SQL and Databases:

Project Report

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Business Highlights

Total Revenue	Total Orders	Total Customers
124.71 M	1000	994

% Good Feedback	Average Rating	Last Qtr Orders
21.5	3.14	199

Last Qtr Revenue	Average Days to Ship
23.34 M	98

Customer Metrics

Distribution of Customers across States

DISTRIBUTION OF CUSTOMER

A bar chart showing customer distribution with the y-axis ranging from 0 to 120 in increments of 20:

| State	Customers
Texas	97
California	97
Florida	86
New York	69
District of Columbia	35
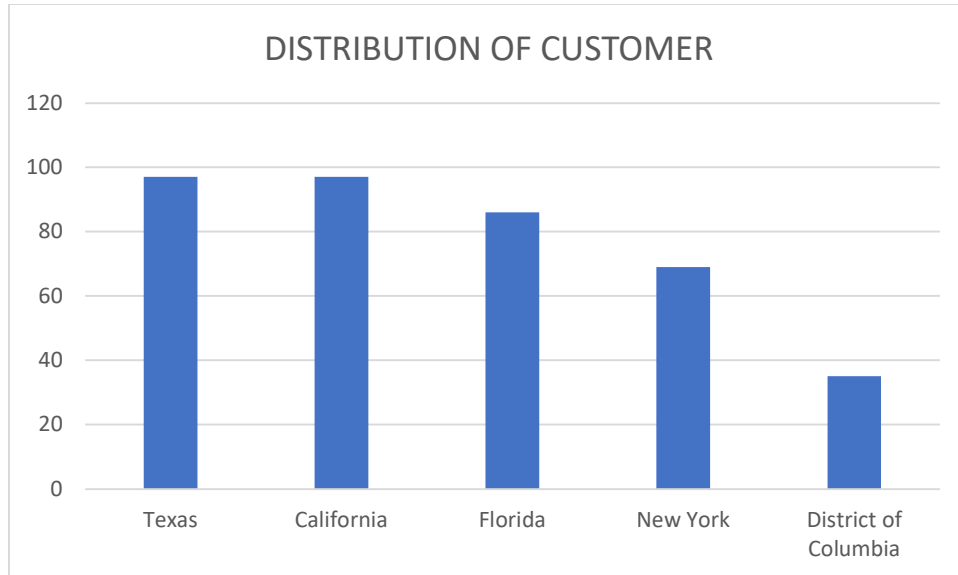
Observations/findings

- Concentration of Customers in Top States
  - The distribution of customers is highly concentrated in a few states, with Texas and California having the highest number of customers (97 each), followed by Florida (86) and New York (69). This concentration suggests a significant market presence and customer base in these states.
- Regional Disparities in Customers Numbers
  - There are notable differences in the number of customers across states, indicating regional disparities in market penetration or customer acquisition strategies.

Average Customer Ratings by Quarter
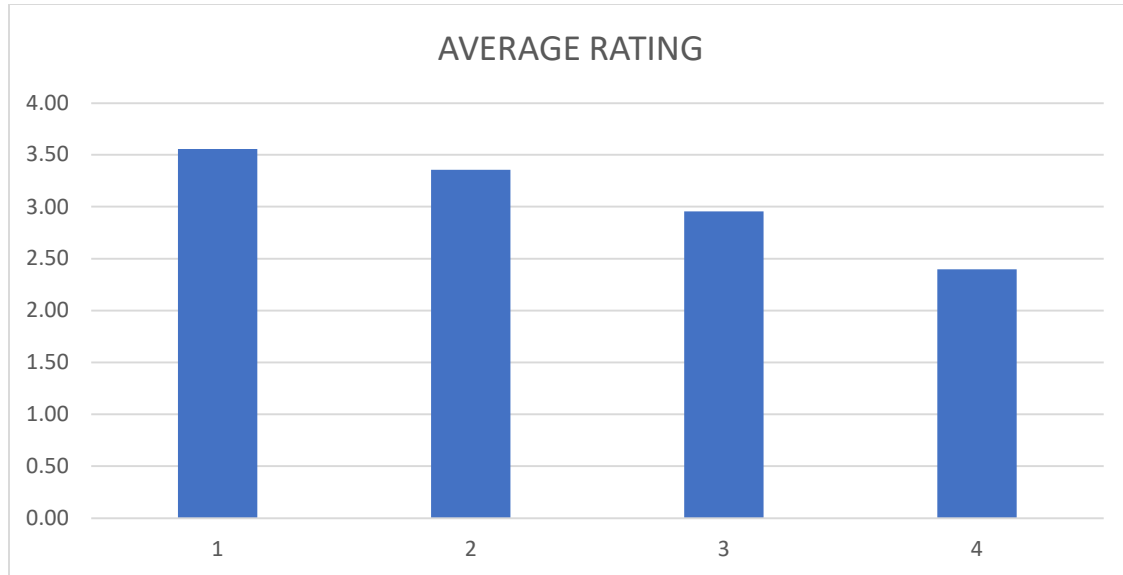
AVERAGE RATING

Observations/findings

- **Consistent Downward Trend in Average Ratings:**
  - The data reveals a consistent downward trend in average ratings across the four quarters, starting at 3.55 in Quarter 1 and decreasing to 2.40 in Quarter 4. This trend indicates a decline in customer satisfaction or perceived product/service quality over the observed period.
- **Substantial Drop in Ratings from Quarters 1 to 4:**
  - The most significant decline in average ratings occurs from Quarter 1 (3.55) to Quarter 4 (2.40). This drop of 1.15 points is noteworthy and suggests a substantial shift in customer perception. Identifying the specific factors contributing to this decline is crucial for understanding and addressing customer dissatisfaction.

Trend of Customer Satisfaction
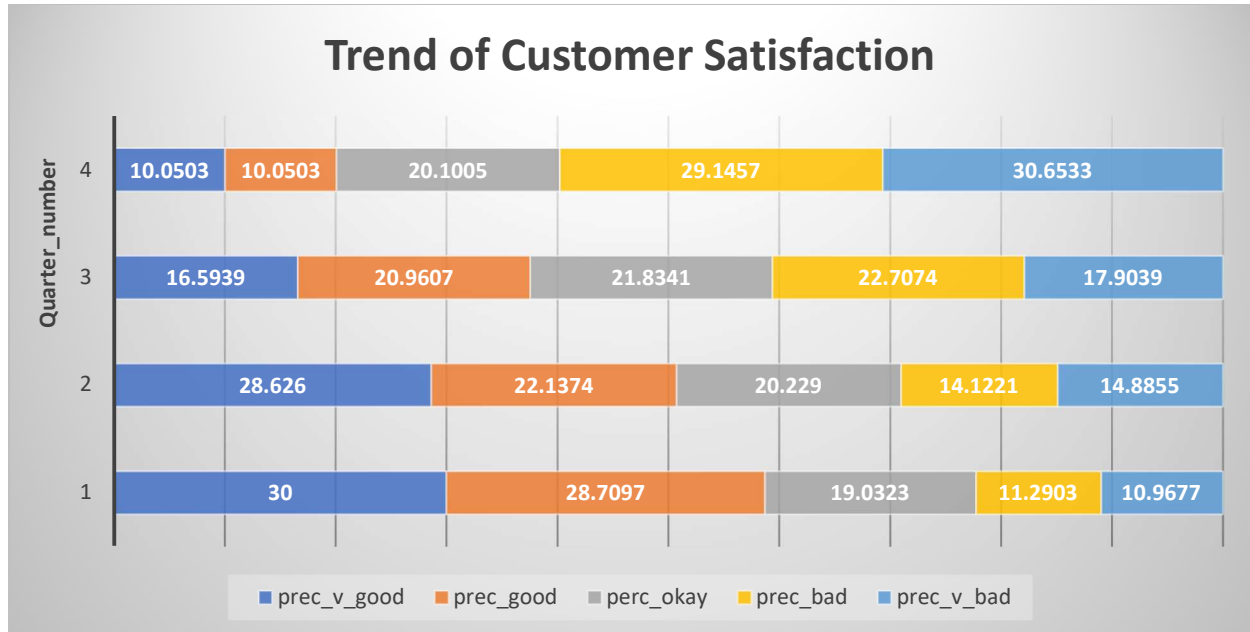
Observations/findings

- **Fluctuating Satisfaction Levels:**
  - The percentage distribution across satisfaction categories (very good, good, okay, bad, very bad) fluctuates significantly across quarters. For example, Quarter 1 starts with a high percentage of "very good" ratings (30%) but experiences a decline over subsequent quarters. Understanding the reasons behind these fluctuations is essential for improving customer satisfaction.
- **Increase in Negative Ratings:**
  - There is a notable increase in the percentage of "bad" and "very bad" ratings in Quarters 3 and 4. The percentage of "very bad" ratings, in particular, rises substantially in the last quarter. This trend indicates a potential decline in customer satisfaction over time and warrants closer examination of the factors contributing to dissatisfaction.

Top Vehicle makers preferred by customers

PREFFERD BY CUSTOMER
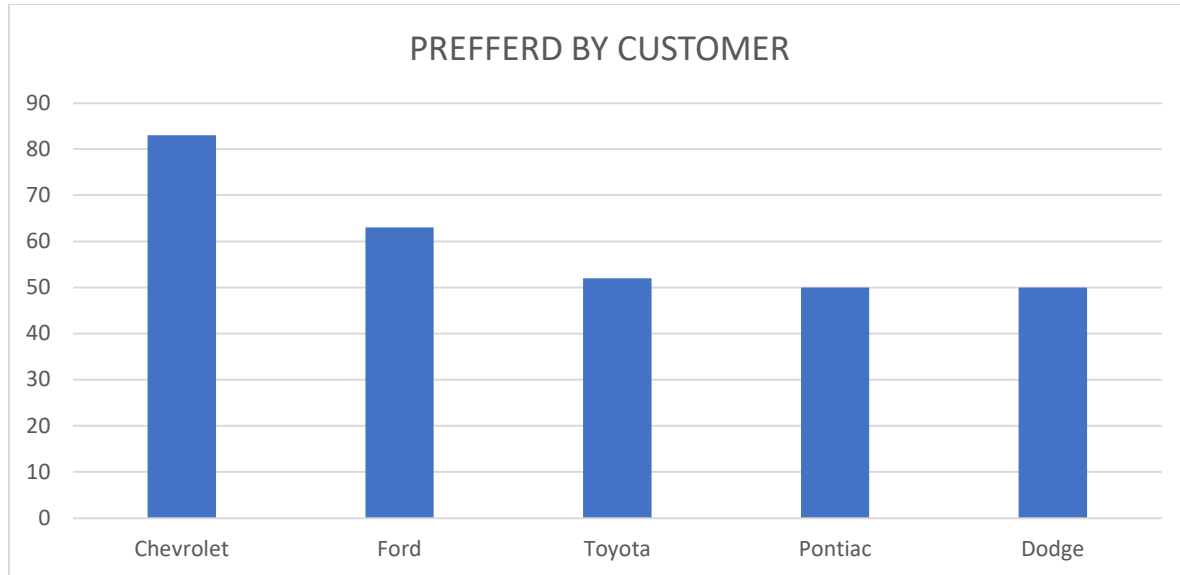
Observations/findings

- **Chevrolet is the Preferred Vehicle Maker:**
  - Among the listed vehicle makers, Chevrolet has the highest number of preferred customers with 83. This suggests a strong market preference for Chevrolet vehicles among the surveyed customers.
- **Close Competition Between Ford, Toyota, Pontiac, and Dodge:**
  - Ford, Toyota, Pontiac, and Dodge have relatively similar numbers of preferred customers, ranging from 50 to 63. This indicates a competitive landscape where these brands are in close contention for customer preference.

Most preferred vehicle make in each state

VEHICLE MAKER	STATE	NUMBER OF CUSTOMER	RANK
Dodge	Alabama	5	1
Chevrolet	Alaska	2	1
Pontiac	Arizona	3	1
Cadillac	Arizona	3	1
Suzuki	Arkansas	1	1
Chevrolet	Arkansas	1	1
Pontiac	Arkansas	1	1
Volkswagen	Arkansas	1	1
Mitsubishi	Arkansas	1	1
GMC	Arkansas	1	1
Ford	California	6	1
Dodge	California	6	1
Audi	California	6	1
Nissan	California	6	1
Chevrolet	California	6	1
Chevrolet	Colorado	5	1
Chevrolet	Connecticut	2	1
Mercury	Connecticut	2	1
Maserati	Connecticut	2	1
Volvo	Connecticut	2	1
Mitsubishi	Delaware	2	1
Chevrolet	District of Columbia	4	1
Toyota	Florida	7	1
Toyota	Georgia	3	1
Ford	Hawaii	1	1
Toyota	Hawaii	1	1
Pontiac	Hawaii	1	1
Nissan	Hawaii	1	1
Cadillac	Hawaii	1	1
GMC	Hawaii	1	1
Dodge	Idaho	2	1
Ford	Illinois	3	1
GMC	Illinois	3	1
Chevrolet	Illinois	3	1
Mazda	Indiana	4	1
Chrysler	Iowa	1	1
Chevrolet	Iowa	1	1
Hyundai	Iowa	1	1
Isuzu	Iowa	1	1

Dodge	Iowa	1	1
Mazda	Iowa	1	1
Porsche	Iowa	1	1
Jeep	Iowa	1	1
Ford	Iowa	1	1
Pontiac	Iowa	1	1
Subaru	Iowa	1	1
GMC	Kansas	1	1
Lexus	Kansas	1	1
Buick	Kansas	1	1
Mercedes-Benz	Kansas	1	1
Suzuki	Kansas	1	1
Honda	Kansas	1	1
Dodge	Kansas	1	1
Volkswagen	Kansas	1	1
Ford	Kansas	1	1
Mazda	Kansas	1	1
Maserati	Kansas	1	1
Nissan	Kansas	1	1
Saab	Kansas	1	1
Acura	Kentucky	1	1
Mercury	Kentucky	1	1
Audi	Kentucky	1	1
Ram	Kentucky	1	1
Volvo	Kentucky	1	1
Pontiac	Kentucky	1	1
Nissan	Kentucky	1	1
Mercedes-Benz	Kentucky	1	1
BMW	Louisiana	2	1
Nissan	Louisiana	2	1
Ford	Louisiana	2	1
Pontiac	Louisiana	2	1
Kia	Louisiana	2	1
Mercedes-Benz	Maine	1	1
Ford	Maryland	5	1
Dodge	Massachusetts	2	1
Chevrolet	Massachusetts	2	1
Ford	Michigan	3	1
GMC	Minnesota	3	1
Dodge	Mississippi	1	1
Toyota	Mississippi	1	1
Chevrolet	Missouri	4	1
Chevrolet	Montana	1	1

Mitsubishi	Montana	1	1
Dodge	Montana	1	1
Chevrolet	Nebraska	1	1
Mercedes-Benz	Nebraska	1	1
Volkswagen	Nebraska	1	1
Nissan	Nebraska	1	1
Pontiac	Nebraska	1	1
Toyota	Nebraska	1	1
Cadillac	Nebraska	1	1
Pontiac	Nevada	3	1
Chrysler	New Hampshire	1	1
Lincoln	New Hampshire	1	1
Lexus	New Hampshire	1	1
Mercedes-Benz	New Jersey	2	1
Hyundai	New Jersey	2	1
Dodge	New Mexico	2	1
Toyota	New York	5	1
Pontiac	New York	5	1
Volvo	North Carolina	3	1
Hyundai	North Dakota	1	1
Ford	North Dakota	1	1
Chevrolet	Ohio	6	1
Toyota	Oklahoma	2	1
Ferrari	Oklahoma	2	1
Mazda	Oklahoma	2	1
Toyota	Oregon	2	1
Toyota	Pennsylvania	3	1
Acura	South Carolina	1	1
Buick	South Carolina	1	1
BMW	South Carolina	1	1
Kia	South Carolina	1	1
Mazda	South Carolina	1	1
Mitsubishi	South Carolina	1	1
Dodge	South Carolina	1	1
Jaguar	South Carolina	1	1
Isuzu	South Carolina	1	1
Mazda	Tennessee	3	1
Chevrolet	Texas	9	1
Maybach	Utah	1	1
Volkswagen	Utah	1	1
Isuzu	Utah	1	1
Subaru	Utah	1	1
Lincoln	Utah	1	1

Chevrolet	Utah	1	1
Oldsmobile	Utah	1	1
Pontiac	Utah	1	1
Dodge	Utah	1	1
Buick	Utah	1	1
Mazda	Vermont	1	1
Ford	Virginia	5	1
Chevrolet	Washington	5	1
Mercedes-Benz	West Virginia	2	1
Pontiac	Wisconsin	1	1
Chevrolet	Wisconsin	1	1
Acura	Wisconsin	1	1
Mazda	Wisconsin	1	1
Nissan	Wisconsin	1	1
Cadillac	Wisconsin	1	1
Dodge	Wisconsin	1	1
Honda	Wisconsin	1	1
Buick	Wyoming	1	1

Observations/findings

- **Geographical Variation in Customer Preferences:**
  - Customer preferences for vehicle makers vary across states, with different brands leading in different regions. For example, Chevrolet is the preferred choice in states like Texas and California, while Dodge takes the lead in Alabama.
- **Regional Influence on Vehicle Choice:**
  - The data highlights the influence of regional factors on vehicle preferences. Certain brands may align better with the demographics, climate, or cultural preferences of specific states, influencing the choices of customers in those regions.

Revenue Metrics

Trend of purchases by Quarter

Trend of purchases by Quarter

310

262

229

199

NUMBER OF ORDER

1   2   3   4
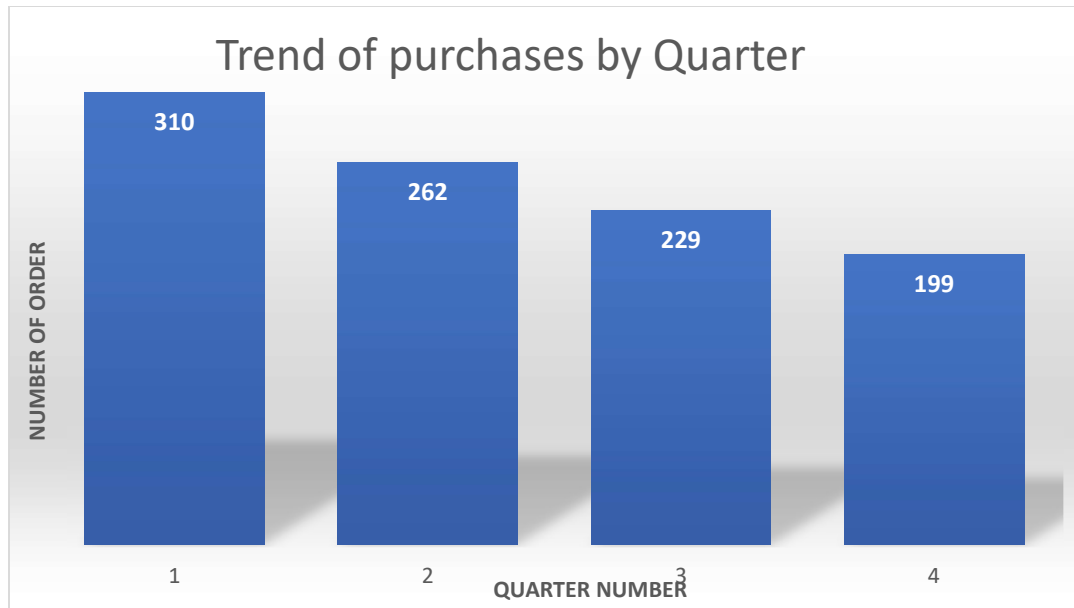
QUARTER NUMBER

Observations/findings

- **Declining Trend in Number of Orders:**
  - There is a consistent decline in the number of orders over the four quarters. The number of orders starts at 310 in Quarter 1 and decreases to 199 in Quarter 4. This downward trend may indicate a decrease in demand or sales during the observed period.
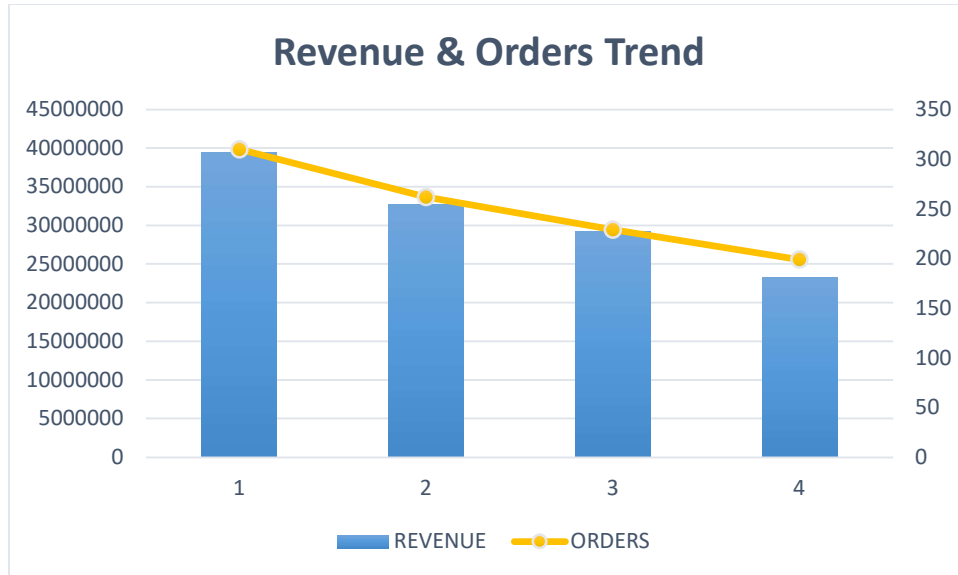
Quarter on Quarter % change in Revenue
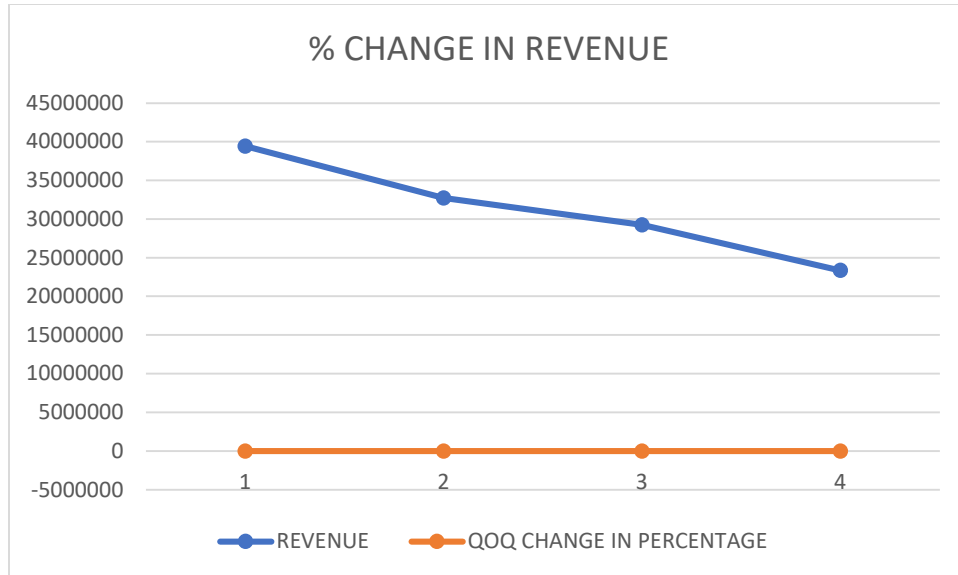
Observations/findings

- **Consistent Decline in Revenue:**
    - There is a consistent decline in revenue over the four quarters. The revenue starts at $ 39421580 in Quarter 1 and decreases to $ 23346779 in Quarter 4. This downward trend indicates a potential challenge in maintaining or growing the business's financial performance during the observed period.

Trend of Revenue and Orders by Quarter

Revenue & Orders Trend

Observations/findings

- **Concurrent Decline in Revenue and Order Numbers:**
  - There is a simultaneous decline in both revenue and the number of orders over the four quarters. The decline is evident in the decreasing revenue figures and a corresponding decrease in the number of orders. This indicates a potential correlation between order volume and overall revenue.
- **Consistent Revenue-Order Ratio:**
  - Despite the decline in both revenue and order numbers, there is a consistent ratio between revenue and orders across quarters. This suggests that the average revenue per order remains relatively stable over the observed period, even as the overall volume decreases.

Shipping Metrics

Average Discount Offered by Credit Card Type
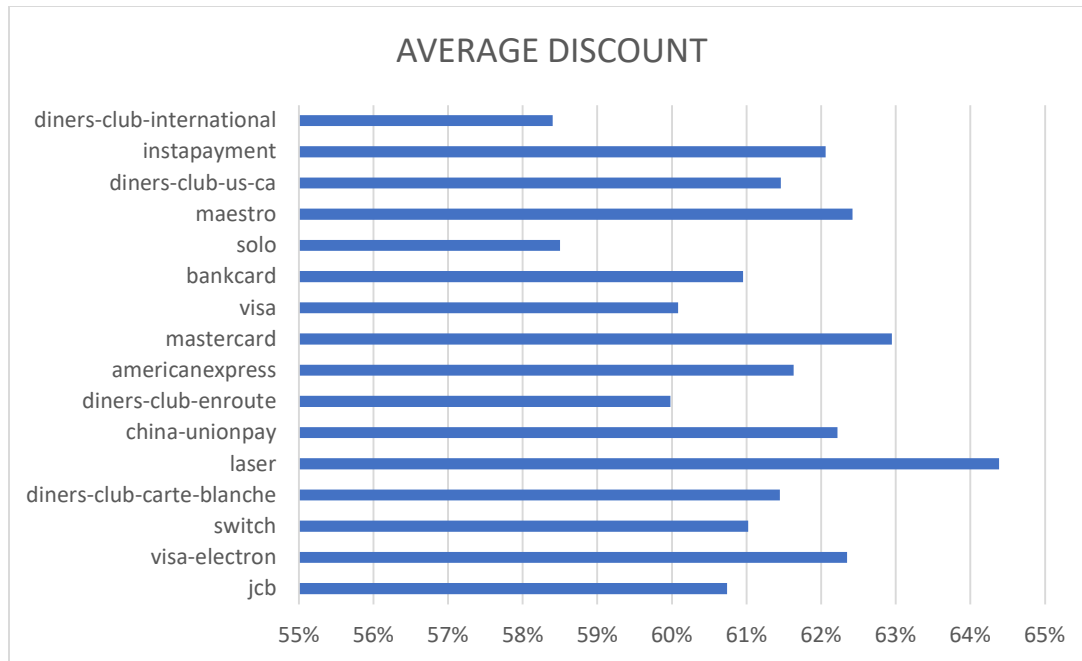
AVERAGE DISCOUNT

Observations/findings

- **Narrow Range of Average Discounts:**
  - The average discounts for various credit card types fall within a relatively narrow range, with values ranging from 58% to 64%. This suggests a consistency in the discount rates offered across different credit card types.
- **Consistent High Discounts for Laser and Maestro:**
  - Laser and Maestro stand out with the highest average discounts at 64% and 62%, respectively. This could indicate that merchants or businesses are incentivizing the use of these specific card types through higher discount rates, possibly due to strategic partnerships or to encourage adoption.

Time taken to ship orders by Quarter

AVERAGE SHIPPING TIME

Observations/findings

- **Significant Increase in Average Shipping Time:**
  - There is a substantial increase in average shipping time over the four quarters. The shipping time starts at 57 days in Quarter 1 and gradually rises to 174 days in Quarter 4. This escalating trend suggests potential challenges or inefficiencies in the shipping process.
- **Longer Shipping Durations Impact Customer Experience:**
  - The prolonged shipping durations observed over the quarters can negatively impact the overall customer experience. Extended shipping times may lead to customer dissatisfaction, increased support inquiries, and potential negative reviews, affecting the reputation and loyalty of the business.

Insights and Recommendations

- **Customer Segmentation and Targeting**:
  Implement customer segmentation based on geographic and demographic factors. Tailor marketing and engagement strategies for each segment to address specific needs and preferences. This approach can maximize the impact of efforts in states with varying customer numbers.

- **Potential Need for Urgent Intervention:**
  Given the consistent downward trend and the significant drop in ratings, there appears to be a pressing need for intervention. Businesses should prioritize a thorough analysis of customer feedback, conduct surveys, and identify areas for improvement. Implementing corrective actions promptly is essential to reverse the declining trend and enhance overall customer satisfaction.

- **Customer Engagement and Loyalty Programs:**
  Implement customer engagement and loyalty programs across all brands to enhance customer satisfaction and foster brand loyalty. Providing exclusive benefits, discounts, or rewards for repeat customers can help in retaining existing customers and attracting new ones.

- **Customer Engagement and Feedback:**
  Establish mechanisms for collecting customer feedback in each state to understand the specific factors driving preferences. This can be done through surveys, focus groups, or online reviews. Use this feedback to make informed decisions on product offerings and customer engagement strategies.

- **Customer Retention and Loyalty Programs:**
  Introduce customer retention and loyalty programs to encourage repeat business. Offering incentives, discounts, or exclusive benefits to loyal customers can contribute to maintaining a stable customer base and potentially increasing order frequency.

- **Root Cause Analysis for Revenue Decline:**
  Conduct a comprehensive analysis to identify the root causes of the declining revenue. This analysis should include factors such as changes in market conditions, customer behaviors, or internal operational challenges. Understanding the underlying issues is essential for developing effective strategies.

- **Optimization of Logistics and Supply Chain:**
  Optimize logistics and supply chain processes to streamline the shipping operation. This may involve improving inventory management, enhancing transportation efficiency, and establishing contingency plans to mitigate disruptions. A well-optimized supply chain can contribute to faster and more reliable shipping.