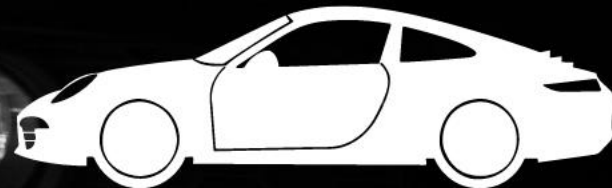




Name: Vasala Rahul
Batch : AIML June 23A – Group 1



New Wheels

Business Context:

A lot of people in the world share a common desire: to own a vehicle. A car or an automobile is seen as an object that gives the freedom of mobility. Many are now preferring pre-owned vehicles because they come at an affordable cost, but at the same time, they are also concerned about whether the after-sales service provided by the resale vendors is as good as the care you may get from the actual manufacturers. New-Wheels, a vehicle resale company, has launched an app with an end-to-end service from listing the vehicle on the platform to shipping it to the customer's location. This app also captures the overall after-sales feedback given by the customer.

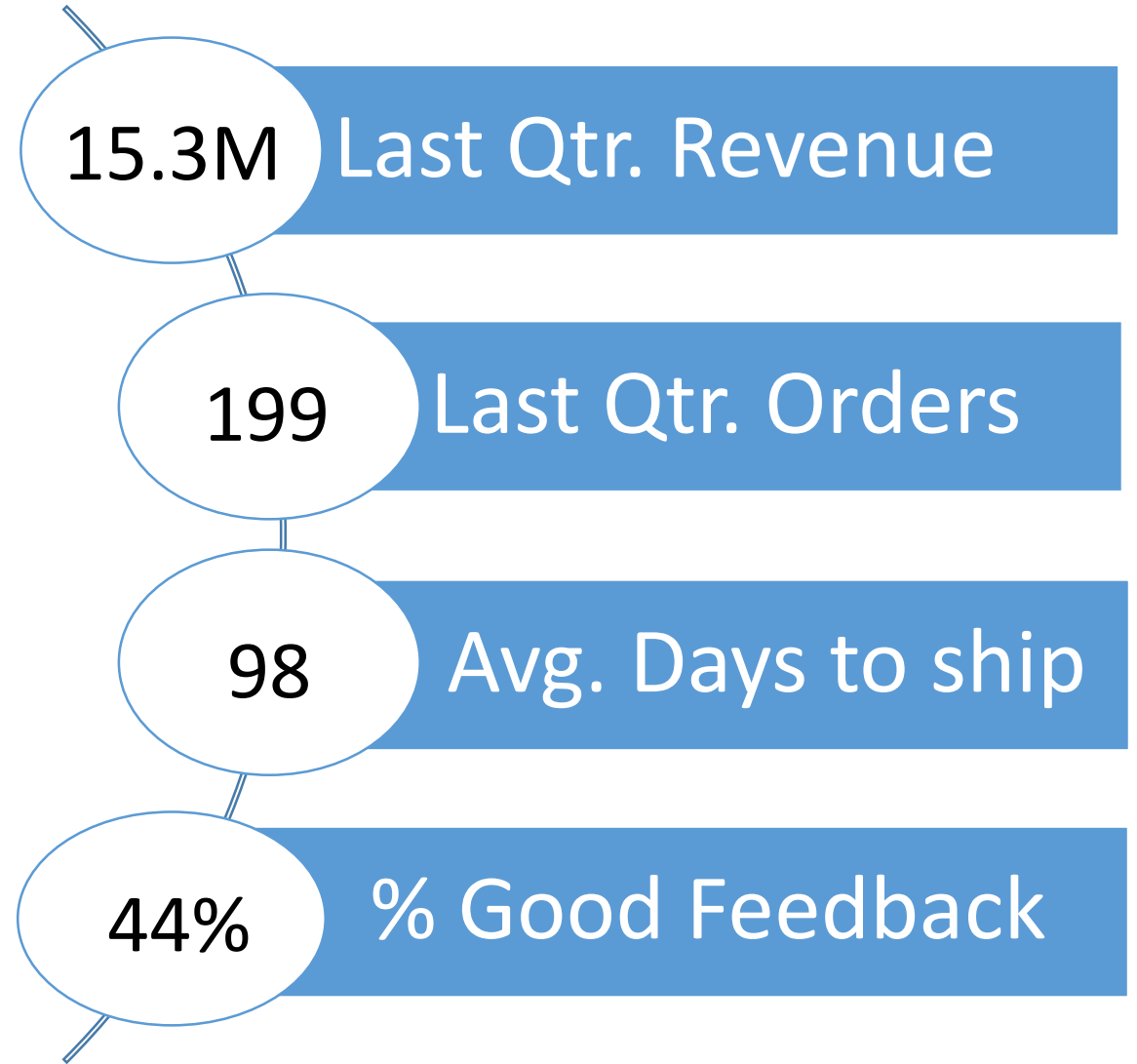
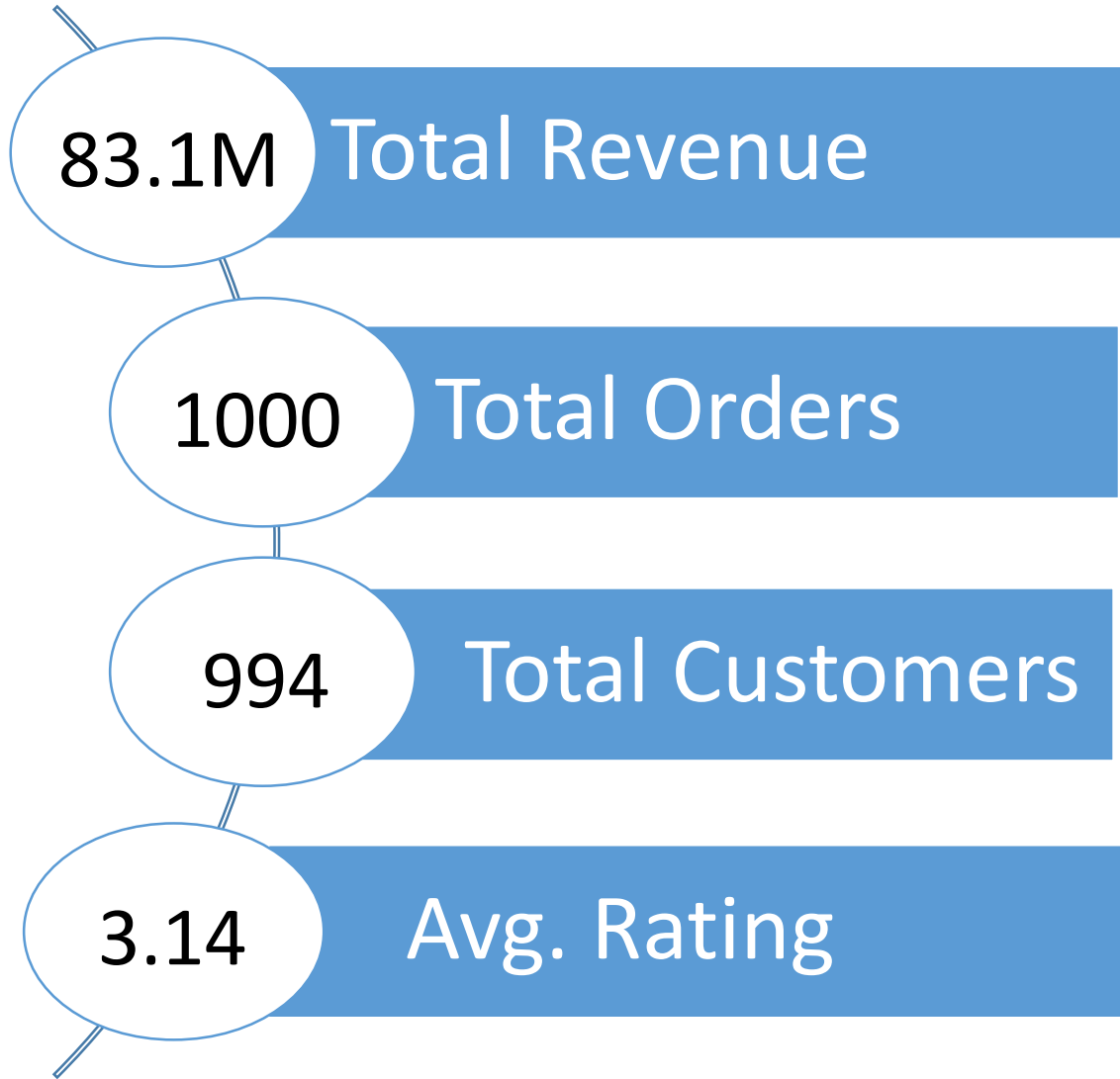
Problem Statement:

New-Wheels sales have been dipping steadily in the past year, and due to the critical customer feedback and ratings online, there has been a drop in new customers every quarter, which is concerning to the business. The CEO of the company now wants a quarterly report with all the key metrics sent to him so he can assess the health of the business and make the necessary decisions.

Objective:

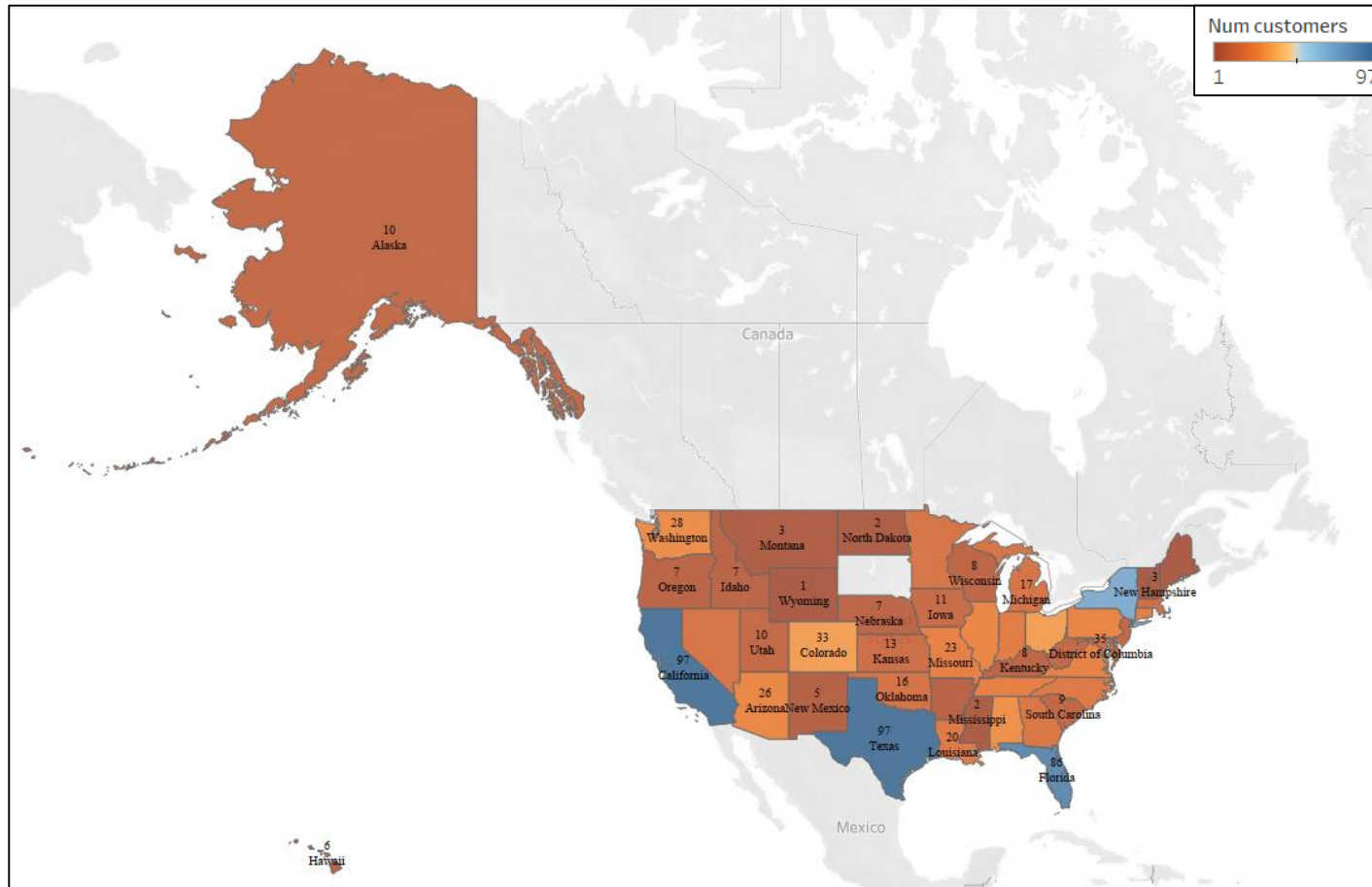
As a data scientist, you see that there is an array of questions that are being asked at the leadership level that needs to be answered using data. Import the dump file that contains various tables that are present in the database. Use the data to answer the questions posed and create a quarterly business report for the CEO.

BUSINESS OVERVIEW

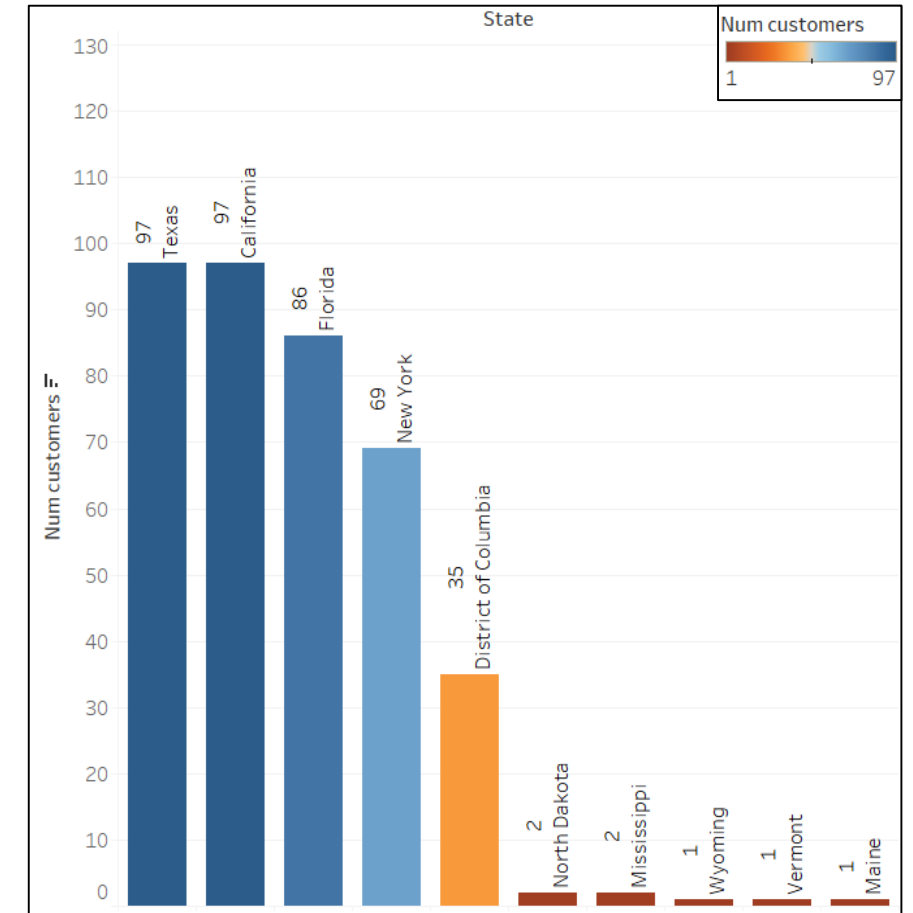


Customer Metrics

Distribution of Customers across States



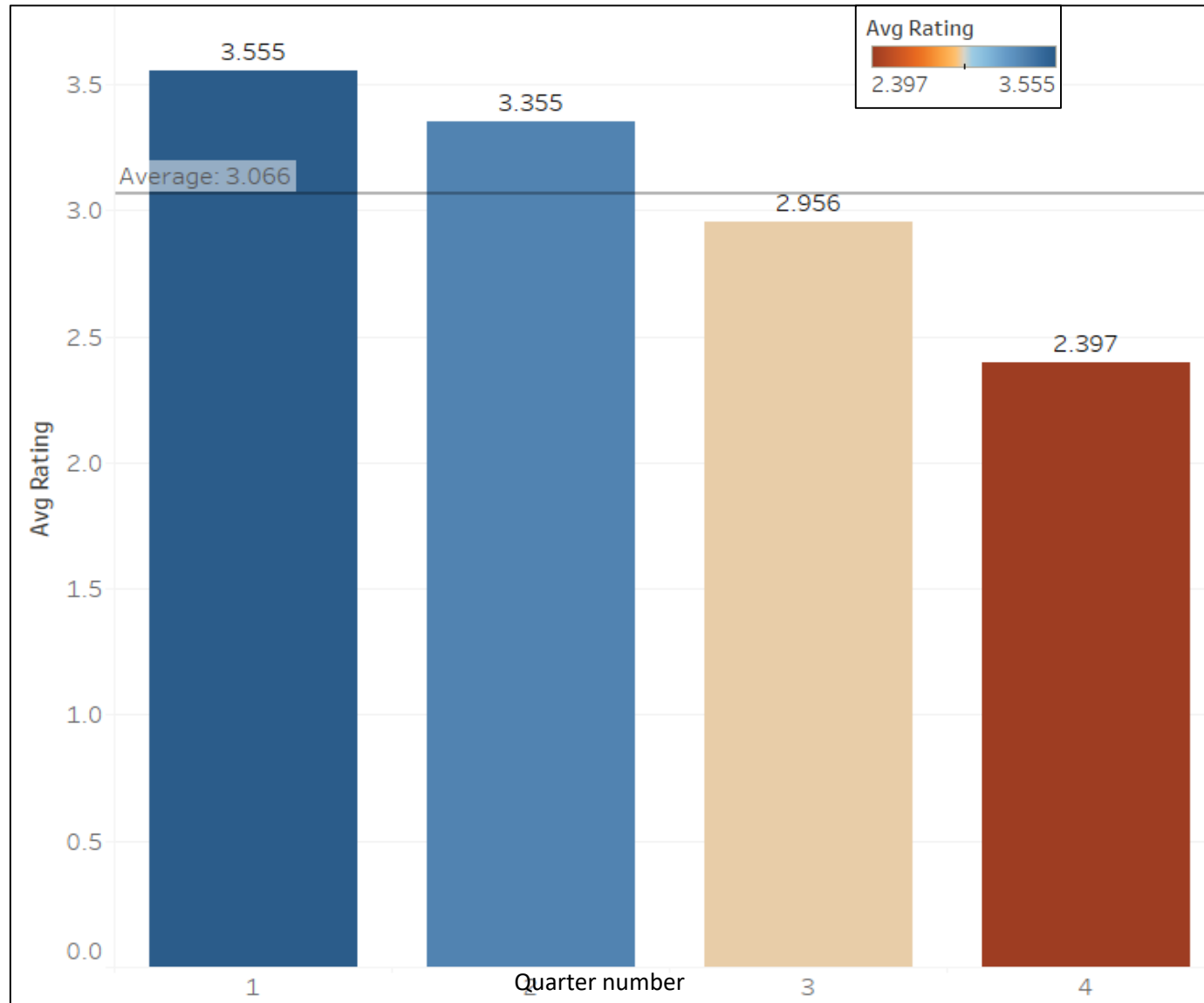
Distribution of customers across different states



States with Max. and Min. customer count

- Customer Distribution across various states is as shown
- Top 5 states contributes to more than 50% of total distribution of customers
- The Top 5 states with Maximum Customer count are Texas(97), California(97), Florida(86), New York(69), Dist. Of Columbia (35)
- The bottom 20 states customer distribution contribute less than the state with Maximum customer count

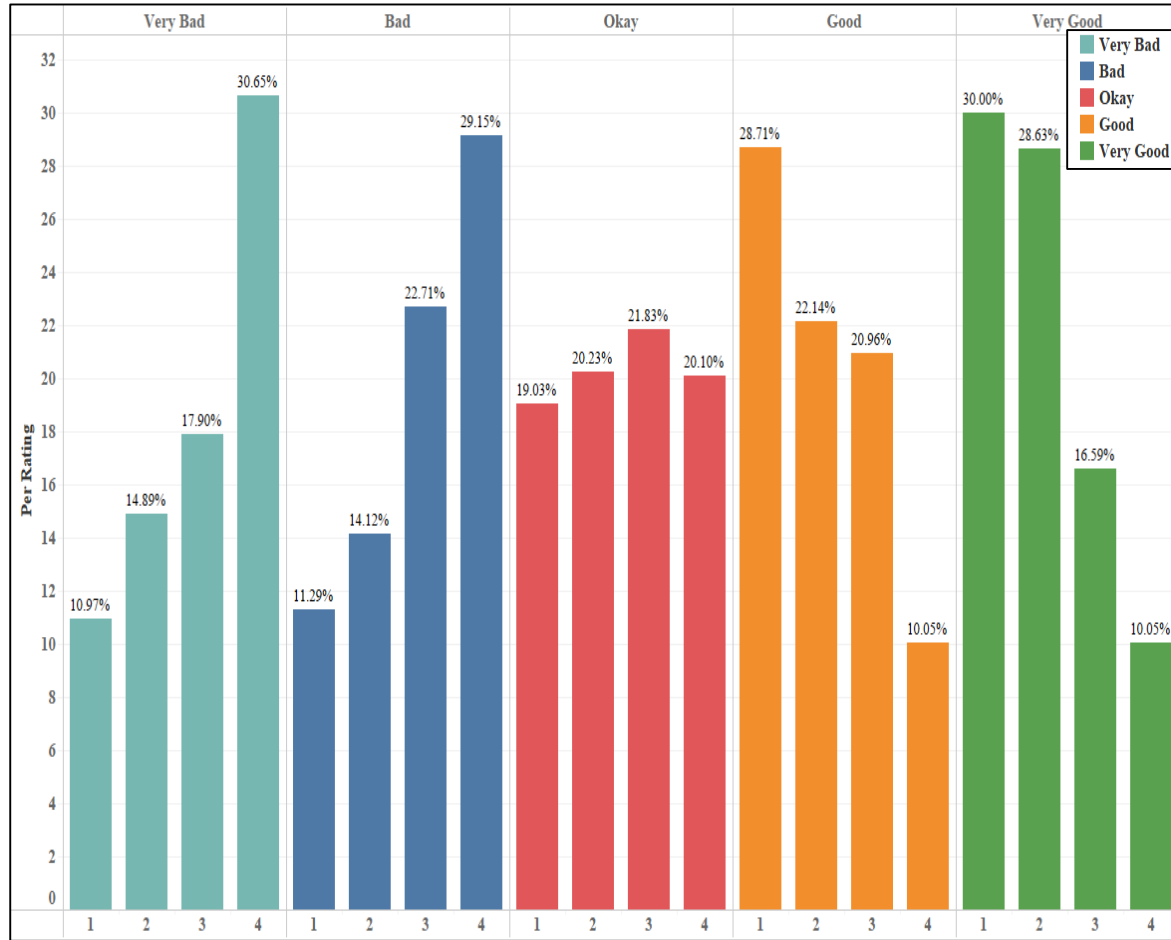
Average Customer Ratings by Quarter



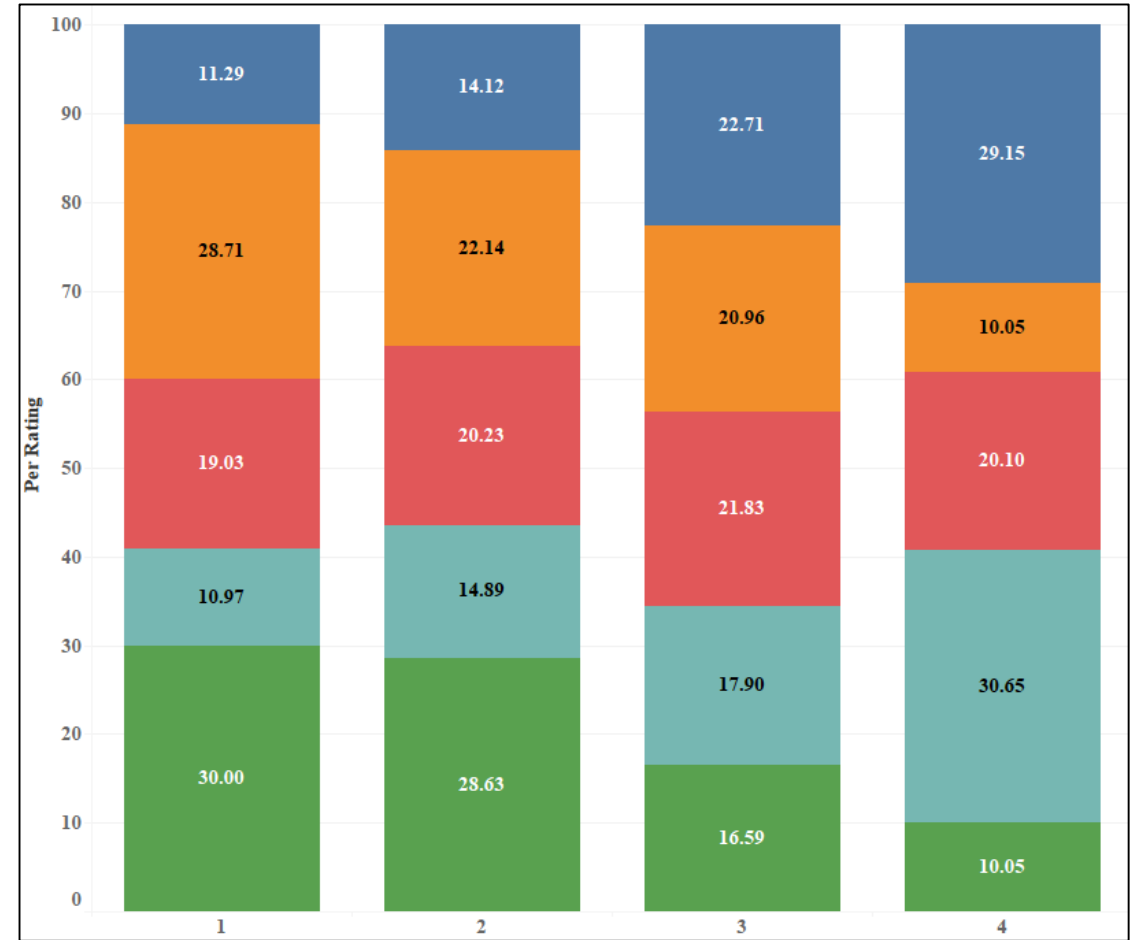
Average rating at each Quarter

- The Average rating of the customers is continuously decreasing Quarter over the Quarter
- The Rate of decrease of the customer average rating is increasing
- The Average rating over the year is 3.07
- For First and second quarters, the Average is greater than annual average
- For third and Fourth quarters, the average is lesser than annual average

Trend of Customer Satisfaction



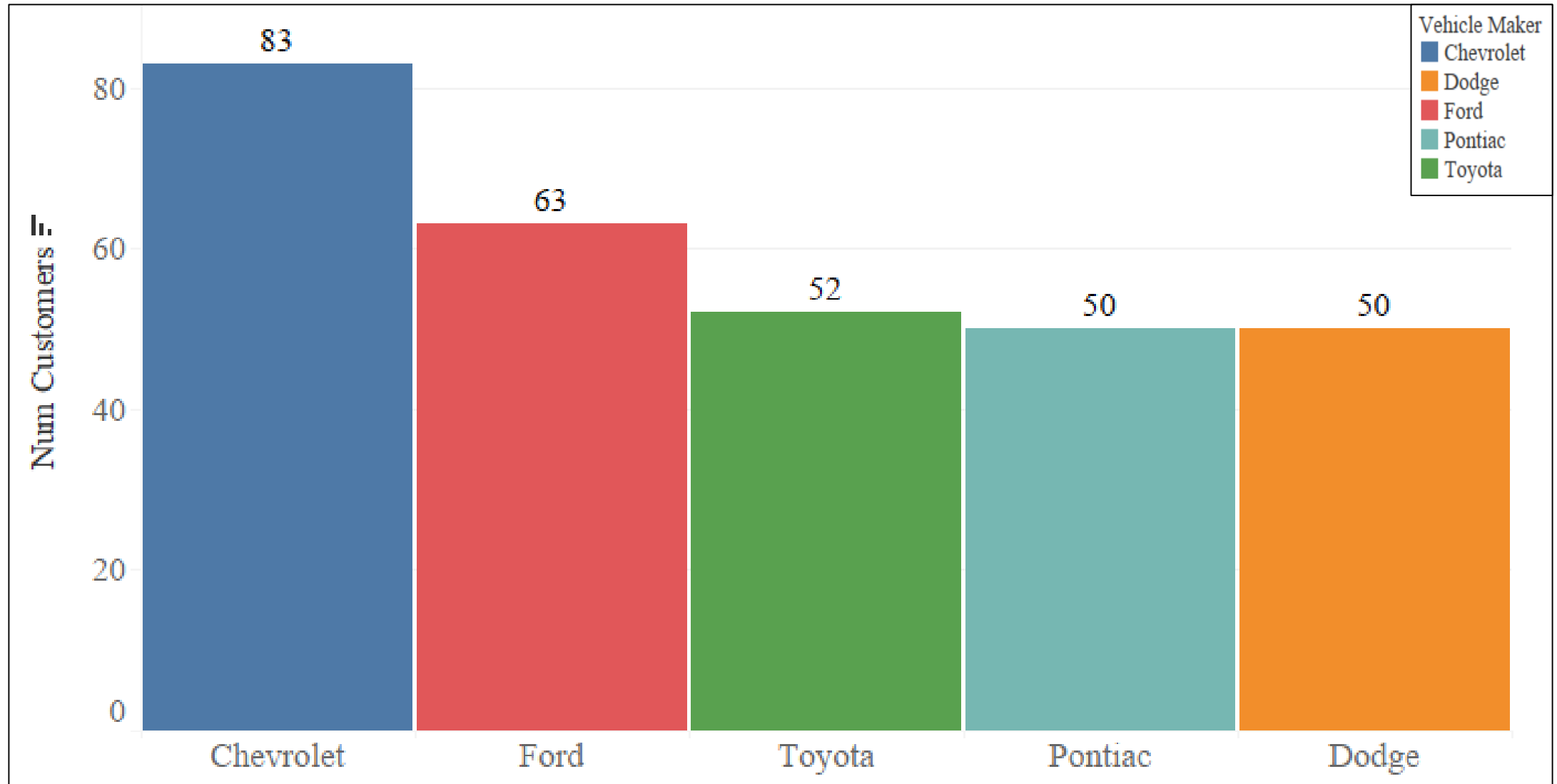
Distribution of Various customer feedbacks over different quarters



customer feedback trend

- The count of 'Very Bad' and 'Bad' categories are increasing
- Whereas the count of 'Good' and 'Very Good' are decreasing
- The count of 'Okay' category is nearly uniform
- The Rate of increase in 'Very Bad' category is higher than rate of increase on 'Bad' category
- The Rate of decrease in 'Very Good' category is higher than rate of decrease on 'Good' category

Top Vehicle makers preferred by customers



Distribution of top 5 car brands

- Top 5 car brands are Chevrolet(83), Ford(63), Toyota(52), Pontiac(50), Dodge(50)

Most preferred vehicle make in each state

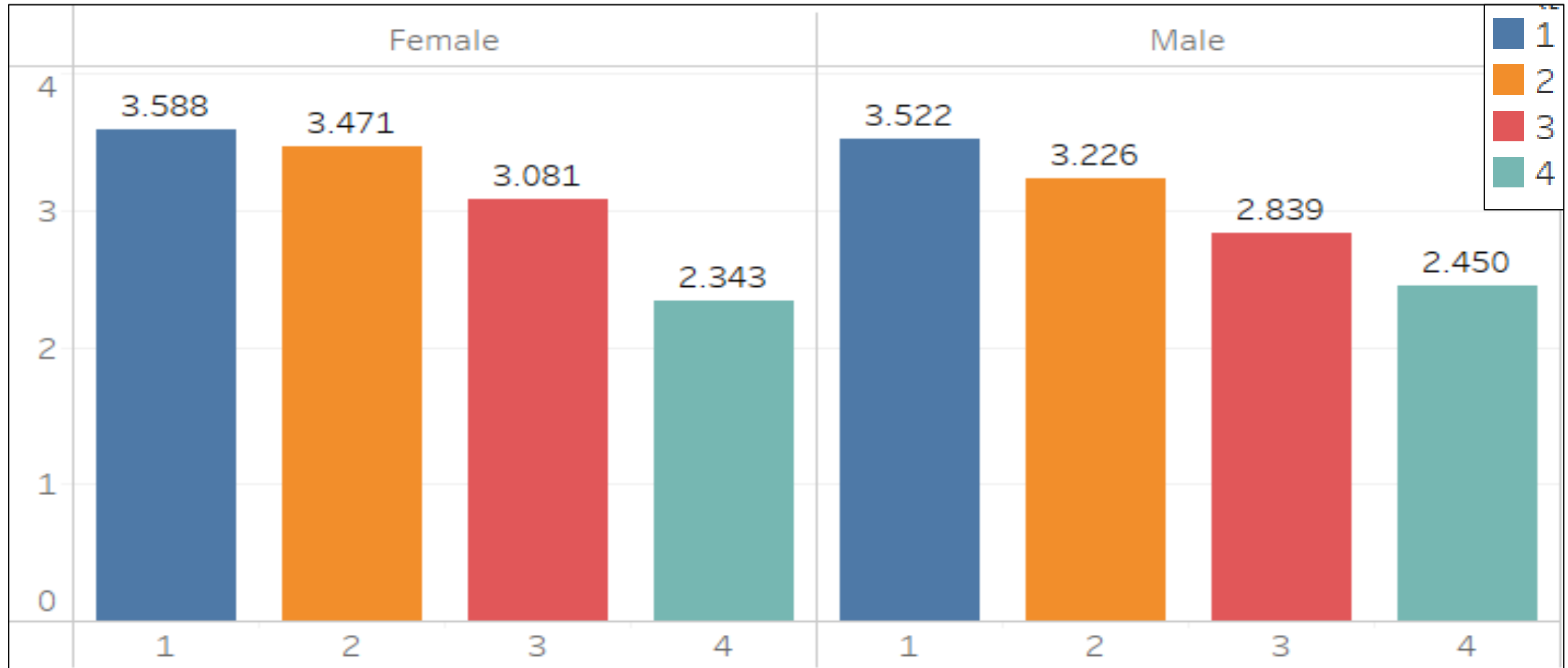
state	vehicle_maker
Alabama	Dodge
Alaska	Chevrolet
Arizona	Cadillac
Arkansas	Chevrolet
California	Audi
Colorado	Chevrolet
Connecticut	Chevrolet
Delaware	Mitsubishi
District of Columbia	Chevrolet
Florida	Toyota
Georgia	Toyota
Hawaii	Cadillac
Idaho	Dodge
Illinois	Chevrolet
Indiana	Mazda
Iowa	Chevrolet
Kansas	Buick

state	vehicle_maker
Kentucky	Acura
Louisiana	BMW
Maine	Mercedes-Benz
Maryland	Ford
Massachusetts	Chevrolet
Michigan	Ford
Minnesota	GMC
Mississippi	Dodge
Missouri	Chevrolet
Montana	Chevrolet
Nebraska	Cadillac
Nevada	Pontiac
New Hampshire	Chrysler
New Jersey	Hyundai
New Mexico	Dodge
New York	Pontiac

state	vehicle_maker
North Carolina	Volvo
North Dakota	Ford
Ohio	Chevrolet
Oklahoma	Ferrari
Oregon	Toyota
Pennsylvania	Toyota
South Carolina	Acura
Tennessee	Mazda
Texas	Chevrolet
Utah	Buick
Vermont	Mazda
Virginia	Ford
Washington	Chevrolet
West Virginia	Mercedes-Benz
Wisconsin	Acura
Wyoming	Buick
North Carolina	Volvo

- All the states with the corresponding top brand were presented in the table above

Gender wise Average rating for different Quarters

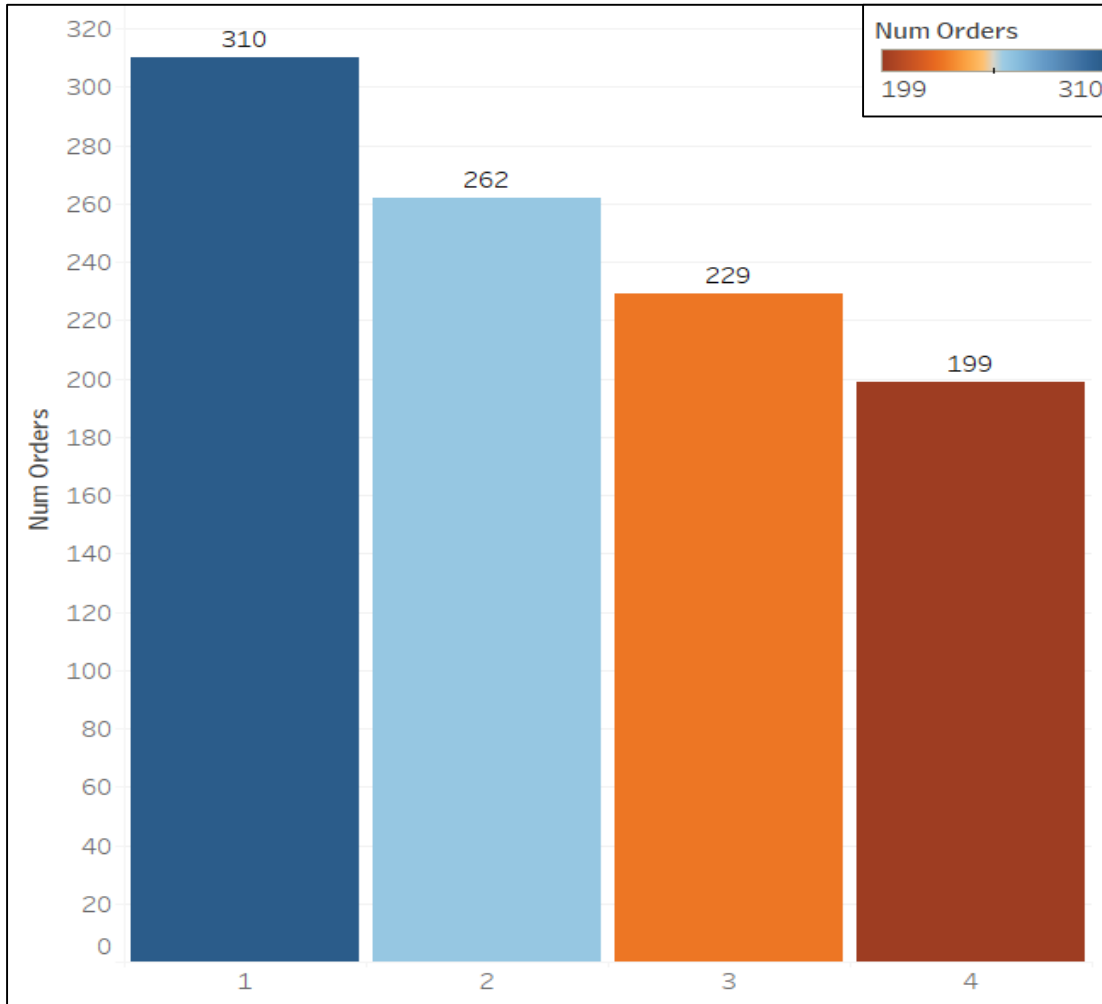


gender wise Average rating over different quarters

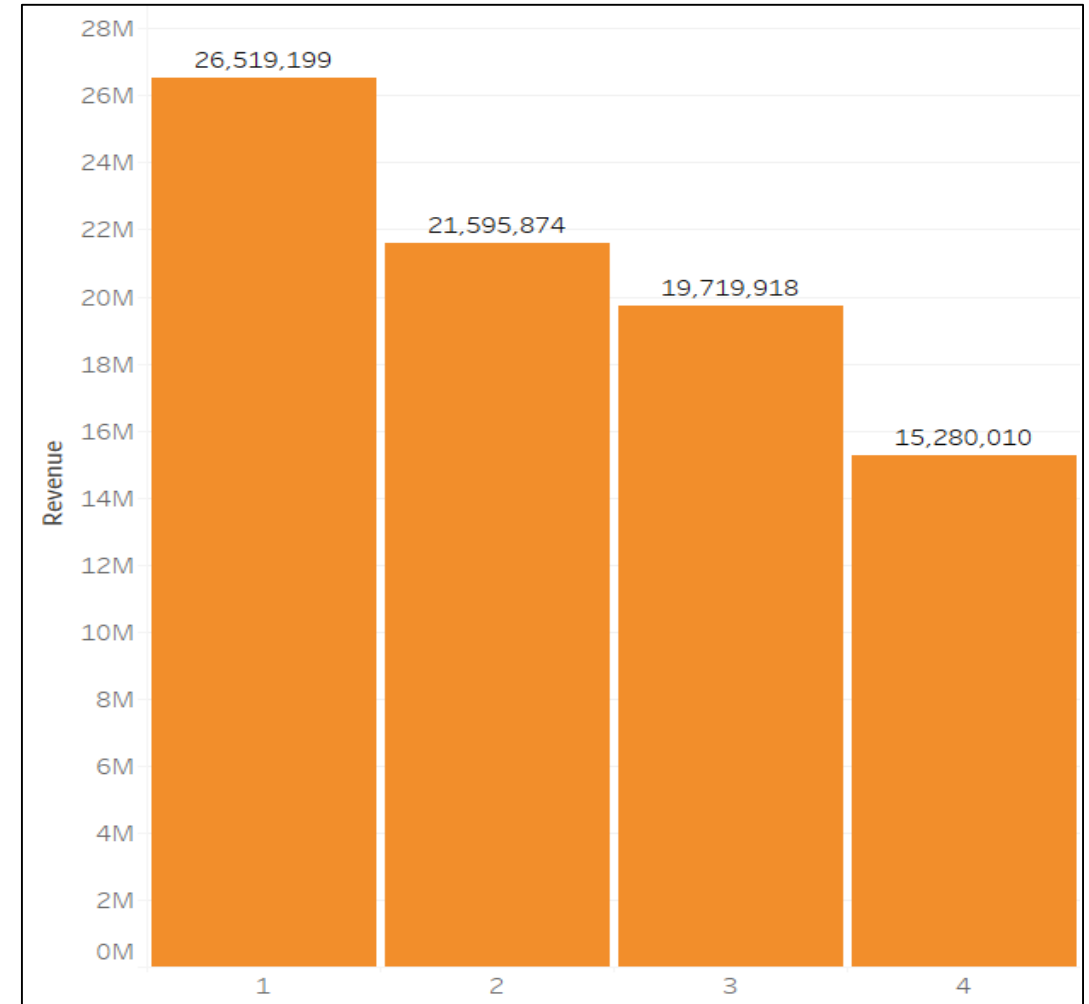
- The Average rating by Male is less than Female except for fourth quarter
- The trend of rating seems to be reducing in both Male and Female

Revenue Metrics

Trend of Orders and Revenue over Quarters



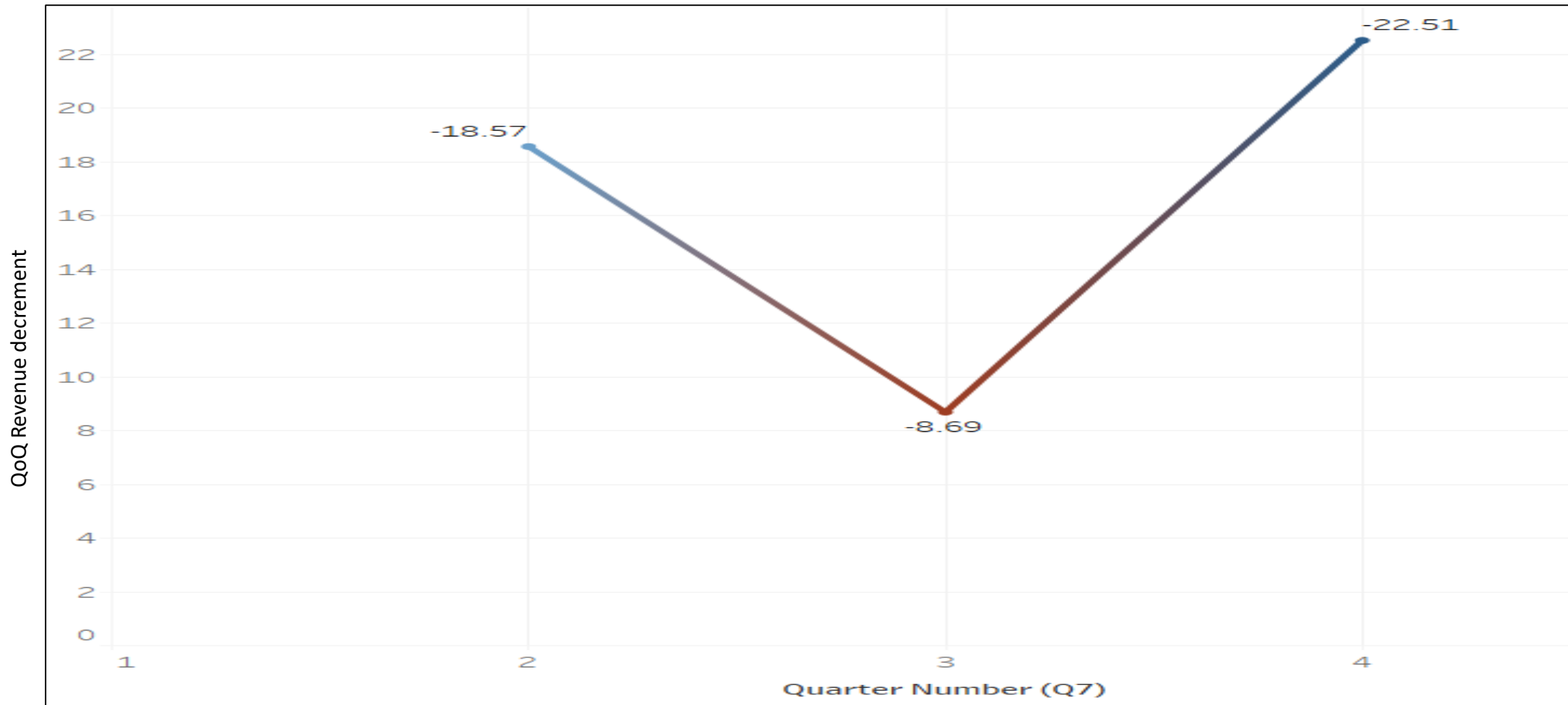
Total number of orders over different quarters



Total Revenue over different quarters

- Total Number of Orders as well as Total Revenue is continuously decreasing quarter over quarter
- From Earlier plots (Slide 2), The rating is continuously decreasing quarter over quarter
- A Correlation can be observed between the rating and number of orders

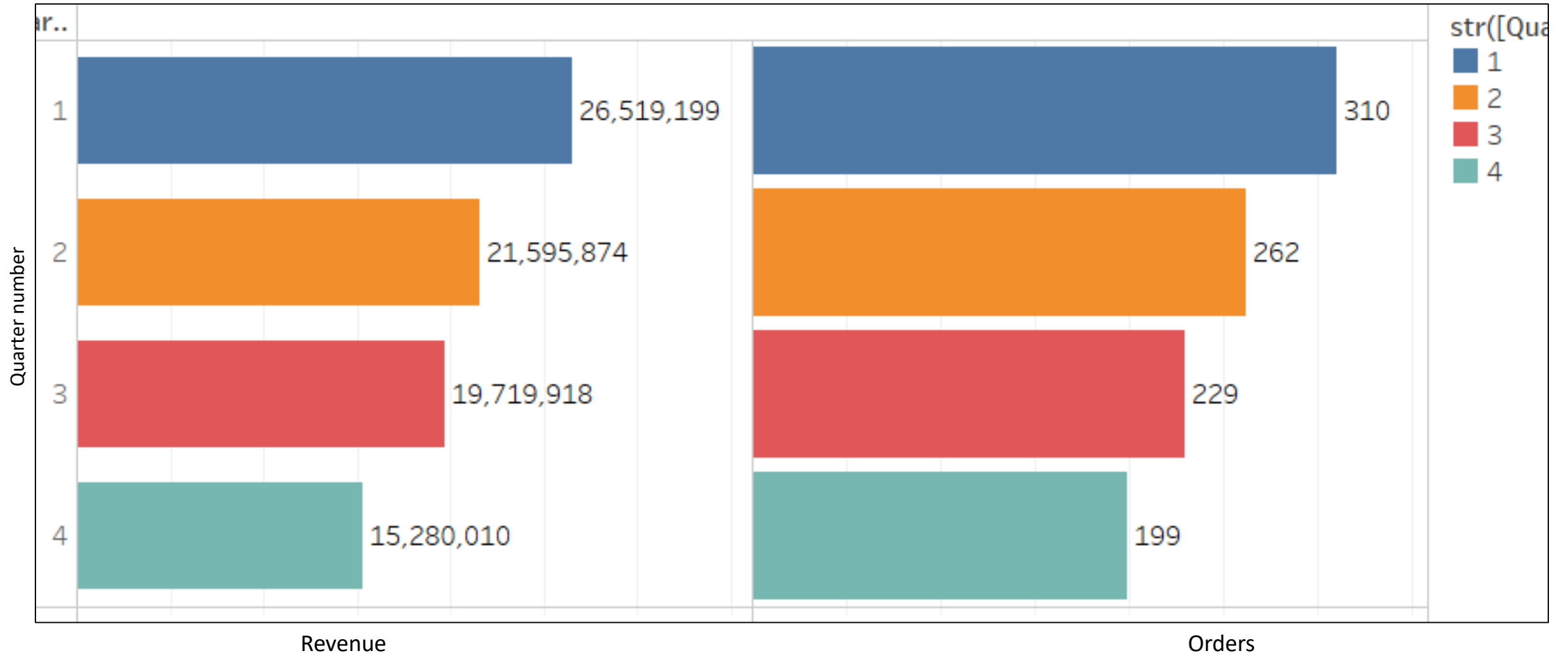
Quarter on Quarter % change in Revenue



Revenue decrement Quarter over Quarter

- The 'laser' credit card type has noted to be having maximum discount (0.64385)
- The variation in discount based on credit card type is very minimal
- The revenue is decreasing quarter over quarter
- The amount of decrease is maximum between third and fourth quarter with around 22.5% reduction

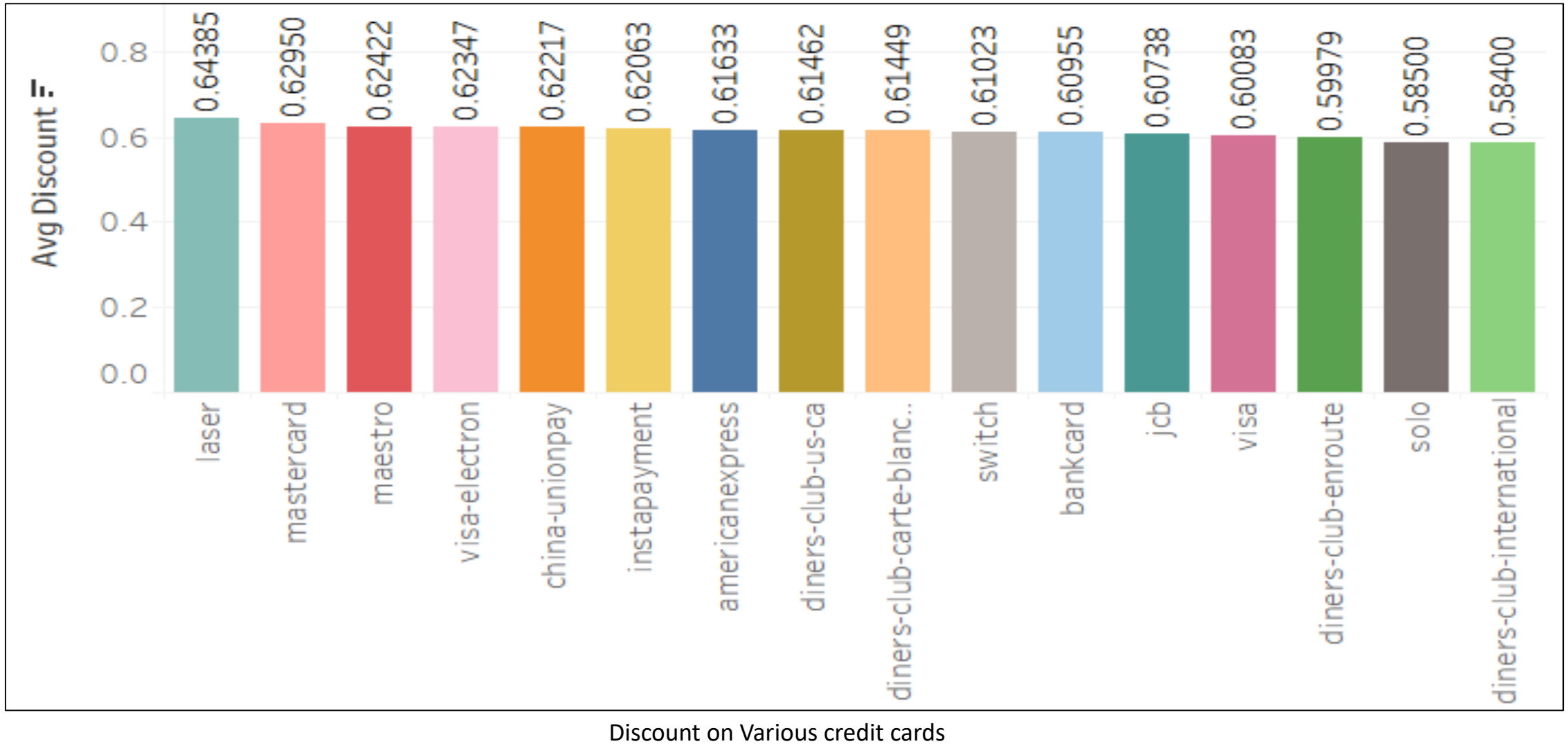
Trend of Revenue and Orders by Quarter



- Both Revenue and Number of orders are reducing quarter over Quarter

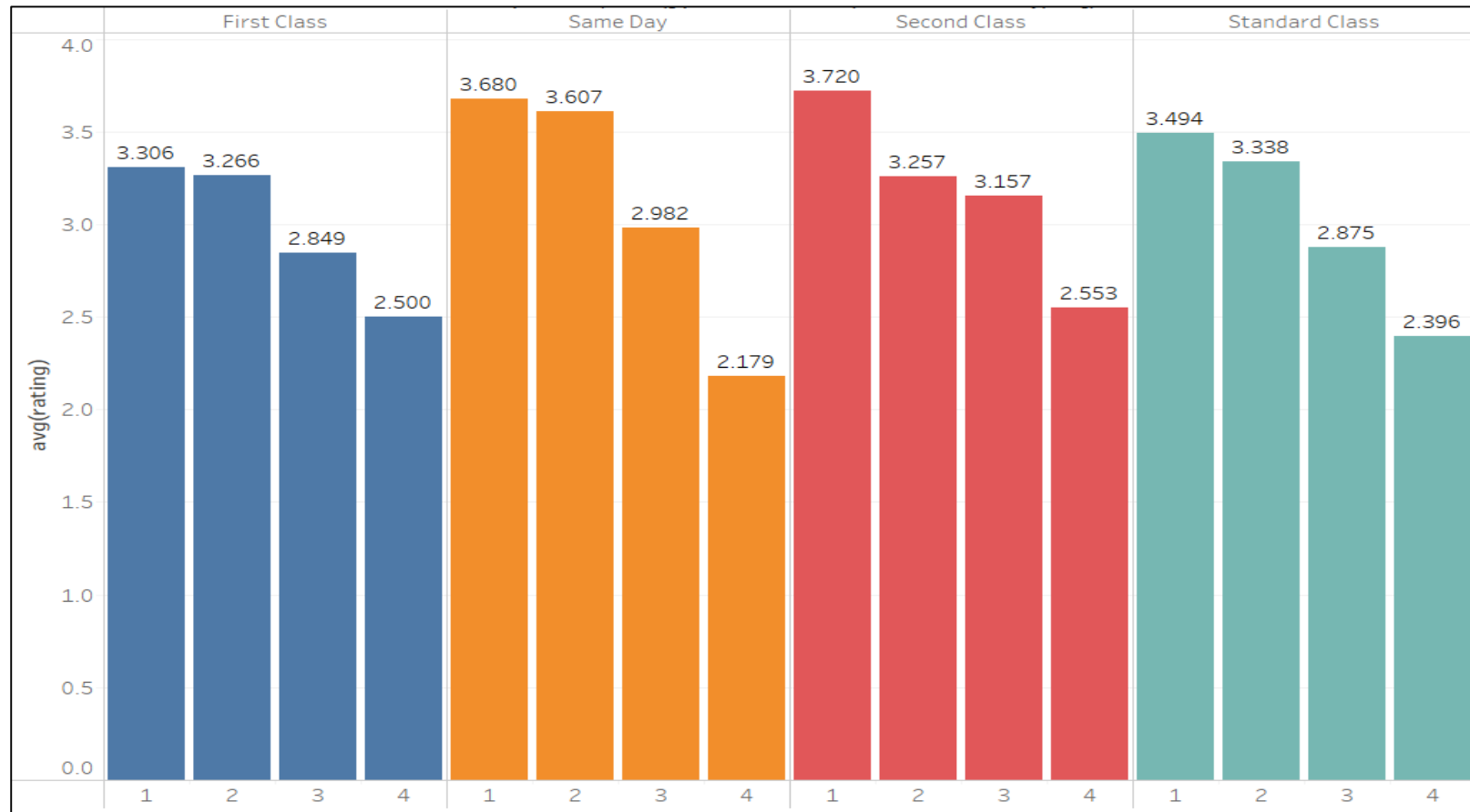
Shipping Metrics

Average discount offered by Credit Card



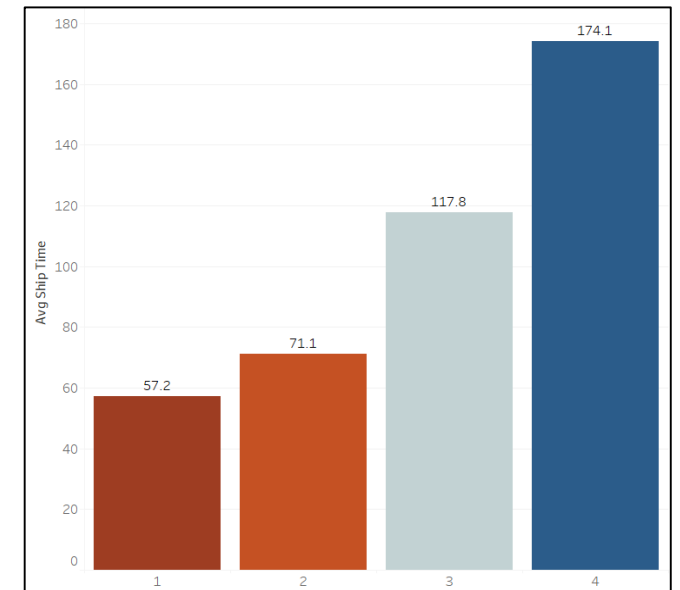
- The average discount on various credit cards are shown in the above bar charts

Time taken to ship orders by Quarter

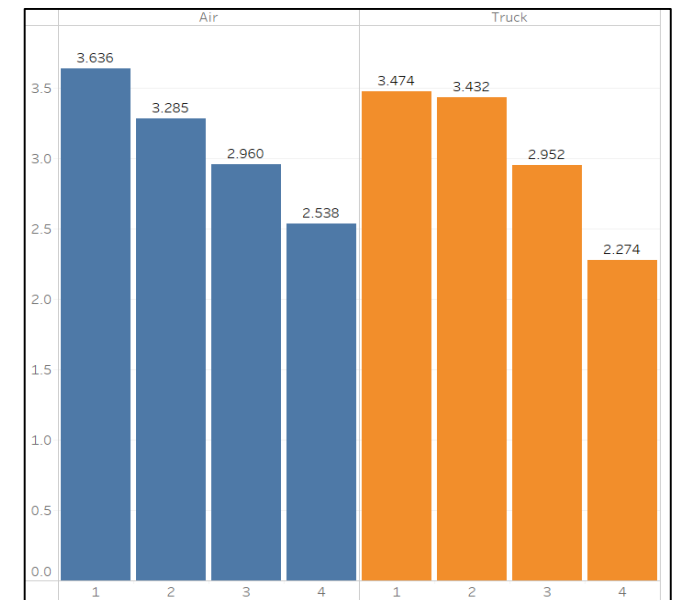


Average rating over different shipping modes

- The Average shipping time has increased quarter over quarter
- The ratings over different shipping modes (Same day, first class, second class and standard class) are decreasing over quarters
- The ratings over different shipping methods (air, truck) are decreasing over quarters



Average ship time over different quarters



Average rating over different shipping methods

Insights & Recommendations

Insights & Recommendations

Insights:

- Texas and California lead in customer count, with top 5 states dominating 50% of the market.
- Significant quarter-over-quarter drop in customer ratings, averaging 3.07 annually.
- Increase in negative feedback, with 'Very Bad' and 'Bad' categories growing.
- declining customer satisfaction based on ratings
- Slower shipping times
- minimal variation in discounts across credit card types.

Recommendations:

- Target states with lower market share for customer engagement (Top 5 States with least customers is shown)
- Addressing reasons behind declining ratings.
- Improve logistics efficiency as transportation time increasing consistently
- Develop loyalty programs for customer retention.