

PROJECT 7

SQL Project – Guided

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Answering the Business Questions

Q1 : What is the distribution of customers across states?

State	no_of_customers
California	97
Texas	97
Florida	86
New York	69
District of Columbia	35
Colorado	33
Ohio	33
Alabama	29
Washington	28
Arizona	26
Illinois	25

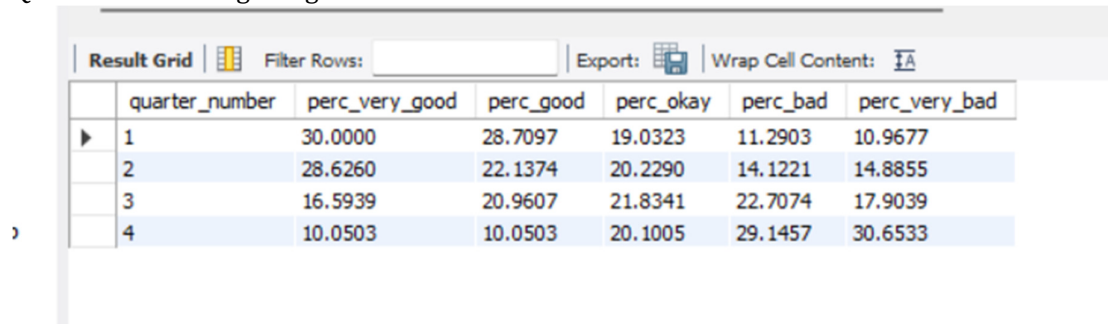
The Top 5 Contributing States are California, Texas, Florida, New York and District of Columbia.

Q2 : What is the average rating in each quarter?

quarter_number	avg_feedback
1	3.5548
2	3.3550
3	2.9563
4	2.3970

The average Rating for Q1 is 3.5548, Q2 is 3.3550, Q3 is 2.9563 and Q4 is 2.3970. This is showing a decreasing trend on Quarterly Basis.

Q3: Are customers getting more dissatisfied over time?

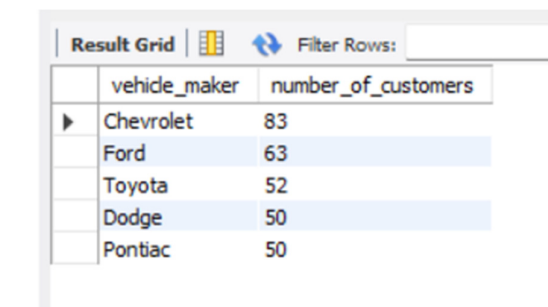


The screenshot shows a 'Result Grid' with a toolbar containing 'Filter Rows', 'Export', and 'Wrap Cell Content' options. The grid displays six columns: 'quarter_number', 'perc_very_good', 'perc_good', 'perc_okay', 'perc_bad', and 'perc_very_bad'. The data is organized into four rows, each representing a quarter. The values for 'perc_very_good' and 'perc_good' show a clear downward trend from quarter 1 to quarter 4, while 'perc_very_bad' shows an upward trend.

	quarter_number	perc_very_good	perc_good	perc_okay	perc_bad	perc_very_bad
▶	1	30.0000	28.7097	19.0323	11.2903	10.9677
	2	28.6260	22.1374	20.2290	14.1221	14.8855
	3	16.5939	20.9607	21.8341	22.7074	17.9039
	4	10.0503	10.0503	20.1005	29.1457	30.6533

The answer to the question is **yes** customers are getting dissatisfied over time as we can decreasing trend in very good and good.

Q4. Which are the top 5 vehicle makers preferred by the customer.



The screenshot shows a 'Result Grid' with a toolbar containing 'Filter Rows' and a refresh icon. The grid displays two columns: 'vehicle_maker' and 'number_of_customers'. The data is organized into five rows, each representing a vehicle maker. The number of customers is listed in descending order from Chevrolet (83) to Pontiac (50).

	vehicle_maker	number_of_customers
▶	Chevrolet	83
	Ford	63
	Toyota	52
	Dodge	50
	Pontiac	50

The top 5 vehicle makers are descending order are

1. Chevrolet
2. Ford
3. Toyota
4. Dodge
5. Pontiac

Q5 :What is the most preferred vehicle make in each state?

Result Grid		Filter Row
	state	vehide_maker
	Arizona	Pontiac
	Arkansas	Chevrolet
	Arkansas	GMC
	Arkansas	Mitsubishi
	Arkansas	Pontiac
	Arkansas	Suzuki
	Arkansas	Volkswagen
	California	Audi
	California	Chevrolet
	California	Dodge
	California	Ford

state	vehicle_maker
Alabama	Dodge
Alaska	Chevrolet
Arizona	Cadillac
Arizona	Pontiac
Arkansas	Chevrolet
Arkansas	GMC
Arkansas	Mitsubishi
Arkansas	Pontiac
Arkansas	Suzuki
Arkansas	Volkswagen
California	Audi
California	Chevrolet
California	Dodge
California	Ford
California	Nissan
Colorado	Chevrolet
Connecticut	Chevrolet
Connecticut	Maserati
Connecticut	Mercury
Connecticut	Volvo
Delaware	Mitsubishi
District of Columbia	Chevrolet
Florida	Toyota
Georgia	Toyota
Hawaii	Cadillac
Hawaii	Ford
Hawaii	GMC
Hawaii	Nissan
Hawaii	Pontiac
Hawaii	Toyota

Idaho	Dodge
Illinois	Chevrolet
Illinois	GMC
Illinois	Ford
Indiana	Mazda
Iowa	Chevrolet
Iowa	Chrysler
Iowa	Dodge
Iowa	Ford
Iowa	Hyundai
Iowa	Isuzu
Iowa	Jeep
Iowa	Mazda
Iowa	Pontiac
Iowa	Porsche
Iowa	Subaru
Kansas	Buick
Kansas	Dodge
Kansas	Ford
Kansas	GMC
Kansas	Honda
Kansas	Lexus
Kansas	Maserati
Kansas	Mazda
Kansas	Mercedes-
Kansas	Benz
Kansas	Nissan
Kansas	Saab
Kansas	Suzuki
Kansas	Volkswagen
Kentucky	Acura
Kentucky	Audi
Kentucky	Mercedes-
Kentucky	Benz
Kentucky	Mercury
Kentucky	Nissan
Kentucky	Pontiac
Kentucky	Ram
Kentucky	Volvo
Louisiana	Nissan
Louisiana	BMW
Louisiana	Ford
Louisiana	Pontiac
Louisiana	Kia
Louisiana	Mercedes-
Maine	Benz
Maryland	Ford
Massachusetts	Dodge

Massachusetts	Chevrolet
Michigan	Ford
Minnesota	GMC
Mississippi	Dodge
Mississippi	Toyota
Missouri	Chevrolet
Montana	Chevrolet
Montana	Dodge
Montana	Mitsubishi
Nebraska	Cadillac
Nebraska	Chevrolet
	Mercedes-
Nebraska	Benz
Nebraska	Nissan
Nebraska	Pontiac
Nebraska	Toyota
Nebraska	Volkswagen
Nevada	Pontiac
New Hampshire	Chrysler
New Hampshire	Lexus
New Hampshire	Lincoln
New Jersey	Hyundai
	Mercedes-
New Jersey	Benz
New Mexico	Dodge
New York	Toyota
New York	Pontiac
North Carolina	Volvo
North Dakota	Ford
North Dakota	Hyundai
Ohio	Chevrolet
Oklahoma	Ferrari
Oklahoma	Mazda
Oklahoma	Toyota
Oregon	Toyota
Pennsylvania	Toyota
South Carolina	Acura
South Carolina	BMW
South Carolina	Buick
South Carolina	Dodge
South Carolina	Isuzu
South Carolina	Jaguar
South Carolina	Kia
South Carolina	Mazda
South Carolina	Mitsubishi
Tennessee	Mazda
Texas	Chevrolet
Utah	Buick

Utah	Chevrolet
Utah	Dodge
Utah	Isuzu
Utah	Lincoln
Utah	Maybach
Utah	Oldsmobile
Utah	Pontiac
Utah	Subaru
Utah	Volkswagen
Vermont	Mazda
Virginia	Ford
Washington	Chevrolet
	Mercedes-
West Virginia	Benz
Wisconsin	Acura
Wisconsin	Cadillac
Wisconsin	Chevrolet
Wisconsin	Dodge
Wisconsin	Honda
Wisconsin	Mazda
Wisconsin	Nissan
Wisconsin	Pontiac
Wyoming	Buick

Q6 : What is the trend of number of orders by quarters?

	quarter_number	total_orders
▶	1	310
	2	262
	3	229
	4	199

Its is showing a decreasing trend in Number of order by quarters

Q7 : What is the quarter over quarter % change in revenue?

Result Grid Filter Rows: Export: Wrap Cell Content:				
	quarter_number	revenue	previous_revenue	qoq_perc_change
▶	1	26519199.19	NULL	NULL
	2	21595874.35	26519199.19	-18.57
	3	19719917.59	21595874.35	-8.69
	4	15280009.98	19719917.59	-22.51

The percentage change in Q1 to Q2 is -18.57%.

The percentage change in Q2 to Q3 is -8.69%.

The percentage change in Q3 to Q4 is -22.51%.

Q8 : What is the trend of revenue and orders by quarters?

Result Grid Filter Rows: Export:			
	quarter_number	revenue	total_orders
▶	1	26519199.19	310
	2	21595874.35	262
	3	19719917.59	229
	4	15280009.98	199

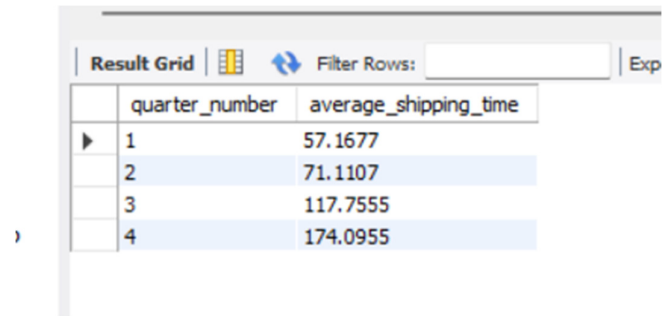
Its is showing a decreasing trend in Number of revenue and orders by quarters

Q9: What is the average discount offered for different types of credit cards?

	credit_card_type	average_discount
▶	laser	0.643846
	mastercard	0.629500
	maestro	0.624219
	visa-electron	0.623469
	china-unionpay	0.622174
	instapayment	0.620625
	americanexpress	0.616327
	diners-club-us-ca	0.614615
	diners-club-carte-blanche	0.614490
	switch	0.610233
	bankcard	0.609545

The top 3 Cards offering discount is laser, master card & maestro

Q10: What is the average time taken to ship the placed orders for each quarters?



The screenshot shows a 'Result Grid' window with a table containing two columns: 'quarter_number' and 'average_shipping_time'. The table has four rows of data, with alternating light blue and white background colors. Above the table, there is a 'Filter Rows:' input field and an 'Exp' button. To the left of the table, there is a vertical scrollbar and a small icon of a right-pointing triangle.

quarter_number	average_shipping_time
1	57.1677
2	71.1107
3	117.7555
4	174.0955

The average time taken to ship placed orders Quarterly is

Q1: 57.1677

Q2: 71.1107

Q3: 117.7555

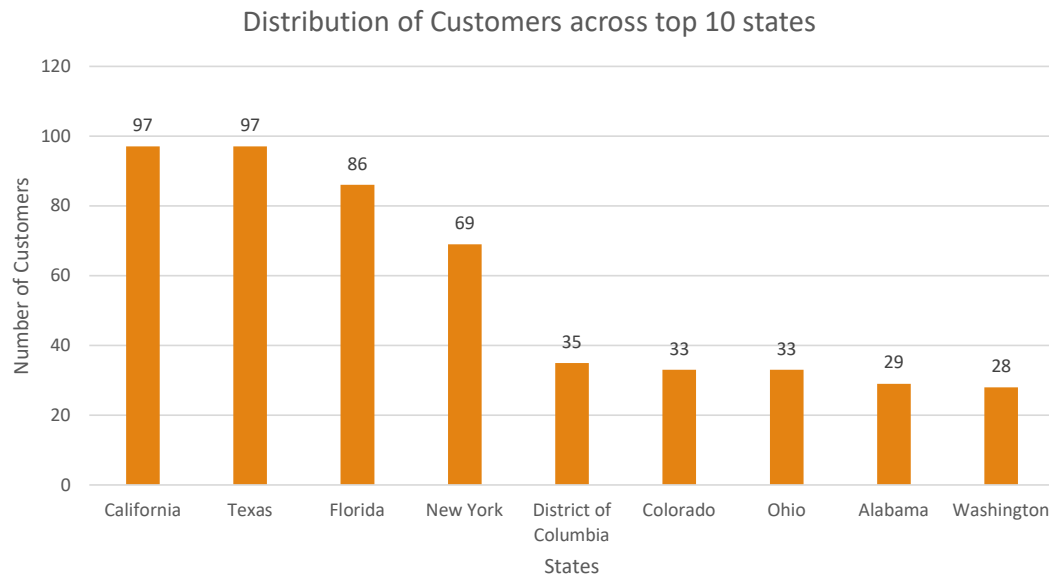
Q4: 174.0955

Business Overview

Total Revenue	Total Orders	Total Customers	Avg Rating
124.71M	1000	994	3.14
Last Qtr Revenue	Last Qtr Orders	Avg Days to Ship	% Good Feedback
23.35 M	199	98	21.50

Customer Metrics

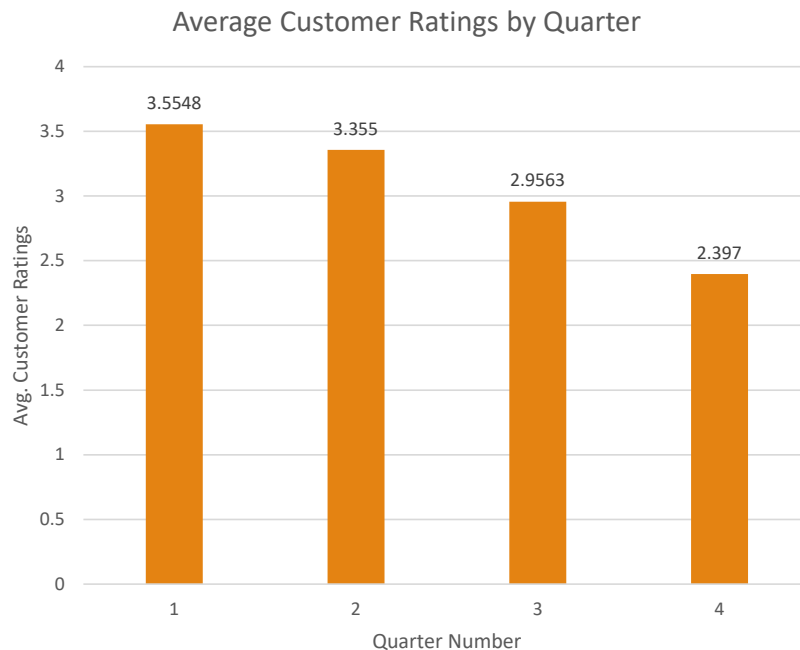
Distribution of Customers across States



Observations/Findings:

- Both California and Texas have the highest number of customers, with 97 customers each. This suggests that these states might have larger populations or stronger economic activity, leading to more customers.
- Florida comes in third with 86 customers. It also has a significant number of customers, indicating it is another populous or economically active state.
- New York ranks fourth with 69 customers. As a major economic and cultural hub, it's not surprising that New York has a considerable number of customers.
- District of Columbia, Colorado, Ohio, Alabama and Washington has a relatively smaller customer base.

Average Customer Ratings by Quarter



Observations/ Findings

The data shows a decreasing trend in average ratings scores as the quarters progress. Quarter 1 has the highest average feedback score of 3.5548, followed by quarter 2 with 3.355. However, the average feedback decreases to 2.9563 in quarter 3 and further to 2.397 in quarter 4. This suggests that there might be issues or challenges affecting customer satisfaction as time progresses.

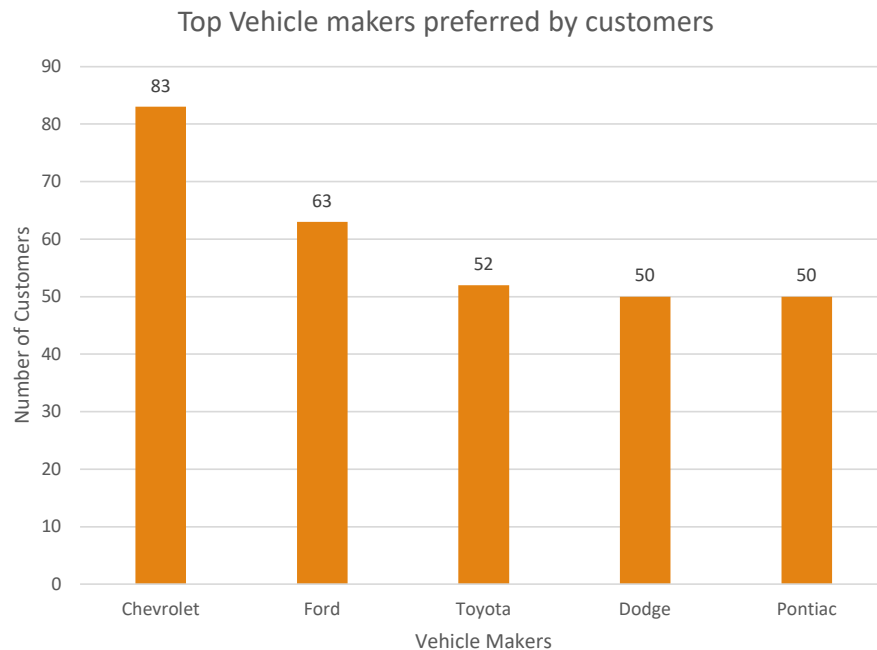
Trend of Customer Satisfaction



Observations/Findings:

- The distribution of feedback categories (Very Good, Good, Okay, Bad, Very Bad) varies across quarters.
- There is a noticeable decrease in the proportion of "Very Good" and "Good" feedback from quarter 1 to quarter 4. This indicates a potential decline in customer satisfaction or perception of product/service quality over time.
- There is an increase in the proportion of "Bad" and "Very Bad" feedback from quarter 1 to quarter 4. This suggests that customers are becoming more dissatisfied or encountering more issues with products or services as time progresses.
- The proportion of "Okay" feedback remains relatively stable across quarters.

Top Vehicle makers preferred by customers



Observations/Findings:

Chevrolet stands out with the highest number of customers, indicating its popularity among consumers compared to other vehicle makers.

Ford is the second most popular vehicle maker, with a slightly lower but still substantial number of customers compared to Chevrolet.

Toyota ranks third in terms of the number of customers, indicating that it has a strong presence in the market and is a preferred choice among consumers.

Dodge and Pontiac have an equal number of customers, suggesting a comparable level of popularity for both vehicle makers among consumers.

Most preferred vehicle make in each state

state	most_preferred_vehicle_makers
Alabama	Dodge
Alaska	Chevrolet
Arizona	Pontiac,Cadillac
Arkansas	Volkswagen,Suzuki,Pontiac,Mitsubishi,GMC,Chevrolet
California	Nissan,Ford,Dodge,Chevrolet,Audi
Colorado	Chevrolet
Connecticut	Volvo,Mercury,Maserati,Chevrolet
Delaware	Mitsubishi
District of Columbia	Chevrolet
Florida	Toyota
Georgia	Toyota
Hawaii	Toyota,Pontiac,Nissan,GMC,Ford,Cadillac
Idaho	Dodge
Illinois	Ford,GMC,Chevrolet
Indiana	Mazda
Iowa	Subaru,Porsche,Pontiac,Mazda,Jeep,Isuzu,Hyundai,Ford,Dodge,Chrysler,Chevrolet
Kansas	Volkswagen,Suzuki,Saab,Nissan,Mercedes-Benz,Mazda,Maserati,Lexus,Honda,GMC,Ford,Dodge,Buick
Kentucky	Volvo,Ram,Pontiac,Nissan,Mercury,Mercedes-Benz,Audi,Acura
Louisiana	Kia,Pontiac,Ford,BMW,Nissan

Most preferred vehicle make in each state

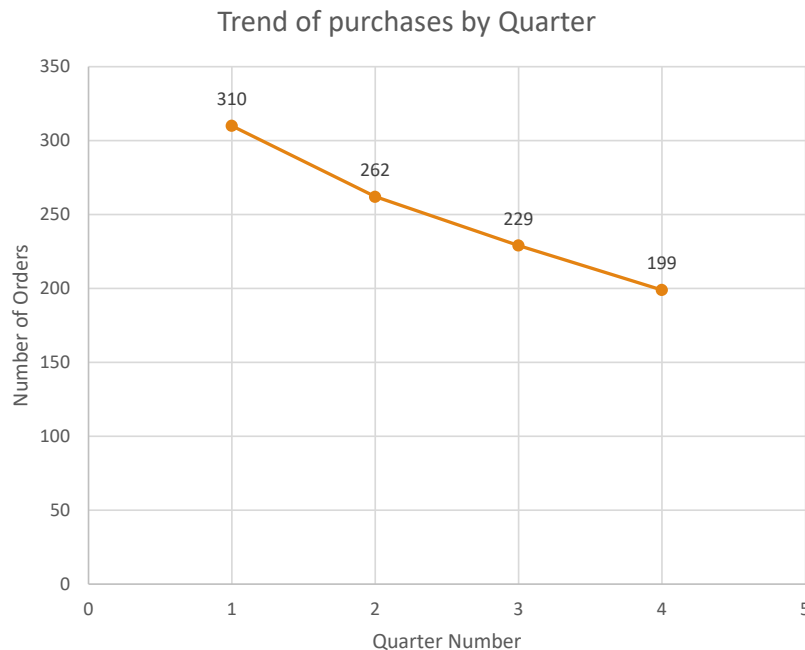
state	most_preferred_vehicle_makers
Maine	Mercedes-Benz
Maryland	Ford
Massachusetts	Chevrolet,Dodge
Michigan	Ford
Minnesota	GMC
Mississippi	Toyota,Dodge
Missouri	Chevrolet
Montana	Mitsubishi,Dodge,Chevrolet
Nebraska	Volkswagen,Toyota,Pontiac,Nissan,Mercedes-Benz,Chevrolet,Cadillac
Nevada	Pontiac
New Hampshire	Lincoln,Lexus,Chrysler
New Jersey	Mercedes-Benz,Hyundai
New Mexico	Dodge
New York	Pontiac,Toyota
North Carolina	Volvo
North Dakota	Hyundai,Ford
Ohio	Chevrolet
Oklahoma	Toyota,Mazda,Ferrari
Oregon	Toyota

Observations/Findings:

- The data shows a wide range of vehicle maker preferences across different states. Some states have a single most preferred vehicle maker, while others have multiple preferred makers listed.
- Toyota appears as the most preferred vehicle maker in several states, including Florida, Georgia, and Mississippi, suggesting its widespread popularity and market dominance in certain regions.
- In populous states like California and Texas, multiple vehicle makers are listed as most preferred, indicating a diverse range of preferences among consumers in these states.

Revenue Metrics

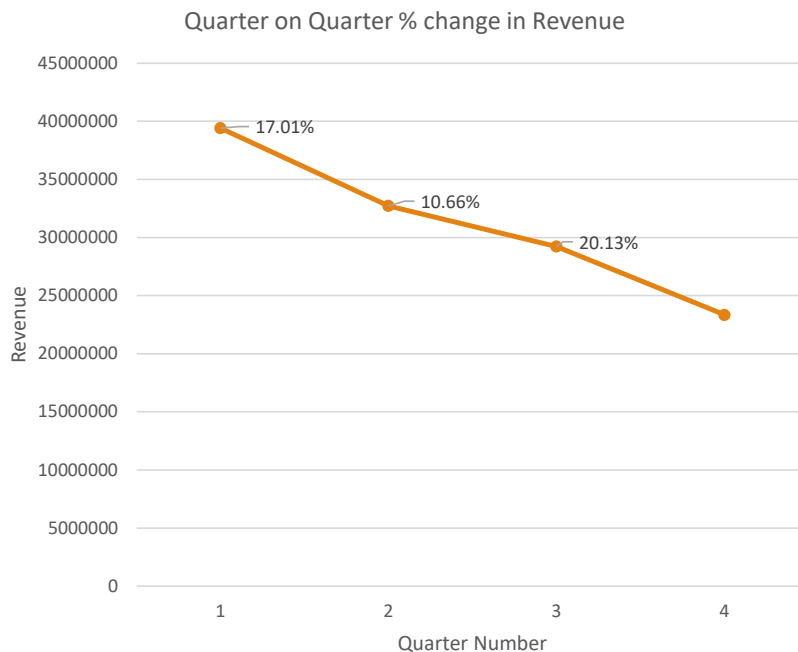
Trend of purchases by Quarter



Observations/Findings:

- There is a noticeable decline in the total number of orders as the quarters progress. Quarter 1 starts with the highest total orders at 310, followed by decreasing numbers of orders in quarters 2, 3, and 4, with totals of 262, 229, and 199 respectively.
- The decline in total orders over the quarters could indicate a seasonal pattern or fluctuations in demand for products or services. For example, quarter 1 might represent a peak season for orders, possibly due to factors like holidays or special events, while quarters 3 and 4 might experience lower demand.

Quarter on Quarter % change in Revenue

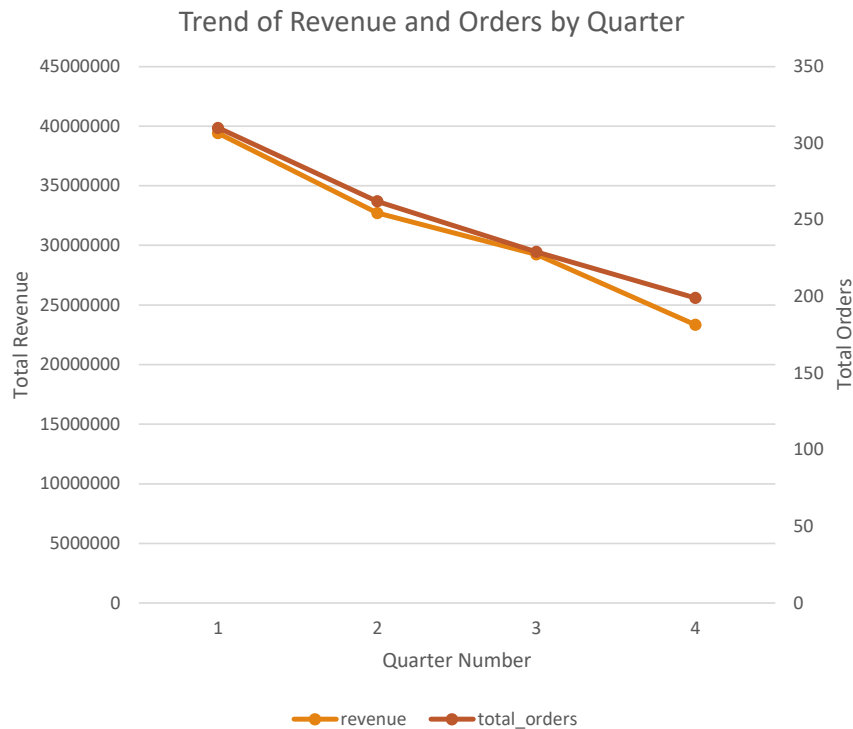


Observations/ Findings:

The data shows a consistent decrease in revenue from quarter to quarter throughout the year. Revenue has shown a dip of 47.80 % from quarter 1 to quarter 4.

The major decrease in revenue is shown in quarter 3- quarter 4 that is 20.13%.

Trend of Revenue and Orders by Quarter

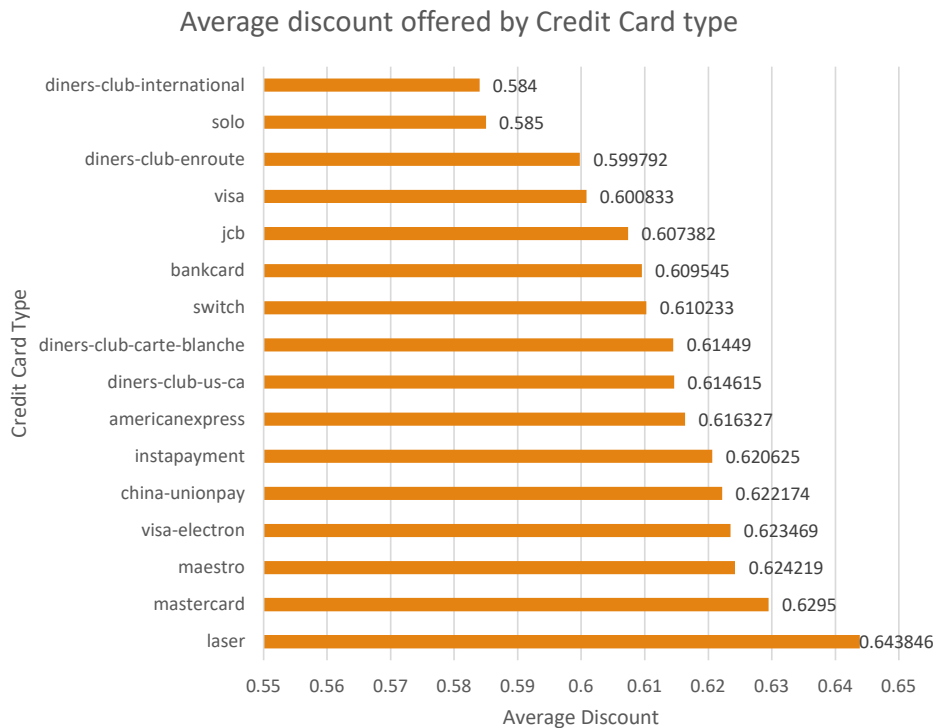


Observations/Findings:

- The revenue decreases consistently as the quarters progress. It starts at \$39,421,580.16 in quarter 1 and declines to \$23,346,779.63 in quarter 4. This indicates a downward trend in revenue over the year.
- Similarly, the total number of orders also decreases from quarter 1 to quarter 4. It starts at 310 orders in quarter 1 and decreases to 199 orders in quarter 4. This suggests a decline in business activity or demand over the quarters.
- There appears to be a correlation between the revenue generated and the total number of orders. As the total orders decrease, the revenue also decreases, indicating that fewer orders are contributing to the decline in revenue.

Shipping Metrics

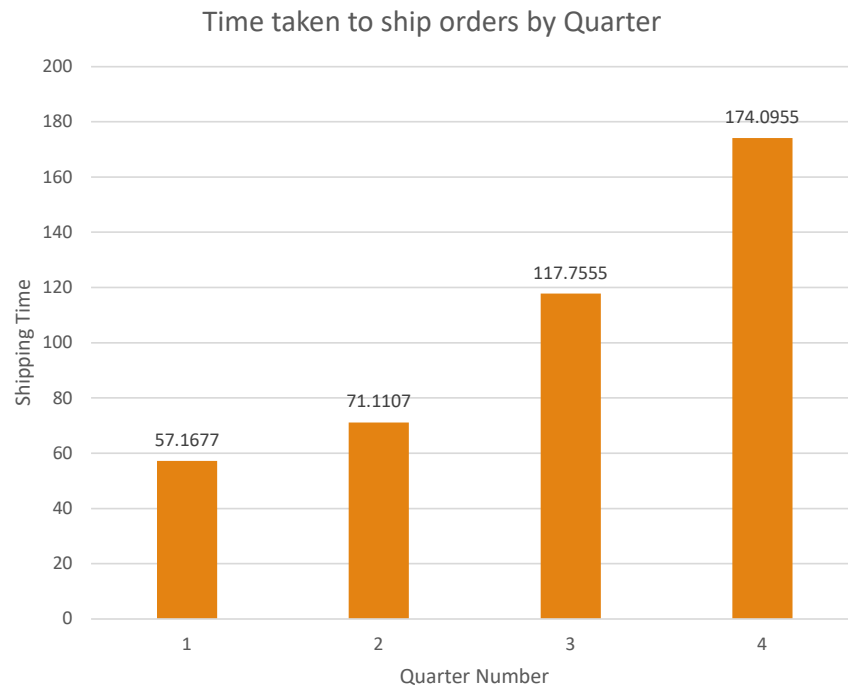
Average discount offered by Credit Card type



Observations/ Findings:

- There is variability in the average discounts offered across different types of credit cards. The average discounts range from 0.584 to 0.643846.
- The credit card types "laser," "mastercard," and "maestro" have the highest average discounts, with values above 0.62. This suggests that transactions made using these card types are associated with higher discounts on average.

Time taken to ship orders by Quarter



Observations/Findings:

- The average shipping time increases steadily as the quarters progress. It starts at 57.1677 days in quarter 1 and rises to 174.0955 days in quarter 4. This indicates a consistent trend of longer shipping times over time.
- The largest increase occurs between quarters 3 and 4, where the average shipping time nearly doubles from 117.7555 days to 174.0955 days. This substantial jump suggests a significant change in shipping processes or external factors affecting delivery times.

Insights

- The data reveals a consistent decline in revenue over the quarters, indicating potential challenges in sales performance.
- Customer feedback ratings exhibit a downward trend over the quarters, suggesting a decrease in customer satisfaction levels.
- Average shipping time shows a significant increase from quarter to quarter, potentially impacting customer satisfaction and order fulfillment efficiency.
- Variability exists in the average discounts offered for different types of credit cards, with some card types associated with higher discounts than others.
- The analyses highlight interconnected factors influencing business performance, including revenue, customer satisfaction, operational efficiency, and marketing effectiveness.

Recommendations

- Conduct a thorough analysis to identify the underlying factors contributing to the revenue decline, such as changes in consumer behavior, market conditions, or product demand. Develop targeted marketing campaigns, product promotions, or pricing strategies to stimulate sales and revenue growth.
- Implement measures to enhance customer experience, such as improving product quality, streamlining order fulfillment processes, or enhancing customer support services. Actively solicit customer feedback and address any issues or concerns raised to foster loyalty and retention.
- Optimize logistics and supply chain processes to reduce shipping times and enhance delivery efficiency. Explore partnerships with reliable shipping carriers, invest in advanced tracking technologies, and streamline warehouse operations to expedite order processing and improve shipping speed.
- Evaluate the effectiveness of discount strategies for various credit card types and adjust discount rates or promotions accordingly to incentivize customer transactions. Analyze customer spending patterns and preferences to tailor discount offers that resonate with target audiences and drive sales.
- Take a holistic approach to business strategy by integrating insights from multiple analyses to inform decision-making. Continuously monitor key performance indicators, adapt strategies based on evolving market dynamics, and prioritize initiatives aimed at enhancing customer value, operational excellence, and sustainable revenue growth.