

SQL and Databases:

Project Report

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Business Overview

Total Revenue

\$83.12M

Total Orders

1000

Total Customers

994

Average Rating

3.14

Last Quarter Revenue

\$15.28M

Last Quarter Orders

199

Average Days to Ship

98

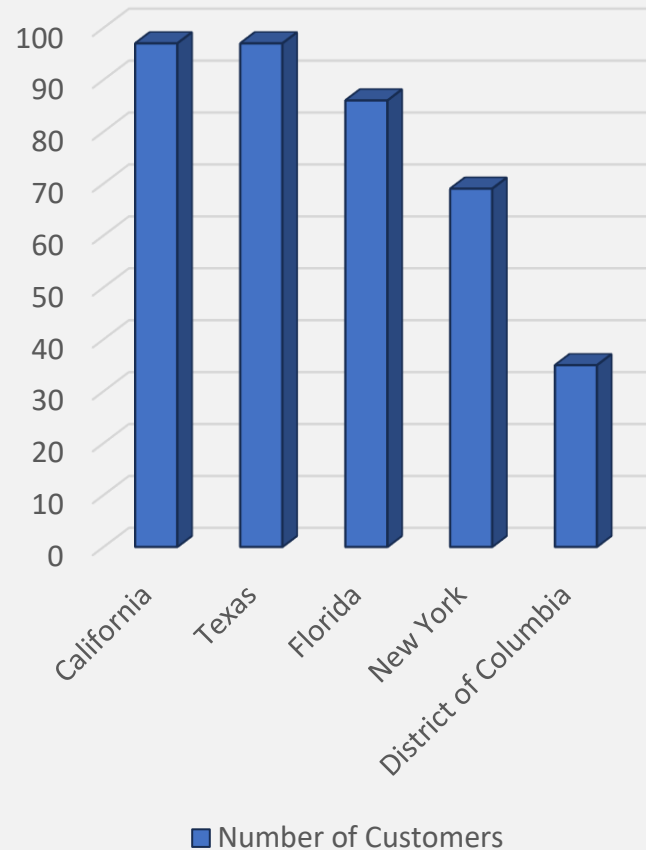
% Good Feedback

"Good"	21.5%
"Very Good"	22.6%
Total	44.1%

Customer Metrics

Distribution of Customers Across States

Number of Customers:
Top 5 States

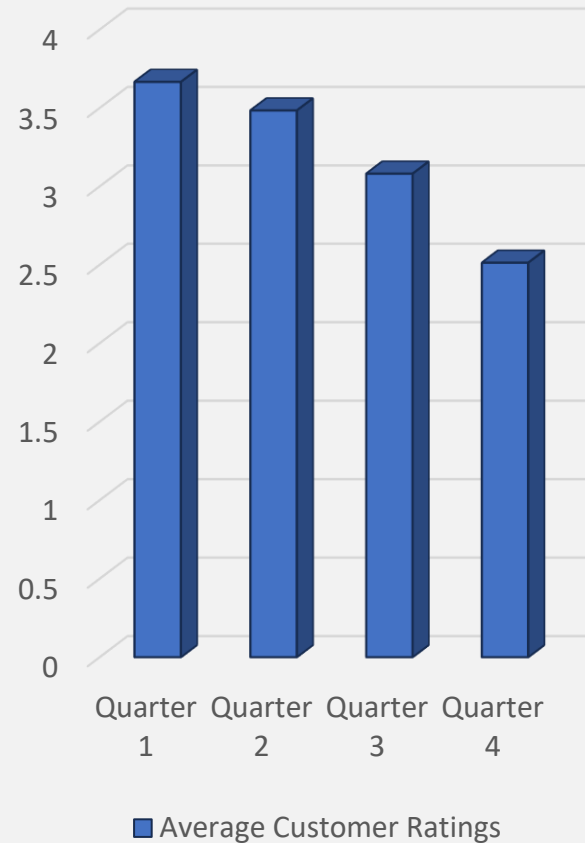


Observations/Findings

- **High Demand States:** California and Texas are the leading states with the highest number of customers for new cars (97 each). This suggests a high demand for new cars in these populous states.
- **Regional Variations:** The distribution indicates regional variations in new car preferences. States like Florida, New York, and the District of Columbia also show significant demand.
- **Moderate Demand States:** States such as Colorado, Ohio, and Alabama have a moderate but notable demand for new cars, with customer counts ranging from 29 to 33.
- **Lower Demand States:** Several states, including New Jersey, South Carolina, Wisconsin, Kentucky, and Nebraska, have relatively lower customer counts, indicating a potentially lower demand for new cars.
- **Sparse Demand States:** Some states, like Wyoming, Vermont, Mississippi, Maine, North Dakota, and Montana, have very low customer counts, suggesting a sparse demand for new cars in these regions.
- **Potential Market Insights:** States with higher demand could be strategic markets for automotive dealerships and manufacturers to focus their marketing and sales efforts.
- **Market Expansion Opportunities:** States with moderate demand may represent opportunities for market expansion or targeted marketing campaigns to increase new car sales.
- **Consideration for Marketing Strategies:** Understanding regional variations can help tailor marketing and promotional strategies based on the preferences and needs of customers in specific states.
- **Impact on Inventory Planning:** Dealerships and manufacturers can use this data to plan inventory levels and distribution networks, ensuring they meet the demand in high-demand states and optimize resources in lower-demand regions.

Average Customer Ratings by Quarter

Average Customer Ratings

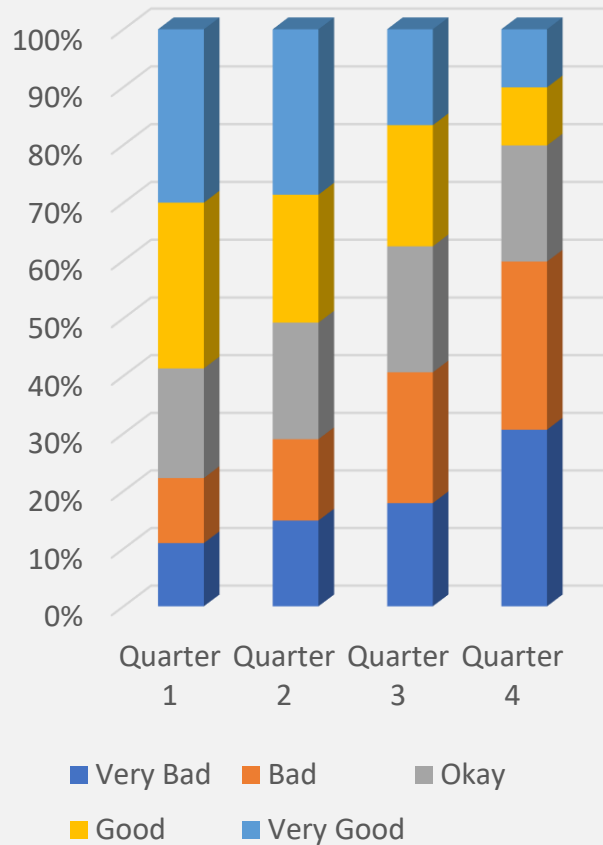


Observations/Findings

- **Quarterly Trend:** There is a declining trend in average customer ratings over the quarters. The average rating decreases from 3.6663 in Quarter 1 to 2.5131 in Quarter 4.
- **Customer Satisfaction:** A higher average rating generally indicates higher customer satisfaction, and a declining trend may suggest potential issues affecting customer experience or satisfaction.
- **Identifying Concerns:** The significant drop from Quarter 1 to Quarter 4 (3.6663 to 2.5131) raises concerns about potential issues or challenges that might have impacted customer satisfaction.
- **Investigation Needed:** Further investigation is required to understand the specific factors contributing to the decline in customer ratings. This could involve analyzing customer feedback, identifying patterns, and addressing potential areas of improvement.
- **Seasonal Patterns:** Consideration of any seasonal patterns or external factors that might influence customer satisfaction can be crucial. External factors like changes in the market, economic conditions, or industry trends could contribute to variations.
- **Actionable Insights:** The decline in customer ratings provides an opportunity for businesses to take proactive measures and implement strategies to enhance customer satisfaction, address concerns, and improve overall customer experience.
- **Customer Feedback Analysis:** Analyzing specific customer feedback for each quarter can provide insights into the aspects that customers appreciate or find challenging. Identifying common themes in feedback can guide targeted improvements.
- **Benchmarking:** Comparing average ratings with industry benchmarks or competitors can offer context and help businesses understand their performance relative to the broader market.
- **Continuous Monitoring:** Continuous monitoring of customer ratings and feedback is essential for businesses to adapt and respond to changing customer expectations. Regular reviews can help identify trends and make timely adjustments.
- **Future Strategies:** Businesses may consider implementing strategies to address customer concerns, improve service quality, and enhance overall satisfaction. Engaging with customers for feedback and involving them in the improvement process can be valuable.

Trend of Customer Satisfaction

Customer Feedback

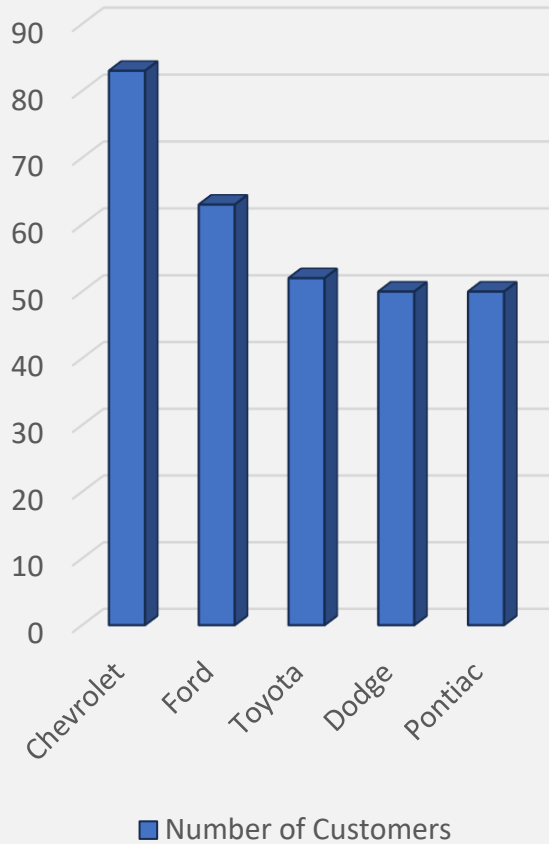


Observations/Findings

- **Distribution Across Quarters:** The distribution of feedback varies across quarters, indicating potential changes in customer satisfaction or experiences over time.
- **Declining Trend:** There is a noticeable decline in the counts of "Good" and "Very Good" feedback from Quarter 1 to Quarter 4. This may suggest a decrease in positive customer experiences or satisfaction.
- **Increase in Negative Feedback:** The counts of "Very Bad" and "Bad" feedback increase from Quarter 1 to Quarter 4. This rise in negative feedback could be a cause for concern, indicating potential issues or challenges in the customer experience.
- **Stability in "Okay" Feedback:** The counts for "Okay" feedback remain relatively stable across quarters. This could indicate consistent but not exceptional customer experiences.
- **Potential Issues in Quarter 4:** Quarter 4 stands out with higher counts of "Very Bad" and "Bad" feedback, suggesting a potential increase in customer dissatisfaction or issues during that period.
- **Need for Investigation:** The decline in positive feedback and the increase in negative feedback warrant further investigation. Identifying the root causes of these trends can help address specific issues and improve overall customer satisfaction.
- **Areas of Improvement:** Understanding the specific aspects that lead to negative feedback can guide improvement efforts. Businesses may need to focus on addressing customer concerns, enhancing service quality, or improving specific processes.
- **Customer Feedback Patterns:** Analyzing customer feedback patterns can reveal insights into the areas where the business is performing well and areas that require attention. Identifying common themes in negative feedback can guide targeted improvements.
- **Quarterly Performance Reviews:** Conducting regular reviews of customer feedback on a quarterly basis allows businesses to adapt and respond to changing customer expectations. It provides an opportunity for continuous improvement.
- **Customer Engagement:** Engaging with customers to gather additional qualitative feedback and understanding their perspectives can provide deeper insights and guide more personalized improvement strategies.

Top Vehicle Makers Preferred by Customers

Customer Preference:
Top 5 Vehicle Makers



Observations/Findings

- **Chevrolet Leads:** Chevrolet is the top vehicle maker with the highest number of customers ordering their vehicles (83 customers).
- **Diverse Manufacturer Representation:** The list includes a diverse range of vehicle manufacturers, from mainstream brands like Ford, Toyota, and Dodge to luxury brands like Mercedes-Benz and BMW.
- **Popular Brands:** Ford, Toyota, Dodge, and Pontiac also have a substantial number of customers, indicating their popularity among consumers.
- **Luxury Brands Presence:** Luxury brands such as Mercedes-Benz, BMW, Audi, and Lexus have a notable presence, suggesting a demand for high-end vehicles.
- **Variety in Preferences:** The variety of brands on the list reflects diverse customer preferences, with choices ranging from mainstream to luxury and sports car manufacturers.
- **Mid-range Preferences:** Brands like Mazda, Mitsubishi, Buick, and GMC fall in the mid-range category, appealing to a broad customer base.
- **Lower Volume Luxury and Exotic Brands:** Luxury and exotic brands such as Lamborghini, Bentley, Maserati, and Ferrari have lower customer counts, which is expected given their exclusivity and higher price points.
- **Steady Performers:** Some brands consistently attract customers, maintaining a steady presence, including Volkswagen, Nissan, Volvo, and Honda.
- **Sports and Specialty Brands:** Sports and specialty brands like Lotus, Aston Martin, and Rolls-Royce have a niche market, appealing to enthusiasts and customers seeking unique vehicles.
- **Market Insights:** Analyzing customer preferences for different brands provides market insights, helping manufacturers understand the demand for specific types of vehicles and informing marketing and production strategies.

Most Preferred Vehicle Make in each State

State	Preferred Make	No of Orders for Preferred Make
Texas	Chevrolet	9
Florida	Toyota	7
California	Ford,Dodge,Audi, Nissan,Chevrolet	6
Ohio	Chevrolet	6
Alabama	Dodge	5
Colorado	Chevrolet	5
Maryland	Ford	5
New York	Toyota,Pontiac	5
Virginia	Ford	5
Washington	Chevrolet	5
District of Columbia	Chevrolet	4
Indiana	Mazda	4
Missouri	Chevrolet	4
Arizona	Pontiac,Cadillac	3
Georgia	Toyota	3
Illinois	Ford,GMC,Chevrolet	3
Michigan	Ford	3
Minnesota	GMC	3
Nevada	Pontiac	3
North Carolina	Volvo	3
Pennsylvania	Toyota	3
Tennessee	Mazda	3

* Showing states where Number of orders for top selling cars is more than 2.

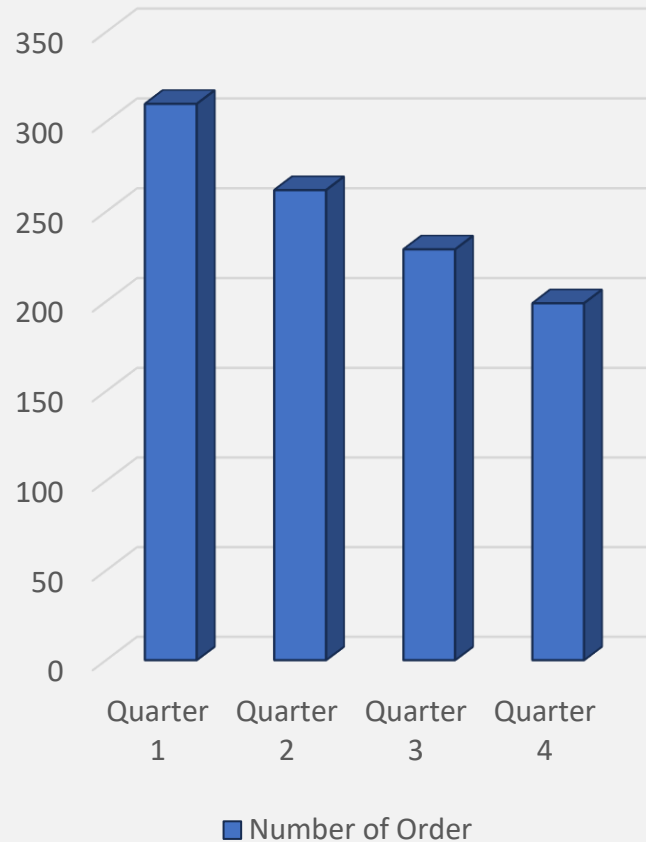
Observations/Findings

- **Diverse Preferences Across States:** Different states exhibit diverse preferences for vehicle makes, indicating that consumer choices vary significantly from one region to another.
- **Single vs. Multiple Preferences:** Some states have a single preferred vehicle make, while others have multiple preferred makes. For example, Texas prefers Chevrolet, while California has multiple preferred makes, including Ford, Dodge, Audi, Nissan, and Chevrolet.
- **Popular Maker:** Chevrolet appears as the most preferred make in several states, indicating its popularity across different regions.
- **Regional Dominance of Specific Makers:** Certain states show a clear preference for specific makes. For example, Ford is popular in Maryland, Toyota in Florida, and Audi in California.
- **High Demand States:** Texas, Florida, and California have a higher number of orders for their preferred cars, suggesting a strong demand for specific makes in these states.
- **Luxury and Exotic Car Preferences:** Some states exhibit a preference for luxury and exotic car brands, such as Mercedes-Benz, Audi, BMW, and Cadillac.
- **Multiple Preferences in Larger States:** Larger states, like California, show a more diverse set of preferred car makes, reflecting the varied preferences of a larger and more diverse population.
- **Compact Car Preferences:** Some states show preferences for compact car makes, such as Volkswagen and Subaru.
- **Mid-Range and Luxury SUV Preferences:** Preferences for mid-range and luxury SUVs are evident in states like Colorado and Georgia.
- **Brand Loyalty:** States with consistent preferences for a particular make, like Chevrolet in Texas and Ohio, indicate brand loyalty among consumers.
- **Diverse Automotive Landscape:** The data highlights the diverse automotive landscape in the United States, with consumers having a wide range of preferences for different types of vehicles.

Revenue Metrics

Trend of Purchases by Quarter

Number of Orders per Quarter

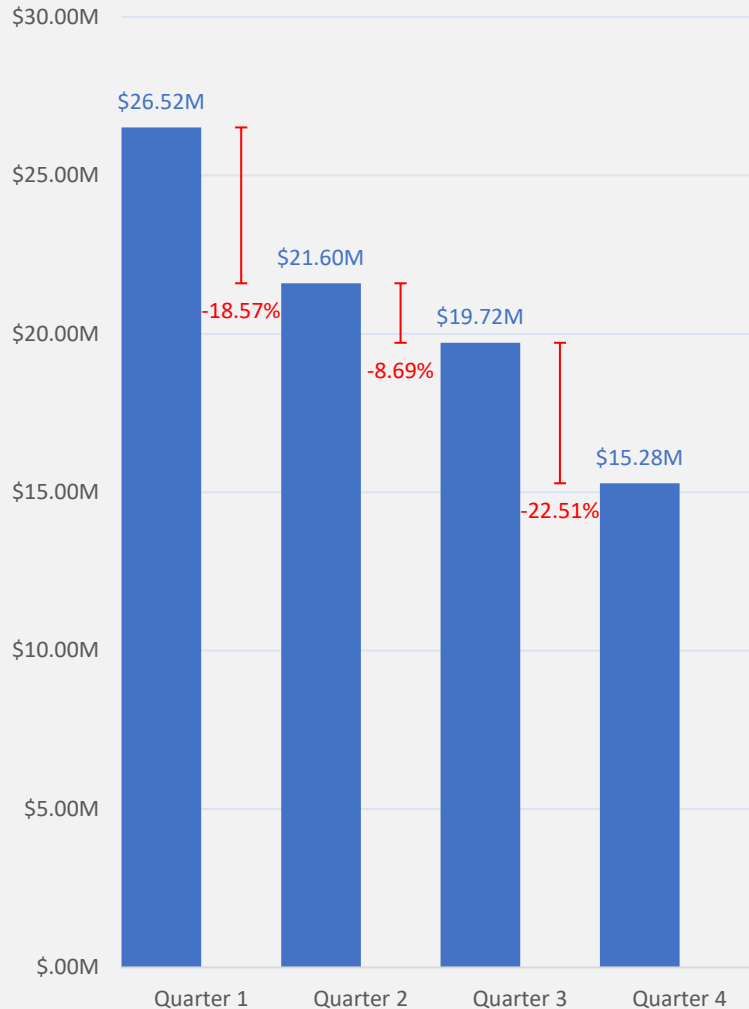


Observations/Findings

- **Overall Decreasing Trend:** There is a decreasing trend in the number of orders from Quarter 1 to Quarter 4, indicating a potential decline in demand or other factors affecting order volume.
- **Quarterly Variations:** Each quarter shows a different level of order volume, suggesting seasonal or cyclical patterns in customer purchasing behavior.
- **Customer Behavior Analysis:** Analyzing customer behavior and preferences during different quarters can provide insights into the types of products or services that are more popular during specific times of the year.
- **Supply Chain and Inventory Management:** Order trends can impact supply chain management and inventory planning. Businesses may need to adjust their production and inventory levels based on the observed order patterns.
- **Marketing and Promotions:** Seasonal marketing campaigns, promotions, and incentives could be considered to stimulate demand during quarters with lower order volumes.
- **Competitive Landscape:** Monitoring the competitive landscape and industry trends can help businesses understand how their performance compares to that of competitors and whether market conditions are affecting the entire industry.
- **Customer Engagement:** Engaging with customers through surveys or feedback mechanisms can provide additional insights into the reasons behind the declining trend in order volumes.
- **External Factors Impact:** External factors such as global events, economic policies, or changes in consumer behavior may also contribute to fluctuations in order volumes.
- **Monitoring for Reversal:** Regular monitoring of order trends is essential to identify any potential reversal in the trend and capitalize on opportunities for growth.

Quarter on Quarter % Change in Revenue

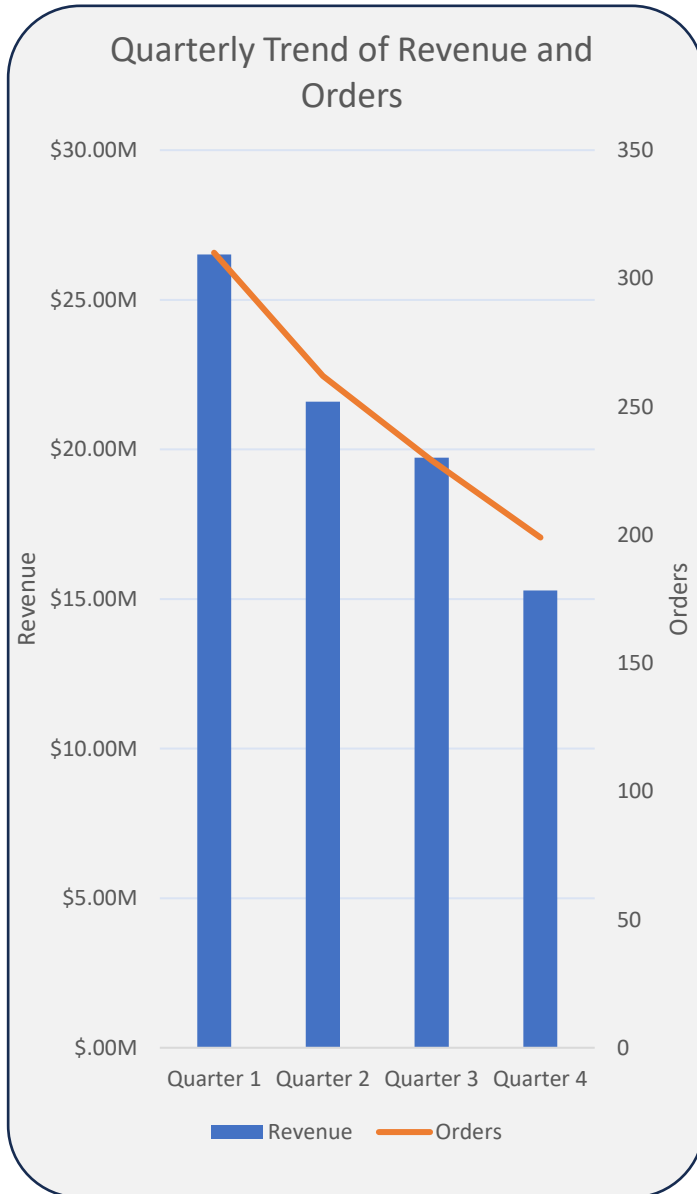
Quarter on Quarter Change in Revenue



Observations/Findings

- **Overall Revenue Decline:** There is a consistent decline in revenue from Quarter 1 to Quarter 4, indicating a downward trend in business performance.
- **Magnitude of Changes:** The percentage change values (-18.57%, -8.69%, -22.51%) reflect the magnitude of the decline in each quarter compared to the previous one.
- **Largest Decline in Quarter 4:** The largest decline in revenue occurs in Quarter 4, with a change of -22.51%. This could be influenced by factors such as seasonal variations, economic conditions, or specific challenges faced by the business during that period.
- **Sequential Impact:** Each quarter's revenue is sequentially lower than the previous one, indicating a cumulative impact on overall revenue performance.
- **Identifying Factors:** Further investigation is needed to identify the factors contributing to the revenue decline. This could involve analyzing sales data, customer trends, market conditions, or internal operational challenges.
- **Adjustment in Strategies:** The consistent decline suggests a need for businesses to reevaluate their strategies, marketing efforts, and operational efficiency. Adjustments may be necessary to address the root causes of the revenue decrease.
- **Economic and Industry Trends:** External factors, such as economic conditions and industry trends, can influence revenue performance. Monitoring these factors can provide additional context for understanding the observed changes.
- **Forecasting and Planning:** Understanding the quarter-on-quarter changes allows businesses to adjust their financial forecasts and plan for potential challenges or opportunities in the coming quarters.
- **Customer Engagement and Feedback:** Engaging with customers and gathering feedback can provide insights into their changing preferences or concerns, helping businesses adapt their offerings to better meet customer needs.
- **Operational Efficiency:** Assessing internal processes and operational efficiency is crucial. Streamlining operations can help reduce costs and improve overall financial performance.

Trend of Revenue and Orders by Quarters

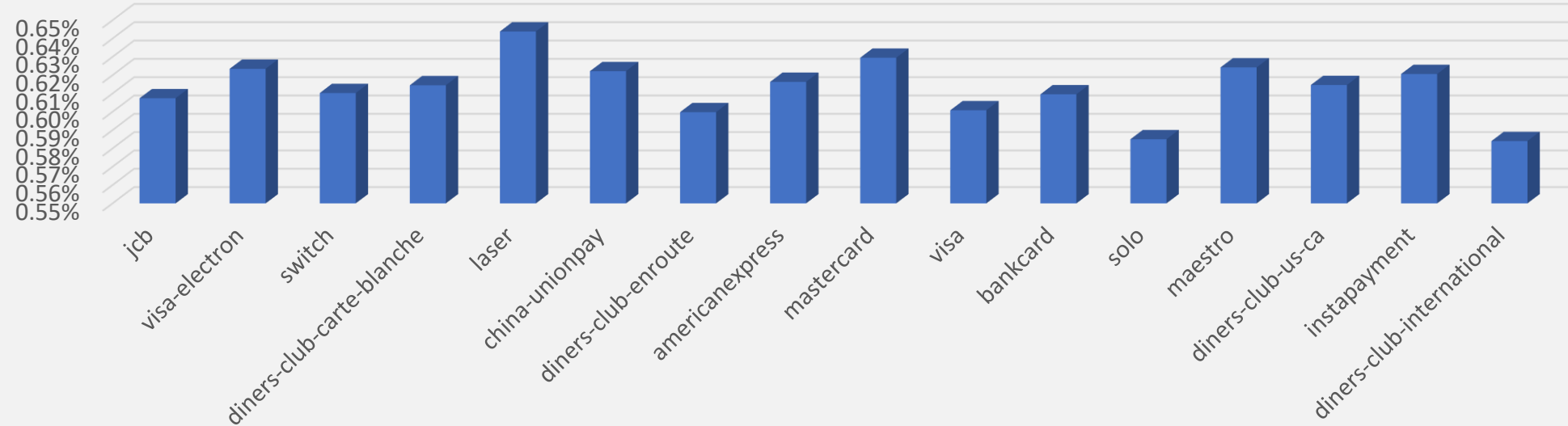


Observations/Findings

- **Revenue Decline:** There is a consistent decline in revenue from Quarter 1 to Quarter 4, indicating a decrease in the overall sales performance.
- **Orders and Revenue Correlation:** The decrease in revenue is accompanied by a decrease in the number of orders. This suggests a correlation between order volume and revenue, as expected.
- **Magnitude of Revenue Change:** The magnitude of revenue decline is noticeable, with Quarter 4 having the lowest revenue compared to the other quarters.
- **Impact on Orders:** The decrease in orders is proportional to the decline in revenue, reinforcing the idea that the two are interconnected.
- **Seasonal Trends:** It's important to consider whether there are seasonal trends or cyclical patterns influencing the decline. Seasonal variations could impact both orders and revenue.
- **Adjustment of Strategies:** Businesses may need to assess and adjust their marketing strategies, promotions, and overall business approach to address the observed decline in revenue and orders.
- **Customer Engagement:** Engaging with customers and understanding their preferences, needs, and concerns can provide valuable insights for adapting products or services to better meet customer expectations.
- **Operational Efficiency:** Evaluating internal operational efficiency can help identify areas for improvement, cost reduction, and optimization, which may positively impact revenue.
- **Revenue per Order:** Calculating the revenue per order may provide insights into the average transaction value. Monitoring this metric over time can help assess changes in customer spending behavior.
- **Scenario Planning:** Considering different scenarios and developing contingency plans is important. Businesses should be prepared to adapt to changing conditions and proactively address challenges.
- **Feedback and Surveys:** Seeking feedback from customers and conducting surveys can provide direct insights into their satisfaction, preferences, and any issues they may be experiencing.

Shipping Metrics

Average Discount Offered by Credit Card Type

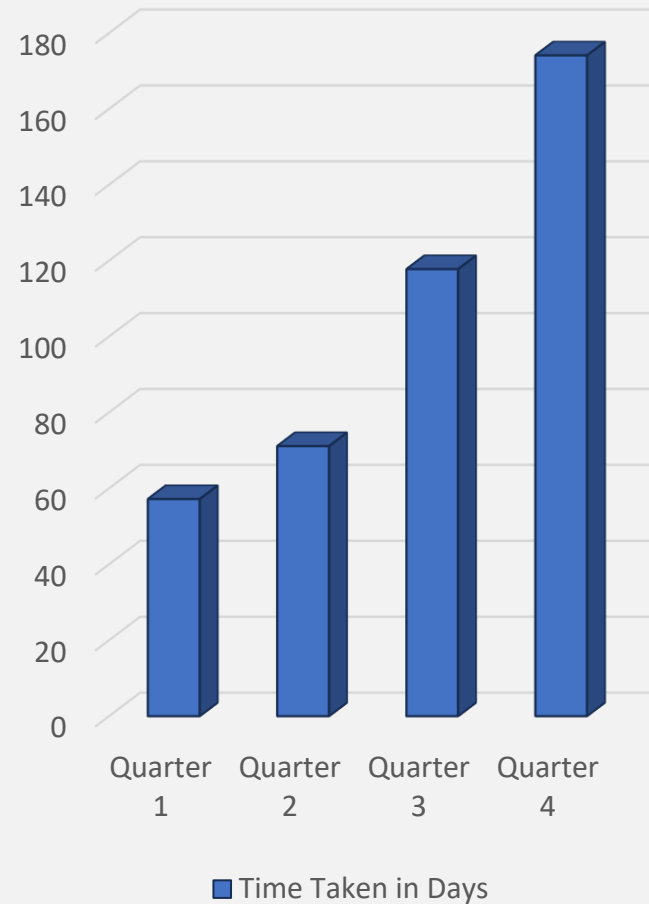


Observations/Findings

- **Variability in Discounts:** There is variability in the average discounts offered by different credit card types. The values range from approximately 0.58% to 0.64%, indicating that some credit card types receive higher average discounts than others.
- **Consistency Across Networks:** Credit card networks like Visa, Mastercard, and American Express have similar average discount percentages, ranging from approximately 0.60% to 0.63%. This suggests a level of consistency in the discounts offered across major credit card networks.
- **Differences in Other Types:** Other credit card types, such as JCB, Visa Electron, Switch, Diners Club, and China UnionPay, also have their own average discount percentages, showing variations in discounts based on the specific credit card type.
- **Potential Marketing Strategies:** Businesses may consider these average discount percentages when designing marketing strategies or promotions targeted at specific credit card users. For example, they might offer promotions or incentives to encourage the use of credit cards with lower average discounts.

Time Taken to Ship Orders by Quarter

Shipping Performance



Observations/Findings

- **Increasing Shipping Time:** There is a noticeable increase in the time taken for shipping from Quarter 1 to Quarter 4. The shipping time has nearly tripled over this period.
- **Potential Operational Issues:** The significant increase in shipping time may indicate potential operational challenges, such as delays in processing orders, transportation issues, or other logistical problems.
- **Customer Satisfaction Impact:** Prolonged shipping times can negatively impact customer satisfaction. Businesses should monitor and address any issues causing delays to ensure a positive customer experience.
- **Root Cause Analysis:** Businesses should conduct a root cause analysis to identify the reasons behind the increasing shipping times. This may involve reviewing internal processes, logistics providers, and order fulfillment workflows.
- **Logistics Optimization:** Optimizing logistics and supply chain processes can contribute to reducing shipping times. Businesses may consider evaluating their transportation strategies, warehouse operations, and overall order fulfillment efficiency.
- **Seasonal Considerations:** Seasonal variations may contribute to fluctuations in shipping times. For example, holiday seasons or peak demand periods can impact the capacity of shipping carriers and affect delivery schedules.
- **Communication with Customers:** Transparent communication with customers regarding potential delays and expected delivery times is crucial. Providing accurate shipping estimates can help manage customer expectations and reduce dissatisfaction.
- **Performance Benchmarks:** Comparing shipping times to industry benchmarks and competitors' performance can provide context for evaluating the efficiency of the business's shipping operations.
- **Impact on Business Reputation:** Prolonged shipping times can affect the overall reputation of the business. Monitoring customer feedback and reviews can offer insights into the perceived performance of the shipping process.
- **Operational Efficiency Measures:** Implementing measures to enhance operational efficiency, streamline order processing, and improve coordination with shipping partners can contribute to reducing shipping times.

Insights and Recommendations

Customer Distribution Across States

Insights

- California and Texas have the highest number of customers.
- The District of Columbia, New York, and Florida also have a significant customer base.

Recommendation

- Focus marketing efforts and promotions on states with lower customer distribution to expand the customer base.
- Consider state-specific strategies based on customer demographics and preferences.

Average Rating in Each Quarter

Insights

- A gradual decline in average ratings is observed over the quarters.

Recommendation

- Investigate the factors contributing to the decline in ratings.
- Implement measures to enhance product/service quality or customer satisfaction.

Customer Feedback Distribution

Insights

- The distribution of customer feedback varies across quarters.
- Very Good and Good feedback show a decreasing trend.

Recommendation

- Analyze the reasons behind the decrease in positive feedback.
- Implement strategies to address customer concerns and improve overall satisfaction.

Insights and Recommendations

Top 5 Vehicle Makers

Insights

- Chevrolet, Ford, and Toyota are the top three preferred vehicle makers.
- Customer preferences vary for different vehicle makers.

Recommendation

- Strengthen marketing efforts for the top vehicle makers.
- Tailor promotions to align with customer preferences for specific vehicle brands.

Most Preferred Vehicle Make in Each State

Insights

- Preferences for vehicle makes vary by state.

Recommendation

- Customize marketing campaigns based on the most preferred vehicle makes in each state.
- Consider regional variations in vehicle preferences.

Trends of Orders by Quarters

Insights

- A decline in the number of orders is observed over quarters.

Recommendation

- Investigate the factors contributing to the decline in order volume.
- Adjust marketing and promotional strategies to stimulate demand.

Insights and Recommendations

Quarter-over-Quarter % Change in Revenue	Insights	<ul style="list-style-type: none">There is a consistent decline in revenue quarter-over-quarter.
	Recommendation	<ul style="list-style-type: none">Evaluate and adjust pricing strategies.Explore new revenue streams or partnerships to mitigate the decline.
Quarter on Quarter Change in Revenue	Insights	<ul style="list-style-type: none">Consistent quarter-on-quarter decline in revenue.
	Recommendation	<ul style="list-style-type: none">Conduct a comprehensive review of business operations.Implement strategic changes to reverse the declining revenue trend.
Trends of Revenue and Orders by Quarters	Insights	<ul style="list-style-type: none">Both revenue and orders show a declining trend.
	Recommendation	<ul style="list-style-type: none">Implement strategies to boost sales and revenue.Optimize operational efficiency to manage costs effectively.

Insights and Recommendations

Average Discount by Credit Card Type

Insights

- Variability in average discounts across different credit card types.

Recommendation

- Consider credit card-specific promotions to optimize discounts.
- Monitor customer behavior and adjust discount strategies accordingly.

Average Time Taken to Ship Orders

Insights

- Significant increases in shipping time are observed over quarters.

Recommendation

- Investigate and address operational challenges affecting shipping efficiency.
- Communicate transparently with customers about expected delivery times.

Overall Summary

1. Operational Efficiency:

- Optimize internal processes and logistics to enhance operational efficiency.
- Address factors contributing to increased shipping times.

2. Customer Experience:

- Focus on improving customer satisfaction through product/service enhancements.
- Communicate effectively with customers regarding changes in shipping times.

3. Marketing Strategies:

- Customize marketing campaigns based on regional preferences and customer feedback.
- Adjust promotions to stimulate demand and counter the decline in orders.

4. Revenue Management:

- Evaluate and adjust pricing strategies to optimize revenue.
- Explore new revenue streams and partnerships to diversify income sources.

5. Quality Assurance:

- Ensure product/service quality meets or exceeds customer expectations.
- Implement measures to address feedback and enhance overall customer experience.

Thank You