Q3, and Q4.

Recommendation:

- o **Increase Marketing and Sales Efforts**: With the decrease in revenue, it's important to investigate factors affecting demand. Enhancing marketing strategies, targeting new customer segments, or introducing promotional campaigns could help boost sales.
- Product and Pricing Strategy Review: Evaluate if product pricing, discounts, or even the product assortment could be optimized to increase customer purchasing power and frequency.
- Seasonal Trends: Assess if the decline in Q4 is due to seasonal trends and plan inventory and marketing strategies accordingly for the next year.

2. Customer Satisfaction Trends

Observation: Customer satisfaction feedback has been increasingly negative over time, with the
percentage of 'Very Bad' feedback rising each quarter.

Recommendation:

- o **Improve Customer Service**: Addressing customer concerns and dissatisfaction through better customer support, product quality improvements, and faster resolution times is critical.
- Analyze Customer Feedback: Delve deeper into the specific complaints related to 'Bad' or 'Very Bad' feedback to pinpoint actionable insights.
- o **Incentives for Positive Feedback**: Introduce loyalty programs or rewards for customers leaving positive feedback to help improve satisfaction and foster a stronger relationship with the brand.

3. Shipping Efficiency

• **Observation**: The average days to ship have been steadily increasing, with Q1 having the shortest shipping time and Q4 showing the highest delay in delivery.



• Recommendation:

- Optimize Supply Chain: Investigate potential inefficiencies in the shipping and supply chain process. Streamlining logistics, partnering with faster delivery services, or improving inventory management could reduce shipping time.
- Set Shipping Targets: Implement clear shipping time targets and set up a system to monitor shipping performance regularly to ensure timely deliveries.
- Communicate Delays Transparently: Customers appreciate transparency regarding shipping delays, so providing clear communication about shipping time expectations can help mitigate dissatisfaction.

4. Credit Card Usage and Discounts

• **Observation**: Different credit card types correlate with varied average discounts. For instance, customers using laser cards receive slightly higher discounts.

• Recommendation:

- Targeted Promotions: Use this insight to design targeted discount campaigns. For example, if customers with certain credit cards tend to respond better to discounts, offering specific promotions to those customers could drive more sales.
- Optimize Discount Strategy: Reevaluate the overall discount strategy. Offering personalized discounts based on customer behavior or card type can lead to increased customer loyalty and higher sales volume.

5. Customer Retention and Acquisition

• **Observation**: A steady decrease in orders and revenue over the last few quarters suggests a potential issue with customer retention.

• Recommendation:

- Focus on Customer Retention: Implement loyalty programs, rewards for repeat purchases,
 and personalized offers to keep existing customers engaged.
- Acquire New Customers: Invest in targeted customer acquisition strategies, such as online marketing campaigns or partnerships, to bring in new customers.
- Regular Customer Engagement: Consistently engage with your customer base through newsletters, promotions, and social media to stay top of mind.

6. Operational Efficiency and Order Volume

• **Observation**: The total number of orders has been decreasing, indicating potential operational inefficiencies or a lack of customer interest.

Recommendation:

- o **Optimize Order Fulfillment**: Enhance operational workflows, focusing on order processing times and minimizing any bottlenecks that may be reducing the total number of orders.
- Monitor Product Popularity: Analyze the popularity of various products and prioritize those that generate more orders. Ensure that the top-performing products are always available for customers.



 Offer Bundle Deals: To increase the average number of items per order, consider offering bundle discounts for related products, encouraging customers to purchase more per transaction.

7. Quarter-over-Quarter Trends

- **Observation**: The quarter-over-quarter revenue growth has been negative, with Q2, Q3, and Q4 all showing a decline compared to the previous quarters.
- Recommendation:
 - Focus on Seasonal Promotions: Address the drop in revenue by running seasonal promotions or discounts, especially in Q4, which appears to be the weakest quarter.
 - o **Data-Driven Forecasting**: Use the insights from the quarter-over-quarter analysis to forecast demand more accurately and adjust operations to avoid overstocking or understocking.
 - Cost Management: In light of declining revenues, closely monitor operational costs and look for areas to reduce waste, improve margins, and streamline processes.