SQL and Databases: Project Report

AIML APRIL 23 GROUP 1

-SAIF MERCHANT

Business Overview

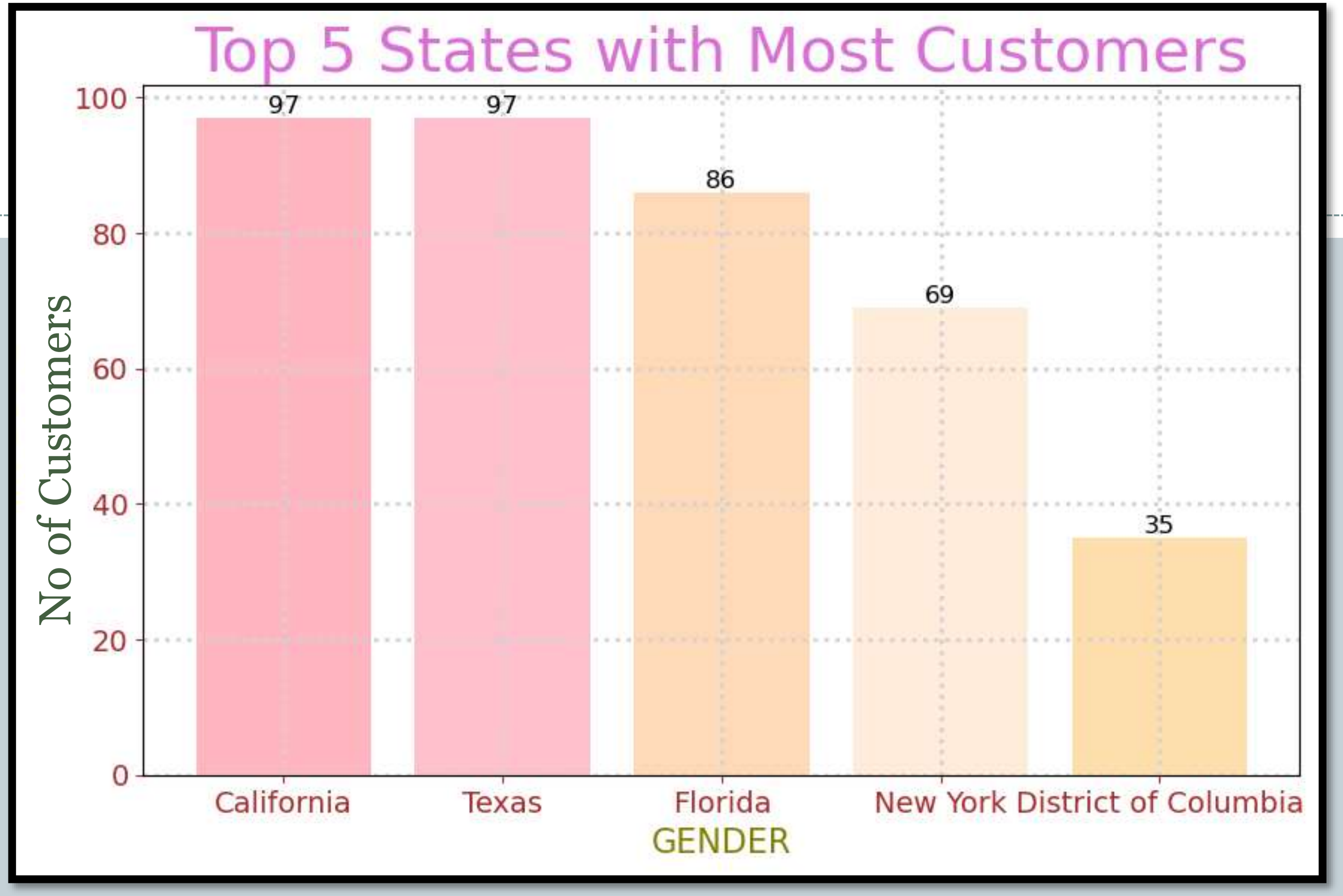
Total Revenue : $124.71 Million

Total Orders: 1000

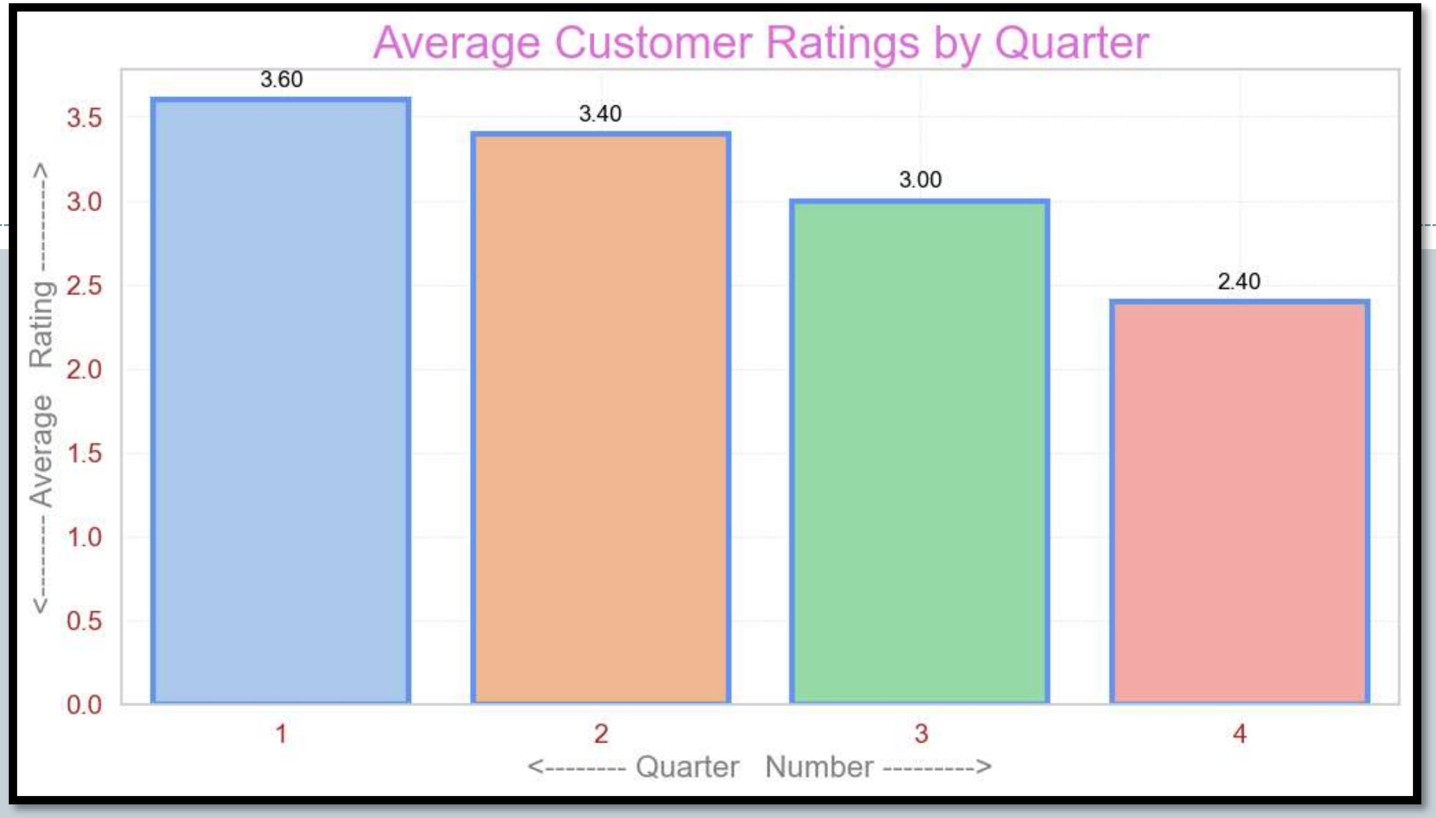
Total Customers : 994

Last Quarter Revenue : $23.3 Million	Last quarter Orders : 199	Average Days to ship : 105.03 Days	% Good Feedback: 20.46%	Average Rating : 3.1

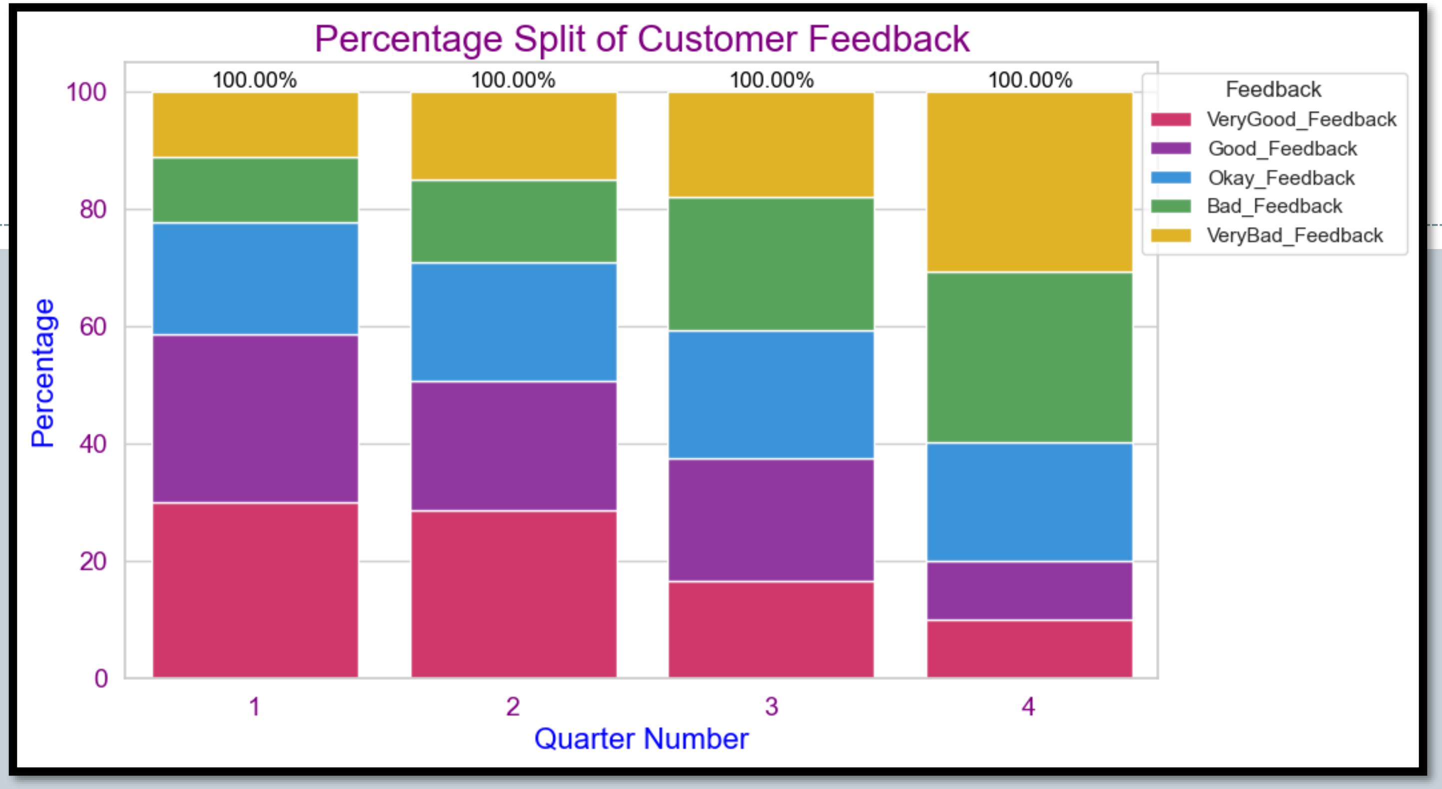
Customer Metrics



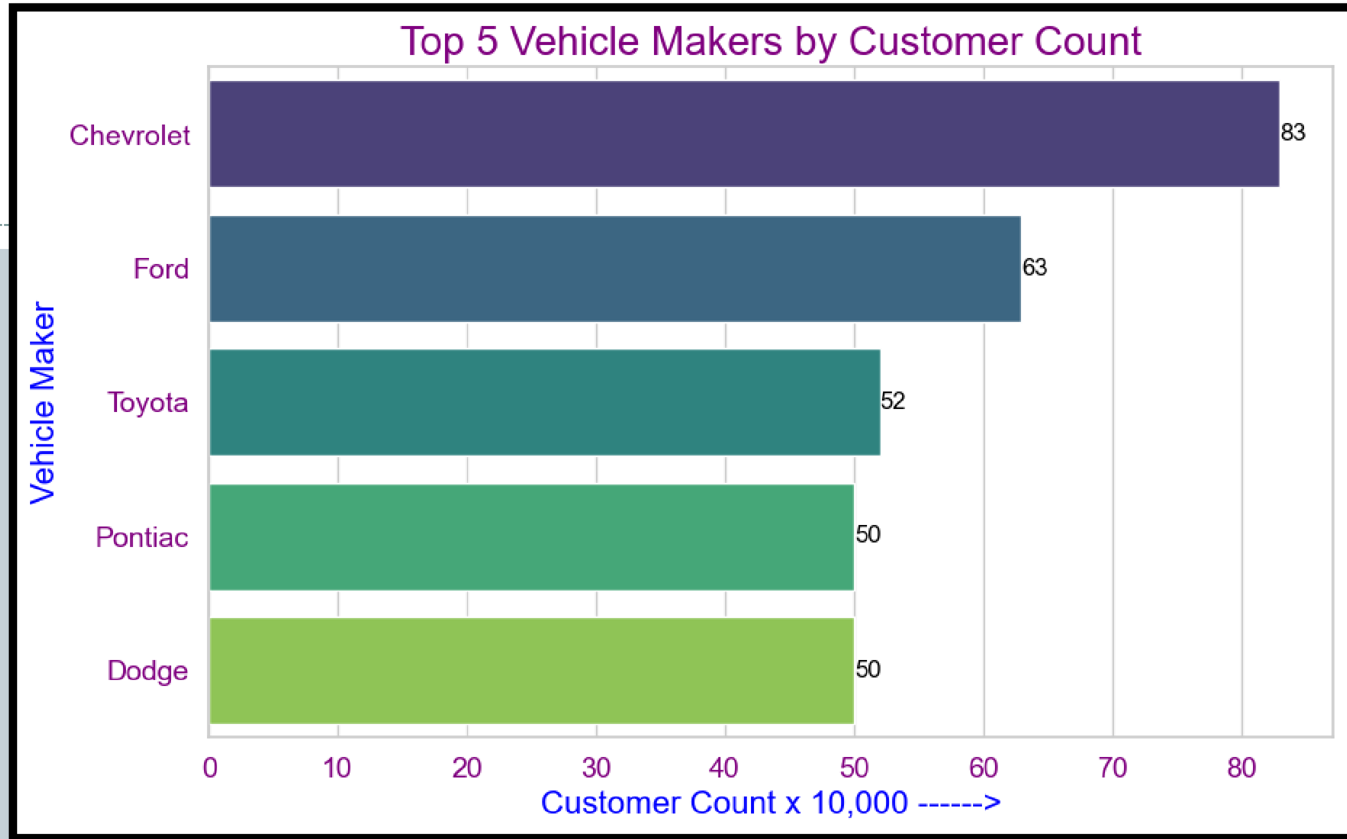
- **California Leads with 97 Customers:** California stands out as the state with the highest number of customers, boasting a total of 97 customers. This indicates a significant customer presence in the state.
- **Top 5 States Constitute Over 30% of Customers:** It's noteworthy that the top 5 states, including California, collectively make up over 30% of our total customer base. This concentration suggests that a substantial portion of our customers is concentrated in a limited number of states.
- **Drop-Off in Customer Numbers:** While California leads in the number of customers, there is a significant drop in the number of customers when we move to the other states within the top 5.
- **All Top 5 States in the United States:** It's important to mention that all of the top 5 states with the most customers are located within the United States. This observation highlights the significance of our domestic customer base.



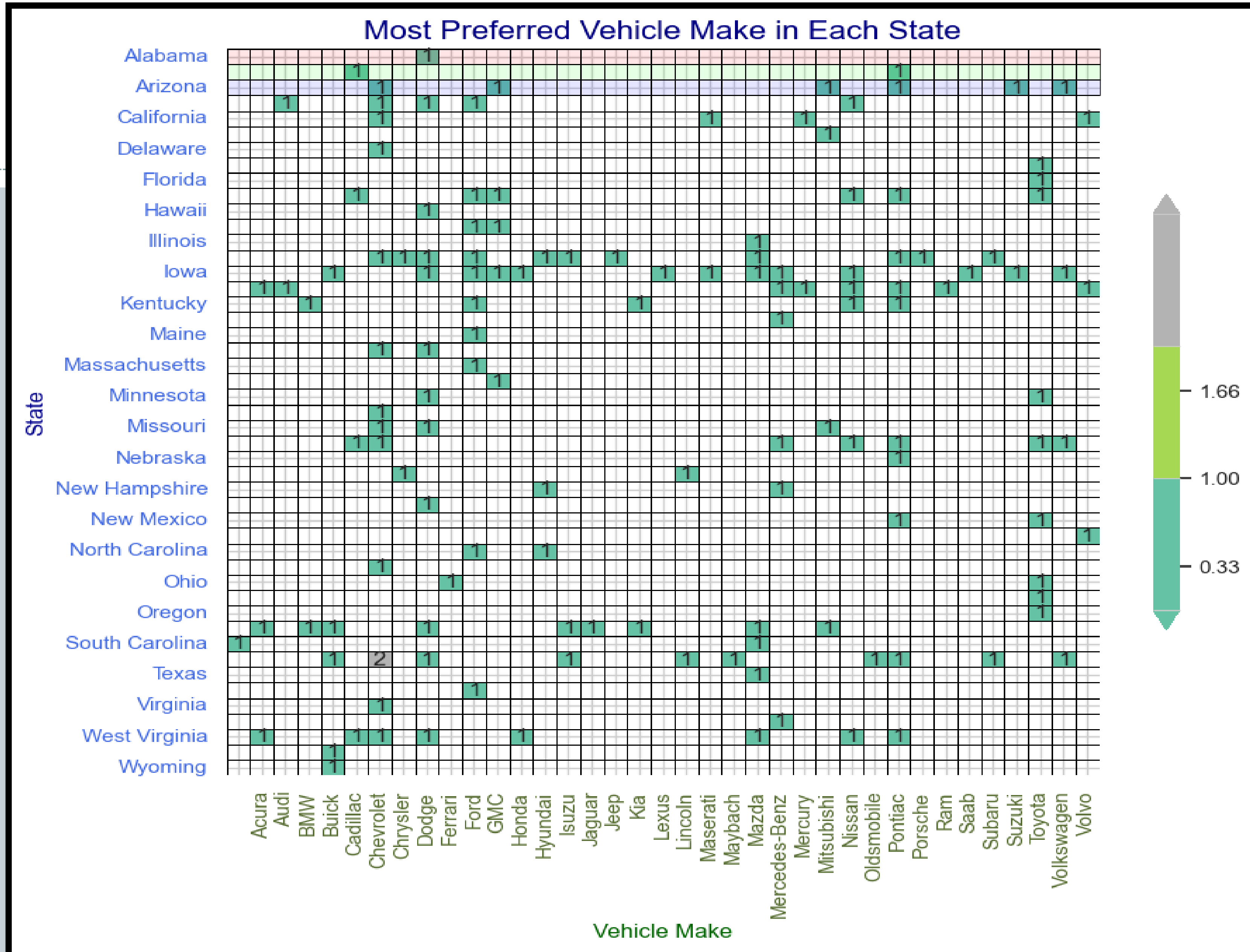
- **Q1 Records the Highest Rating:** It's worth noting that Q1 boasts the highest average customer rating, making it the most satisfactory quarter in our records. This could imply that the business was more successful in meeting customer expectations during the early part of the year.
- **Steady Decline in Customer Ratings:** The data shows a consistent decline in average customer ratings from 3.6 in Q1 to 2.4 in Q4. This suggests that, on average, customers have become less satisfied with our business over the course of the year.
- **Largest Dip Between Q2 and Q3:** The most significant drop in customer ratings occurred between Q2 and Q3, where we saw a notable 0.4-point decrease. This decline can be concerning, as it signifies a sharp drop in customer satisfaction during that period.



- **Increase in Negative Feedback:** Conversely, the data shows an upward trend in the percentage of customers giving "bad" or "very bad" feedback. Starting at 20% in Q1, this metric has risen to 60% in Q4, signifying a concerning increase in negative customer sentiment.
- **Gradual Decrease in "Okay" Feedback:** The percentage of customers providing "okay" feedback has gradually decreased over the year. This decline suggests that more customers find our products or services merely acceptable rather than excellent.
- **Overall Positive Feedback:** The analysis reveals a predominantly positive trend in customer feedback over the first two quarters. Approximately 75% of customers provided positive feedback during this period, indicating a generally satisfactory experience.
- **Decrease in "Very Good" Feedback:** Over the course of the year, there has been a steady decline in the percentage of customers giving "very good" feedback. This metric dropped from 60% in Q1 to 20% in Q4, reflecting a significant reduction in exceptionally positive customer experiences.



- **Toyota's Respectable Position:** In the third position, Toyota is favored by a sizable customer base of 52,000 individuals. While not as prominent as Chevrolet and Ford, Toyota holds its ground with a respectable number of admirers.
- **Pontiac and Dodge Share the Spotlight:** Interestingly, both Pontiac and Dodge appear to have equal numbers of loyal customers. Each brand is preferred by approximately 50,000 customers, indicating a balanced level of admiration for these two vehicle makers.
- **Chevrolet Dominates:** Chevrolet emerges as the undisputed favorite among our customers, with an impressive fan base of over 83,000 enthusiasts. This significant number of Chevrolet lovers indicates a strong preference for the brand.
- **Ford's Strong Presence:** Ford secures the second spot among customer preferences, although it trails Chevrolet by approximately 20,000 admirers. With over 63,000 customers, Ford is a solid runner-up, demonstrating a considerable following.



To see the subsequent insights and observations, please advance to the following slide in the presentation.

Insights and observations for the heat-map in the previous slide.

- **Regional Variations in Vehicle Preferences:** The information reveals regional differences in vehicle preferences. For instance, Californians frequently choose Chevrolet and Mercury, indicating a preference for American automakers. On the other hand, Pontiac and Chevrolet are preferred in areas like Vermont and West Virginia, demonstrating a predilection for GM brands.

- Urban places, like the District of Columbia, offer a wider variety of options for automobile brands, including Toyota. This shows that fuel efficiency, dependability, and a wide range of automotive options may be prioritized by urban consumers.

- **Luxurious Preferences:** High-end automakers like Ferrari, Maybach, and Maserati are available in states like New York, Nevada, and Florida. This suggests that consumers in these markets have a higher income level and a demand for prestige and performance.

- **Strong Domestic Preferences: So**me states, like Michigan and Ohio, exhibit a strong allegiance to American-made automobiles by favoring domestic automakers like GMC and Ford. There may be a sizable automobile industry in these states.

- **Popularity of Compact Cars:** Compact car companies like Mitsubishi are preferred in various places, like Connecticut and Idaho. This can be a result of an emphasis on practicality and fuel efficiency.

- **Larger States with Mixed Preferences:** The tastes of larger states, like Texas, are different, with Mazda being well-liked. The size and demographic variations within the state, which serve a variety of customer requirements, may be the cause of this diversity.

Revenue Metrics

- **Seasonal Variation**

The data reveals a clear seasonal pattern, with the highest order count in the first quarter (310) and the lowest in the fourth quarter (199). This suggests that business activities are influenced by the time of year, potentially reflecting higher demand during certain seasons.

- **Declining Trend**

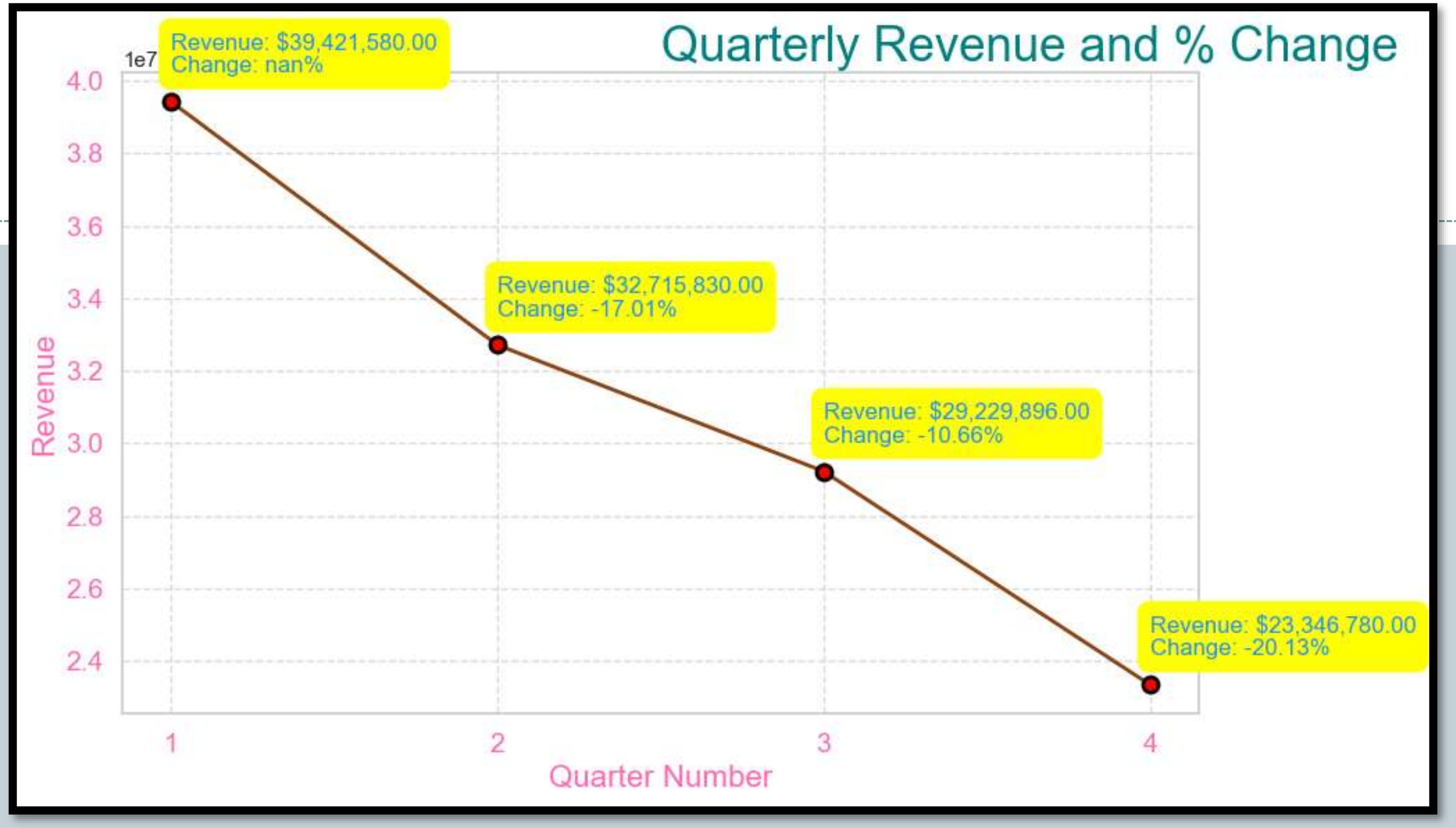
There is a gradual decline in order counts from the first quarter (310) to the fourth quarter (199). This may indicate a drop in customer orders or sales as the year progresses. Businesses should consider strategies to mitigate this decline, such as launching promotions or new products to boost sales in later quarters.

- **Consistency in Quarters 2 and 3**

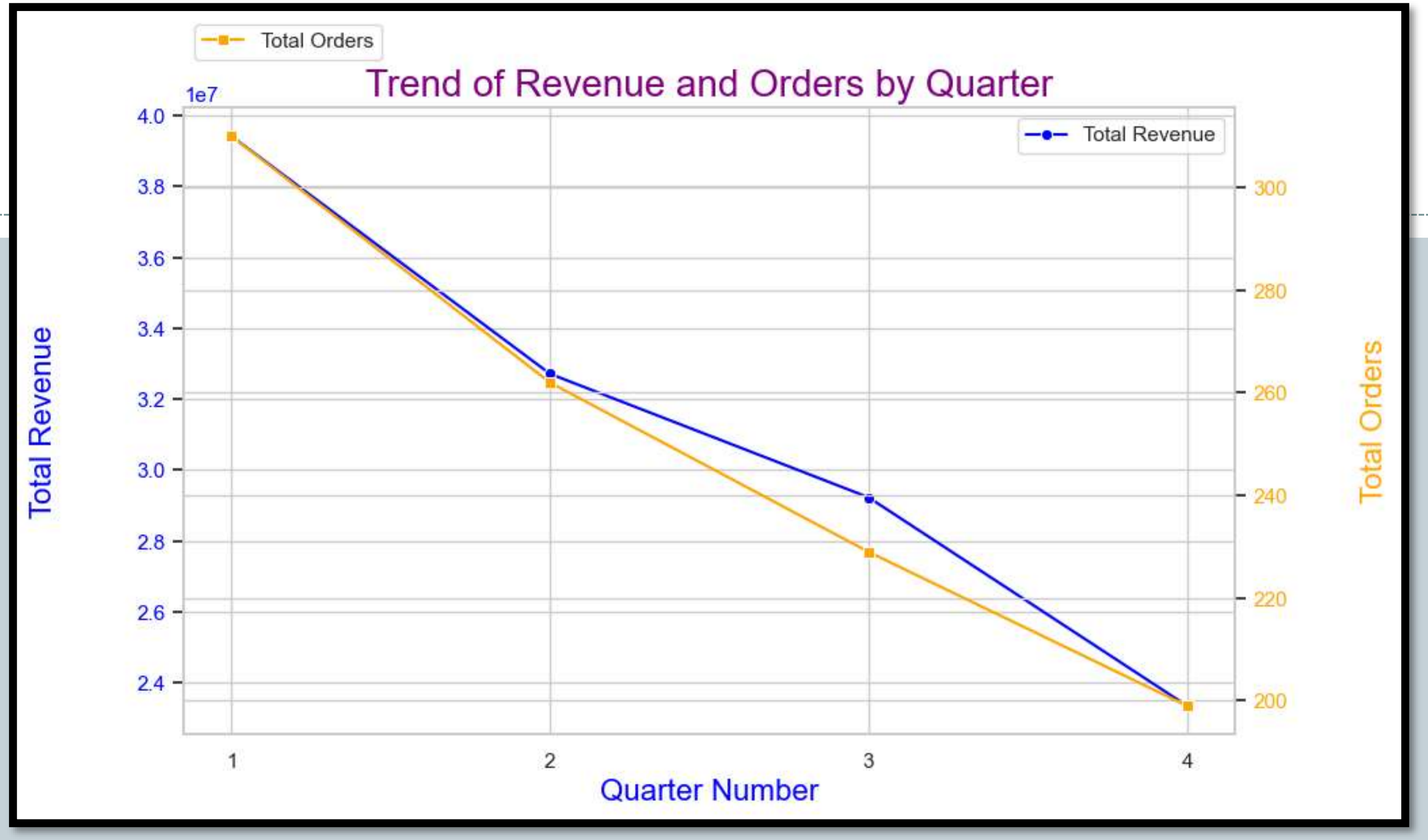
Quarters 2 (262) and 3 (229) have order counts that are relatively close. This consistency may signify a stable period for the business, where consumer demand remains fairly steady. Companies can use this predictability to optimize inventory management and resource allocation.

- **Seasonal Product Demand**

The seasonal variation could be due to factors such as holidays, weather, or special events. Businesses should align their marketing and product offerings with these seasonal changes. For example, offering holiday promotions or seasonal products in the first quarter may help maximize sales.

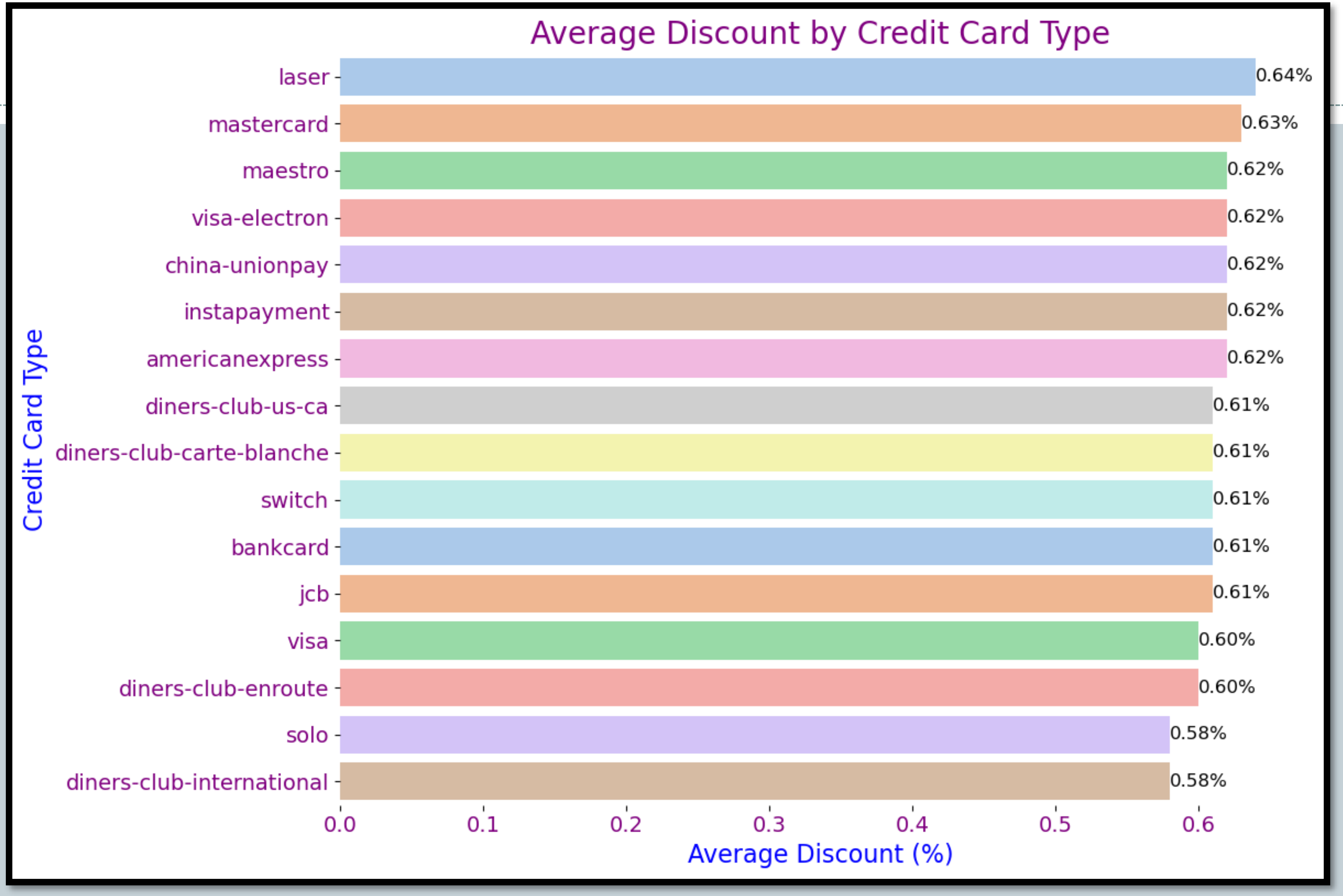


- **Quarterly Revenue Decline**: The company experienced a consistent decline in revenue throughout the year. From Q1 to Q4, there was a significant reduction in revenue. This trend suggests that the company's sales or earnings have been steadily decreasing over the year.
- **Significant QoQ Decreases**: The most substantial quarter-over-quarter (QoQ) decrease in revenue occurred between Q3 and Q4, with a sharp drop of 20.13%. This decrease is particularly concerning as it indicates a significant revenue decline during the last quarter of the year, which could impact annual financial performance.
- **Comparison with Previous Quarter**: Quarter 2 (Q2) had a QoQ decrease of 17.01%, followed by a 10.66% decrease in QoQ revenue in Q3. This ongoing decrease over several quarters could signal underlying issues or seasonality that the company needs to address.
- **Planning and Budgeting Implications**: The consistent decline in quarterly revenue has significant implications for budgeting and resource allocation. The company should consider adjusting its financial estimates, exploring cost control measures, and devising strategies to reverse the declining trend.



- **Consistent Total Revenue Decline:** There is a consistent decline in total revenue from the first quarter (Q1) to the fourth quarter (Q4). This indicates a clear downward trend in the company's overall earnings over the course of the year. The total revenue decreased from $39,421,580 in Q1 to $23,346,780 in Q4.
- **Correlation between Total Revenue and Total Orders:** The decline in total revenue is closely associated with the decrease in total orders. As the number of orders decreased throughout the year, from 310 in Q1 to 199 in Q4, the total revenue also decreased. This suggests that a decrease in customer orders or sales volume is a significant factor contributing to the loss in overall revenue.
- **Seasonal Variations**: The data indicates a distinct seasonal pattern, with the highest total revenue and total orders in Q1 and the lowest in Q4. This suggests that business activities are significantly influenced by the time of year, potentially reflecting increased demand during certain seasons, such as the beginning of the year.
- **Impact on Resource Allocation and Planning**: The consistent decline in total revenue throughout the year has implications for budgeting and resource allocation. The company must adapt its financial estimates and allocate resources more efficiently to address the reduced revenue levels. This may involve implementing strategies to boost sales, control costs, or diversify income sources.

Shipping Metrics



To see the subsequent insights and observations, please advance to the following slide in the presentation.

Insights and observations for the Average discount by Credit-Card Type (Bar-plot) in the previous slide.

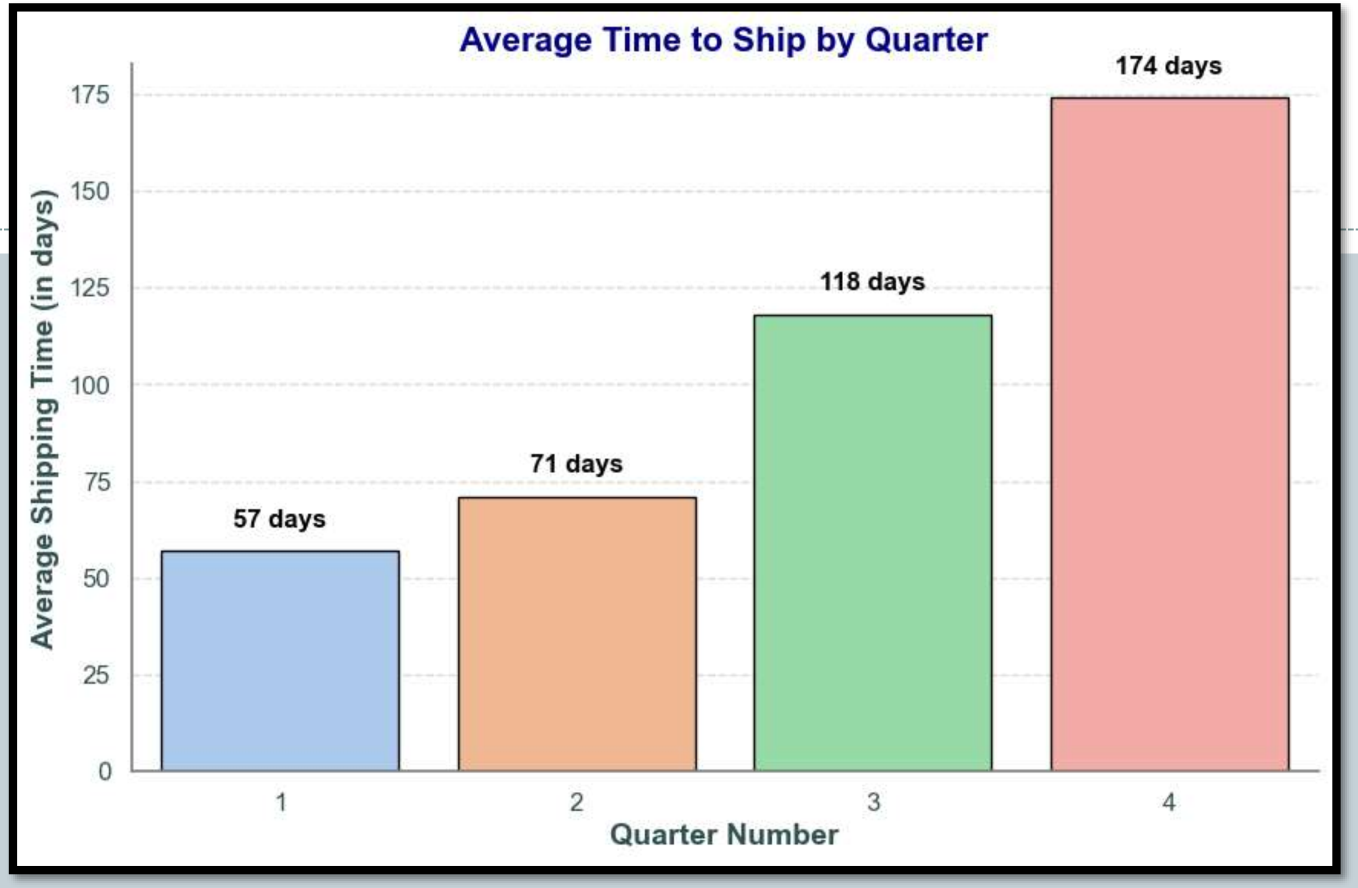
- **Average Discount Variability:** The data reveals a variation of average discounts for various credit card types. Customers using "laser" cards receive the highest average discount (about 0.64%), while those using "diners-club-international" cards receive the lowest average discount (around 0.58%). This shows that the business may have particular contracts or business plans with different card networks or issuers.

- **Popular Credit Card Types:** With comparatively large average discounts of about 0.64% and 0.63%, respectively, "Laser" and "Mastercard" seem to be the most alluring credit card options for clients. To encourage customers to use various card types for payment, it might be advantageous for the company to promote their use.

- The typical discounts offered by a number of credit card types, including "American Express," "Diners Club," "Switch," and "Bankcard," are consistent and fall between 0.61% and 0.62%. This uniformity in discounts across various card kinds can point to competitive or standardized pricing tactics for these cards.

- **Potential to Attract Customers:** Increasing the average discount could potentially draw in more clients and promote repeat business. For instance, concentrating on "laser" and "Mastercard" may give the business a competitive edge by drawing clients looking for better prices.

- **Analyzing Customer Preferences:** By knowing which credit card kinds clients prefer, marketing and promotional efforts can be more effectively tailored. Businesses might utilize this data to create loyalty programs or marketing campaigns that are specifically catered to the payment preferences of their customers, potentially boosting sales and customer satisfaction.



- **Seasonal Changes** : According to the data, there are sizable seasonal changes in the typical shipment times. In comparison to quarters 3 and 4, the average delivery times in quarters 1 and 2 are significantly lower (57 and 71 days, respectively). Holidays, higher demand, or logistical difficulties may have an impact on this.
- **Operating Effectiveness** : The average shipment time was lengthier in the third and fourth quarters, at 118 and 174 days, respectively. This can be a sign of operational difficulties like an increase in order volume or supply chain problems around the holidays. Businesses should be ready to efficiently scale their operations during peak times.
- **Customer Expectations** : Customer retention and satisfaction may be impacted by longer shipping times in quarters three and four. Businesses could consider investing in speedier shipping options and setting clear expectations with clients regarding delivery timelines, especially during busy times.
- **Inventory Control** : It's crucial to efficiently manage inventory during busy times. Businesses should make sure they have enough inventory to match client demand and think about streamlining their supply chain to speed up shipping during peak demand periods.

Observations :

- ✓ **Regional Customer Concentration:** California leads the top 5 states with the highest concentration of New-Wheels' consumers. There is room for more growth into other states.
- ✓ **Seasonal Change:** The organization suffers pronounced seasonal changes, with the highest order count in the first quarter and the lowest in the fourth. This suggests the necessity of season-specific tactics.
- ✓ **loss in Customer Satisfaction:** From Q1 through Q4, the average customer rating decreased consistently, with Q2 and Q3 seeing the biggest loss. To retain customers, this drop must be addressed.
- ✓ **Increase in Negative Feedback:** From 20% in Q1 to 60% in Q4, negative feedback grew, underscoring the need for changes in customer satisfaction and service level.
- ✓ **Preference for Domestic Brands:** Some states have a strong preference for cars made in the United States, such Ford and GMC. Inventory selection can be influenced by knowledge of area preferences.
- ✓ Demand for luxury car brands like Ferrari, Maybach, and Maserati is evident in states like New York, Nevada, and Florida. Investigating options for luxury vehicles can serve this market.
- ✓ **Popularity of Compact automobiles:** States like Connecticut and Idaho are big fans of compact automobiles, which are marketed by companies like Mitsubishi. Increasing the selection of small, fuel-efficient cars could increase sales.
- ✓ **Market Competitively :** To stay competitive in the market, one must be aware of the price and promotions offered by other businesses. Review and modify pricing tactics frequently.
- ✓ **Optimizing Credit Card Discounts:** To draw and keep clients, consider marketing credit card kinds like "laser" and "mastercard" that offer larger average discounts. Keep an eye on how this decision affects consumer behavior.
- ✓ **Supply Chain Efficiency:** Customer satisfaction may be impacted by longer shipping durations in Q3 and Q4. Spend money on more effective supply chain management to offer clients faster deliveries and establish clear expectations.

Insights and Recommendations:

✓ **Expanding geographically**

- Consider ways to diversify your clientele and grow outside of the top 5 states.
- To access new markets, it is advised to carry out market research and create a presence in prospective areas.

✓ **Marketing During the Season:**

- Implement season-specific marketing tactics to take advantage of demand variations among quarters.
- Develop marketing strategies that are adapted to each season, maximizing offers and inventory.

✓ **Improving customer satisfaction:**

- Insight: To keep and draw in customers, address the fall in customer satisfaction ratings.
- Investments should be made in customer satisfaction initiatives, such as better service quality, efficient complaint handling, and pro-active quality assurance.

✓ **Reaction to feedback:**

- Insight: Actively address client feedback and keep track of it to spot patterns.
- Recommendation: Constantly assess client input and react to it, correcting problems and creating advancements based on customer insights.

✓ **Market segmentation**:

- Segment customers based on their preferences and usage patterns for credit cards.
- Create segment-based targeted marketing efforts, allowing clients who use cards with more discounts access to special discounts.

✓ **Reasonably Priced:**

- Insight: To keep pricing competitive, compare them frequently against those of rivals.
- It is advised that pricing methods be modified in order to maintain competitive pricing in the market and draw in budget-conscious clients.

✓ **A more varied inventory**

- Insight: Include luxury and compact cars in the selection of vehicles.
- It is advised that you provide a choice of vehicle models to satisfy different consumer needs in order to reflect regional and customer preferences.

✓ **Local marketing initiatives**

- Consider targeting marketing campaigns to areas where people prefer particular vehicle brands.
- Emphasize brands that appeal to local consumers and develop specialized marketing plans, it is advised.

✓ **Successful Supply Chain Management:**

- Lessen delivery times by investing in supply chain optimization.
- Improve supply chain effectiveness to better serve customers, especially during busy times of year.

✓ **Inventory Control:**

- Implement an effective inventory management strategy to satisfy client demand without stocking up too much on popular models or running out of them.
- It is advised that inventory be well maintained in order to balance demand, avoid overstocking, and ensure a consistent supply of automobiles.

THANK YOU