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SQL and Databases:

Project Report

By: Fenu Joseph Joshy
AIML MAY 24 A

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Business Overview

Total Revenue	Total Orders	Total Customers	Avg Rating
11.2 M	1189	987	3.5

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Last Qtr Revenue	Last Qtr Orders	Avg Days to Ship	% Good Feedback
1.6 M	200	32	45%

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Customer Metrics

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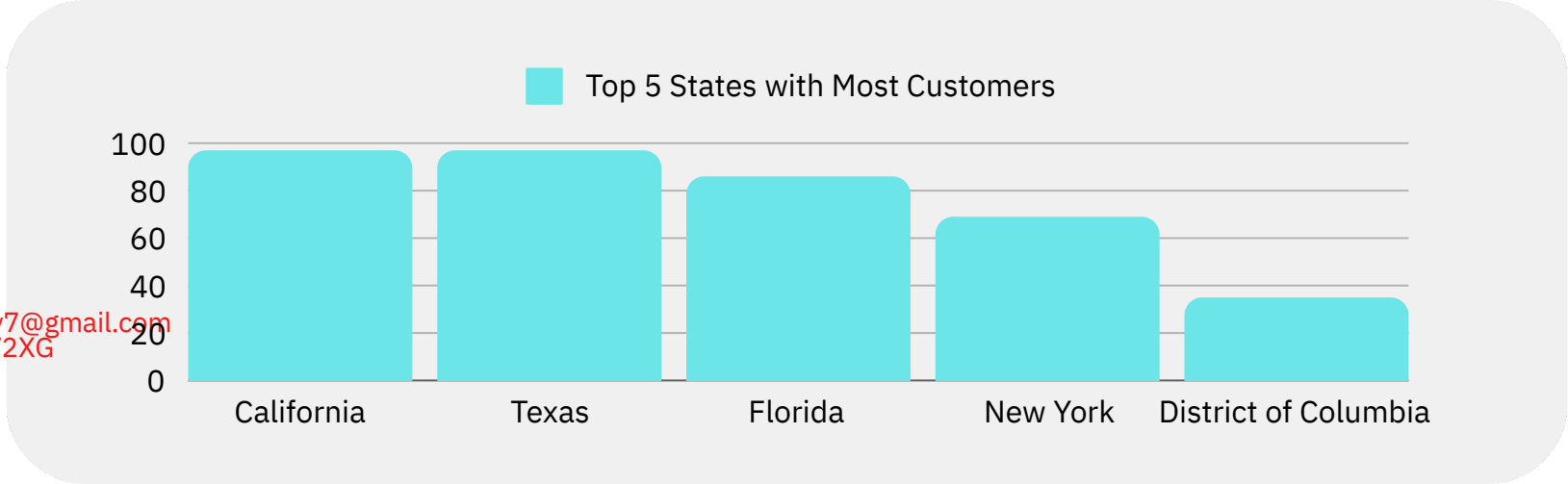
Distribution of Customers across States



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Observations / Findings

- California and Texas are the top two states with the highest number of customers.
- Maine, Wyoming, and Vermont have the lowest number of customers, with only 1 customer each.
- States with a moderate customer count (like Florida, Virginia, Arizona, etc.) present good opportunities for targeted marketing campaigns to increase brand awareness and customer acquisition.

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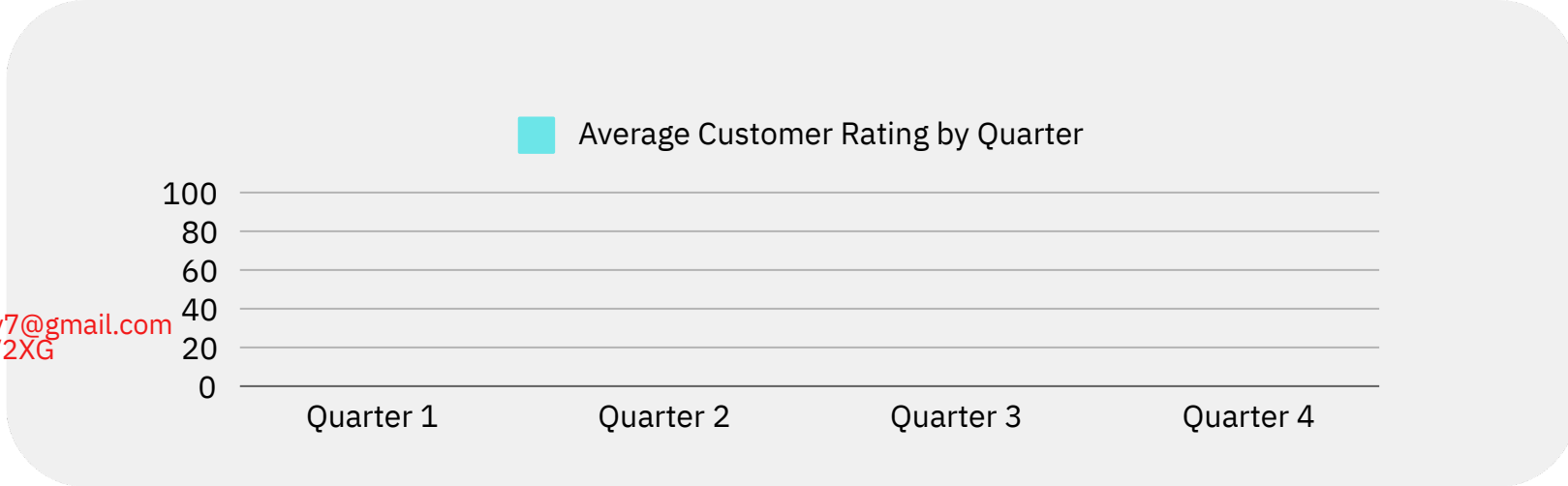
Average Customer Ratings by Quarter



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Observations / Findings

- All the average ratings for each quarter in 2018 are 0, which might indicate missing or unrecorded data for customer feedback.
- In a typical scenario, you would expect the average ratings to be a value between 1 (Very Bad) and 5 (Very Good), depending on the ratings customers provided.

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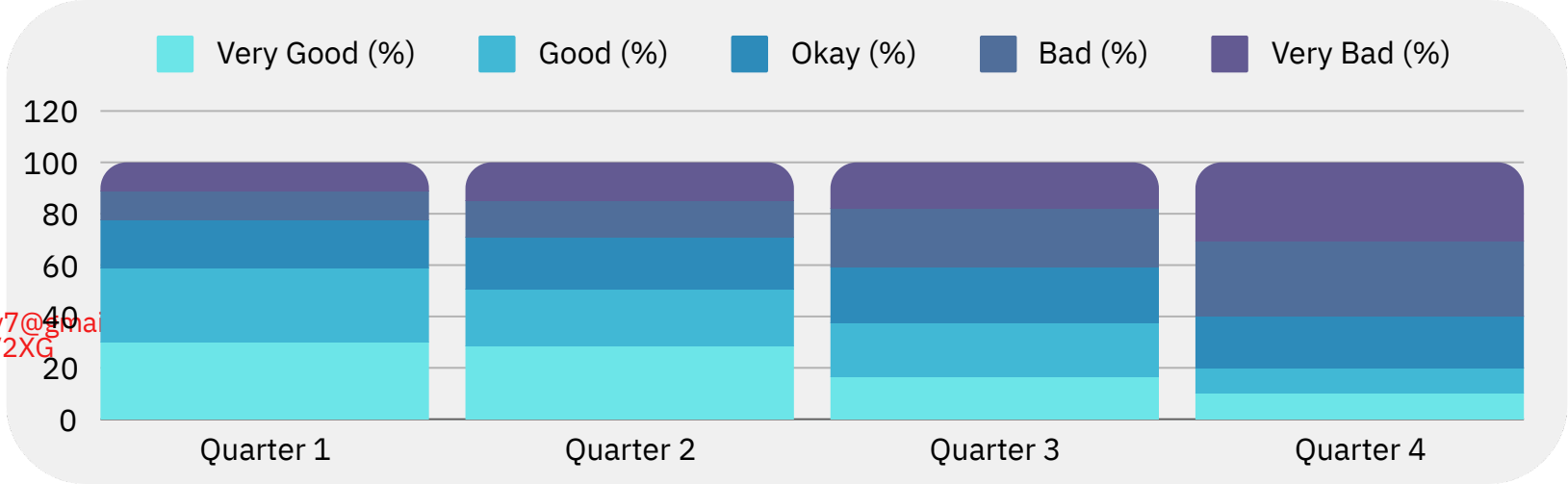
Trend of Customer Satisfaction



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Observations / Findings

- The proportion of "Very Good" and "Good" feedback decreases over time, from 30% and 28.7% in Q1 to 10% and 10% in Q4.
- The "Bad" and "Very Bad" categories increase in later quarters, especially in Q4, where the feedback is more negative.
- Quarter 3 sees a relatively even split between feedback types, whereas Quarter 4 has the most negative feedback (with 30.65% Very Bad).

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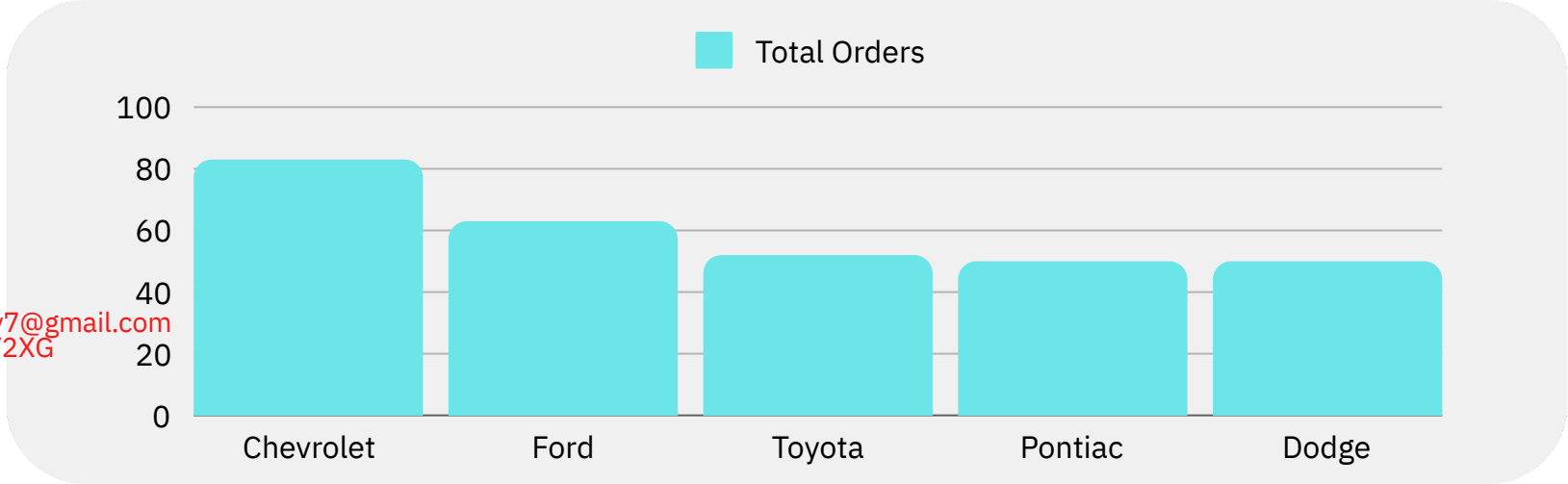
Top Vehicle makers preferred by customers



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Observations / Findings

- Chevrolet has the highest number of orders (83), followed by Ford (63).
- Toyota, Pontiac, and Dodge have slightly lower but still significant numbers of orders, all around the 50 mark.

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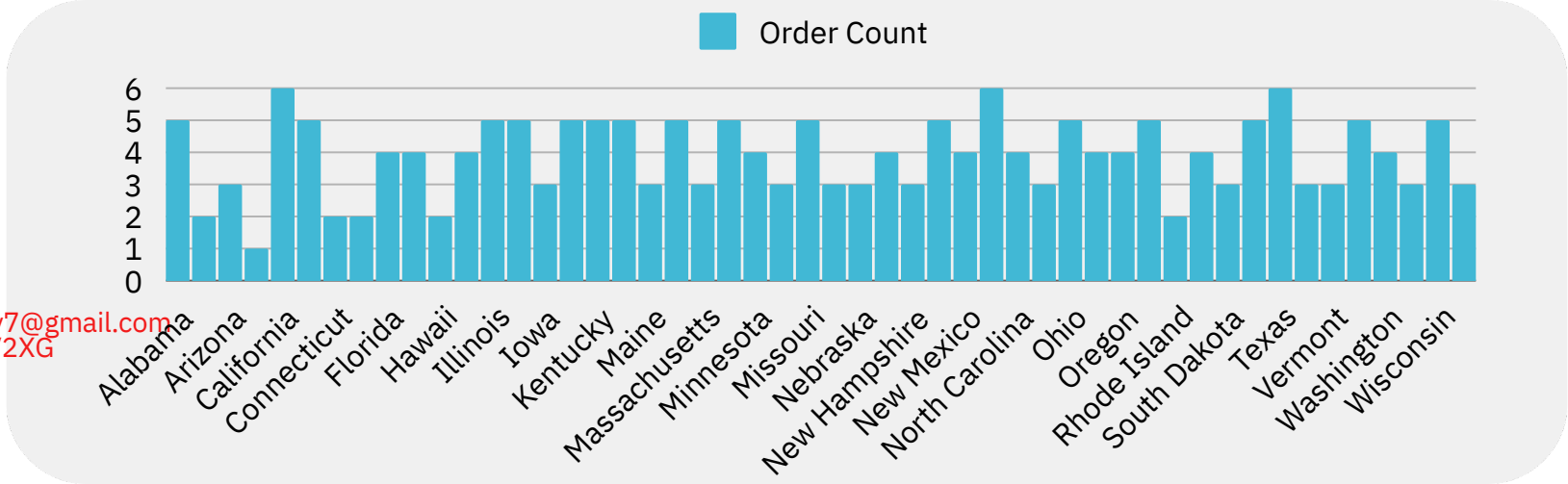
Most preferred vehicle make in each state



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Observations / Findings

- Chevrolet is the most preferred vehicle make in the majority of states, appearing as the top choice in 29 states.
- Dodge is a strong competitor, being the most preferred in 14 states.
- Ford ranks as the most preferred make in 13 states, often leading with 5 orders in states like California, Illinois, and Michigan.

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Revenue Metrics

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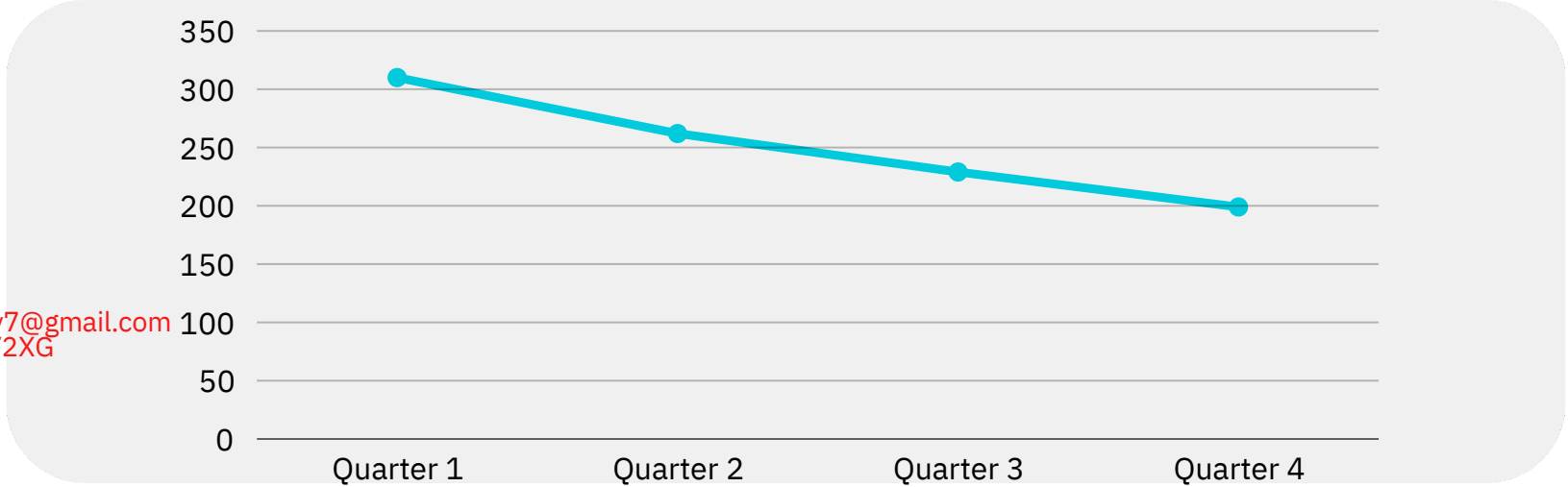
Trend of purchases by Quarter



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Observations / Findings

- Q1 (310 orders): The year started with the highest number of orders.
- Q2 (262 orders): There was a decline in orders from Q1 to Q2.
- Q3 (229 orders): The decline continued, with a further drop in the number of orders.
- Q4 (199 orders): The lowest number of orders was recorded in Q4, showing a consistent downward trend throughout the year.
- This indicates a steady decrease in orders as the year progressed.

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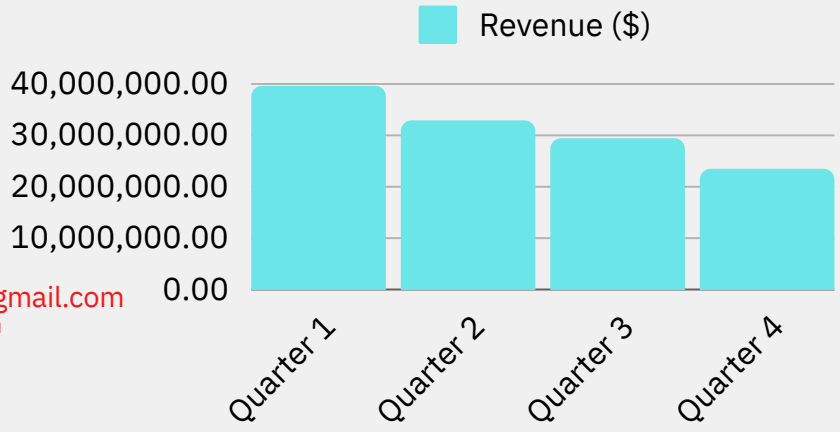
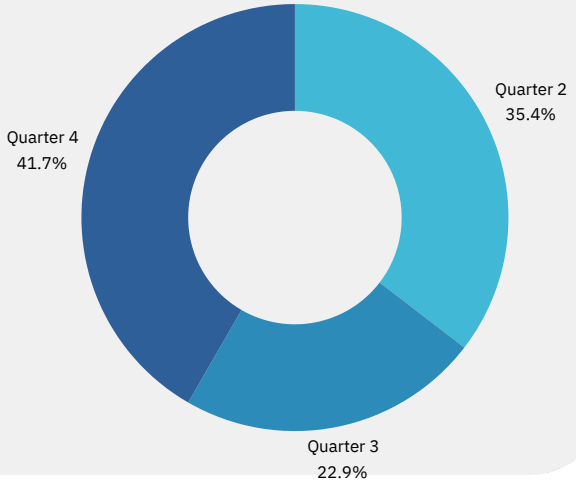
Quarter on Quarter % change in Revenue





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Observations / Findings

- Q1 to Q2: A 16.96% decline in revenue.
- Q2 to Q3: A 10.57% decline in revenue.
- Q3 to Q4: A 20.18% decline in revenue.
- There is a consistent drop in revenue every quarter, with the largest decline occurring between Q3 and Q4.

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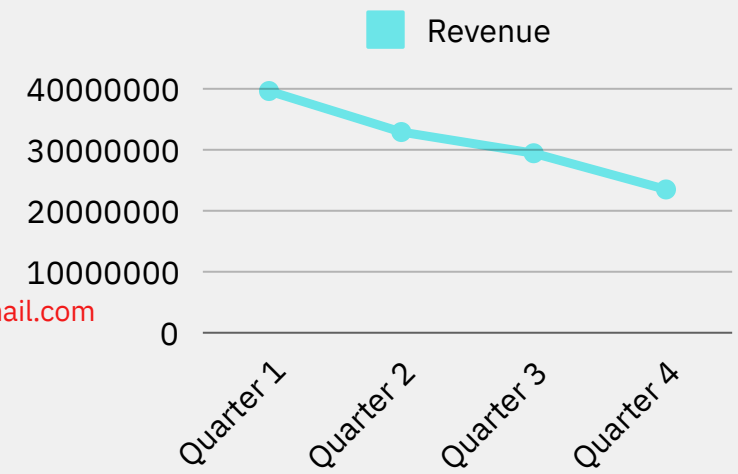
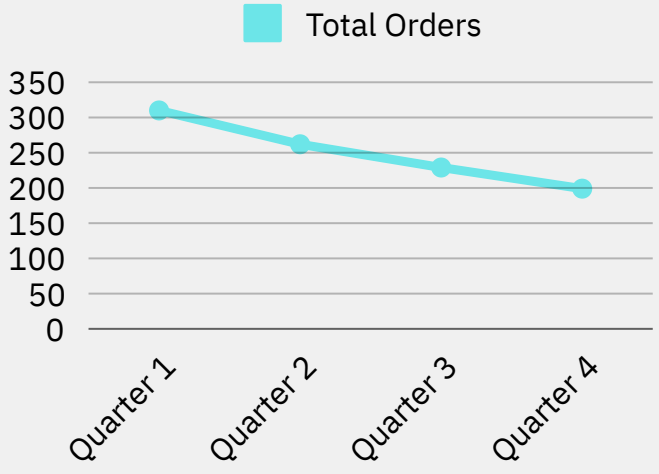
Trend of Revenue and Orders by Quarter





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Observations / Findings

- There is a clear decline in total revenue each quarter. The revenue dropped significantly from 39.64 million in Q1 to 23.5 million in Q4.
- The largest drop occurred between Q1 and Q2 (approximately -16.96%), followed by further reductions each quarter: -10.57% from Q2 to Q3 and -20.18% from Q3 to Q4.
- A similar trend is observed in the Total Orders, which also decreased consistently over the year.

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Shipping Metrics

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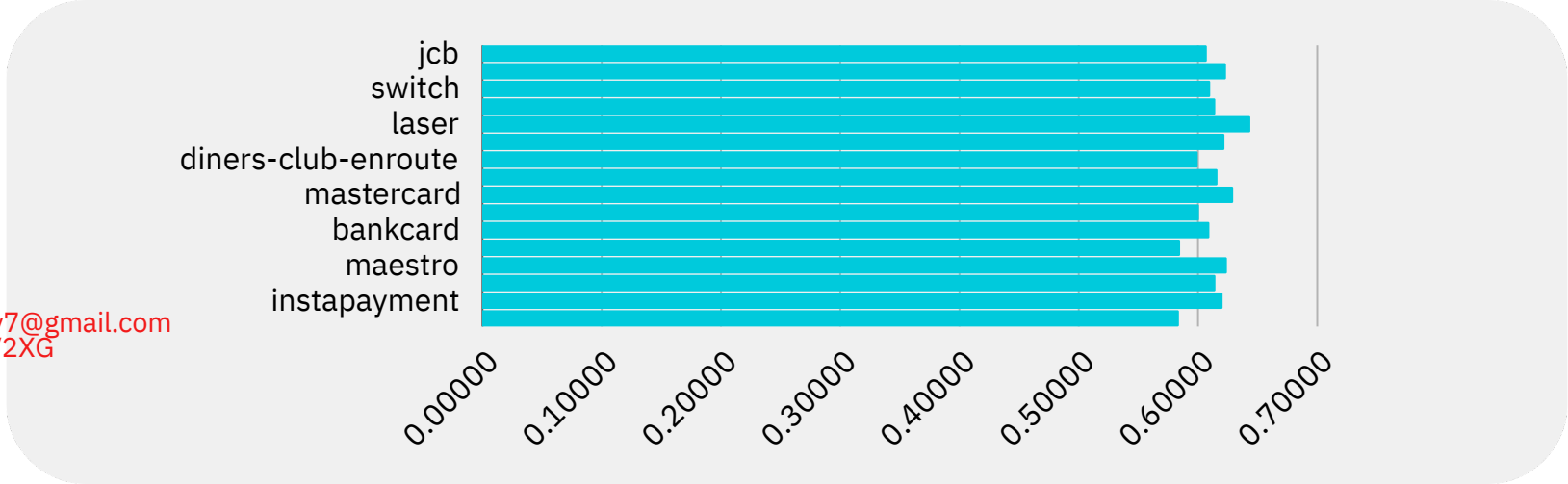
Average discount offered by Credit Card type



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Observations / Findings

- Laser card type offers the highest average discount at 0.643846.
- Solo offers the lowest average discount at 0.585000.
- Maestro, Visa-electron, and Mastercard are among the higher average discount card types, close to 0.62–0.63.
- This table effectively communicates the average discount by card type, highlighting the most and least favorable cards for discounts.

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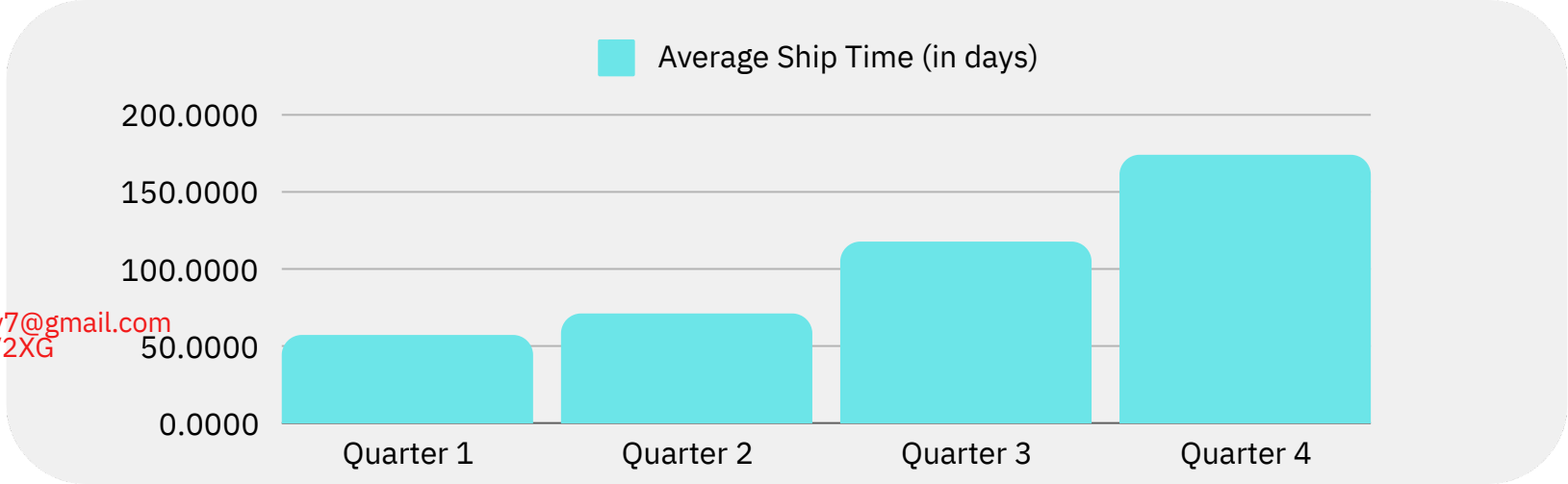
Time taken to ship orders by Quarter



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Observations / Findings

- Quarter 1 has the shortest average ship time at 57.1677 days.
- There is a steady increase in the average ship time from Quarter 1 to Quarter 4.
- Quarter 4 sees the largest increase, with a ship time of 174.0955 days, which is more than three times the average time in Quarter 1.

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Insights

- Orders have shown a consistent decline each quarter, with Quarter 1 having the highest number of orders and Quarter 4 showing the least. This may indicate a seasonal trend or declining demand in the later quarters.
- Revenue followed a similar pattern to orders, declining as the quarters progressed. The quarter-on-quarter percentage change in revenue consistently showed a negative trend, particularly in Quarter 4, where there was a significant drop of -20.18%.
- Average ship time increased significantly over the year, with Quarter 1 at 57.17 days and Quarter 4 at 174.1 days. This suggests that the company may have faced logistical issues, supply chain challenges, or increased demand towards the end of the year, leading to delays.
- The average discount offered varies by credit card type.
- Given the negative trend in revenue and orders, it appears that promotions or discounts may not have been as effective as anticipated.
- Credit cards such as Visa Electron, Mastercard, and Maestro offer relatively high discounts (around 0.62–0.63).
- The quarter-on-quarter changes show that the first quarter of the year is significantly more profitable than subsequent quarters.

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Recommendations

- To address the growing ship time, consider improving logistics and partnering with faster delivery services. Automation in warehousing could be explored to speed up processing.
- Given the trends, it would be beneficial to boost marketing efforts and sales campaigns during the first quarter, capitalizing on the high sales potential observed in Q1.
- Assess the effectiveness of discounts across various credit card types and consider tailoring discounts to more profitable card types to maximize impact.
- Look into seasonal purchasing trends and align promotions or product releases with times when customers are more likely to buy, especially during the beginning of the year.
- The decline in revenue and orders suggests that customer retention strategies need attention. Consider loyalty programs, targeted promotions, or improved customer service to increase repeat orders.
- Declining orders may be a sign that the company's offerings are not appealing enough to the market. Explore introducing new products or services based on consumer insights and market demand.
- Consider external economic factors or market conditions that may be affecting customer purchases, and adapt business strategies accordingly, such as introducing payment options, longer credit periods, or seasonal promotions to entice consumers.

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