



SQL and Databases:

Project Report

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Business Overview

Total Revenue

11.2 M

Total Orders

1189

Total Customers

987

Avg Rating

3.5

Last Qtr Revenue

1.6 M

Last Qtr Orders

200

Avg Days to Ship

32

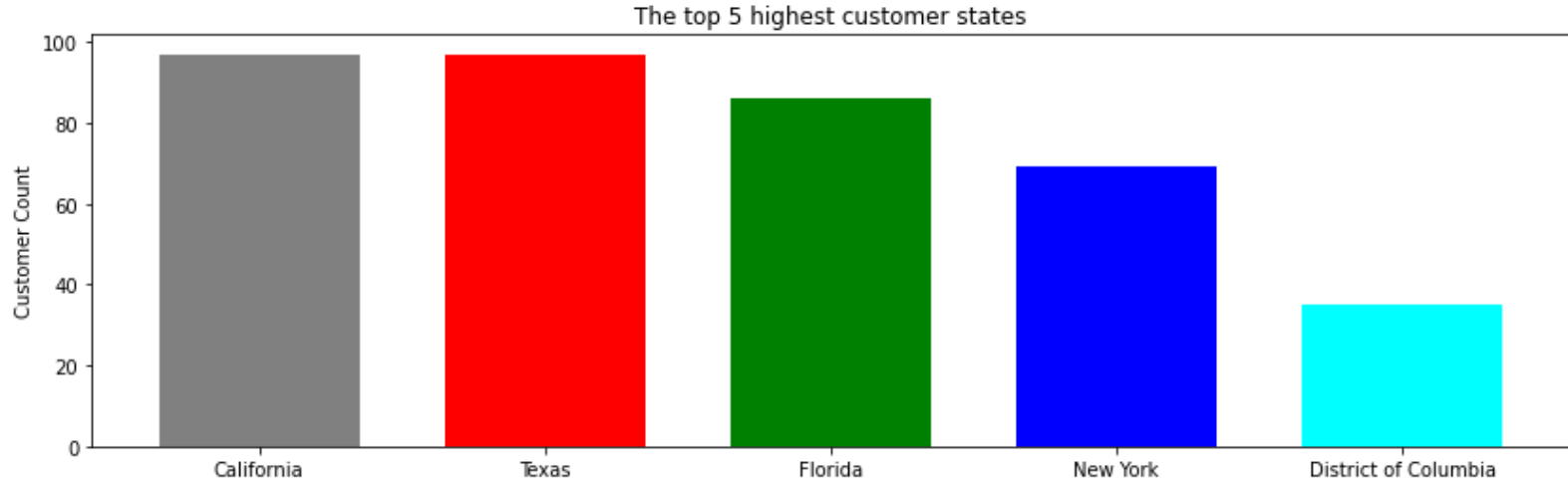
% Good Feedback

45%



Customer Metrics

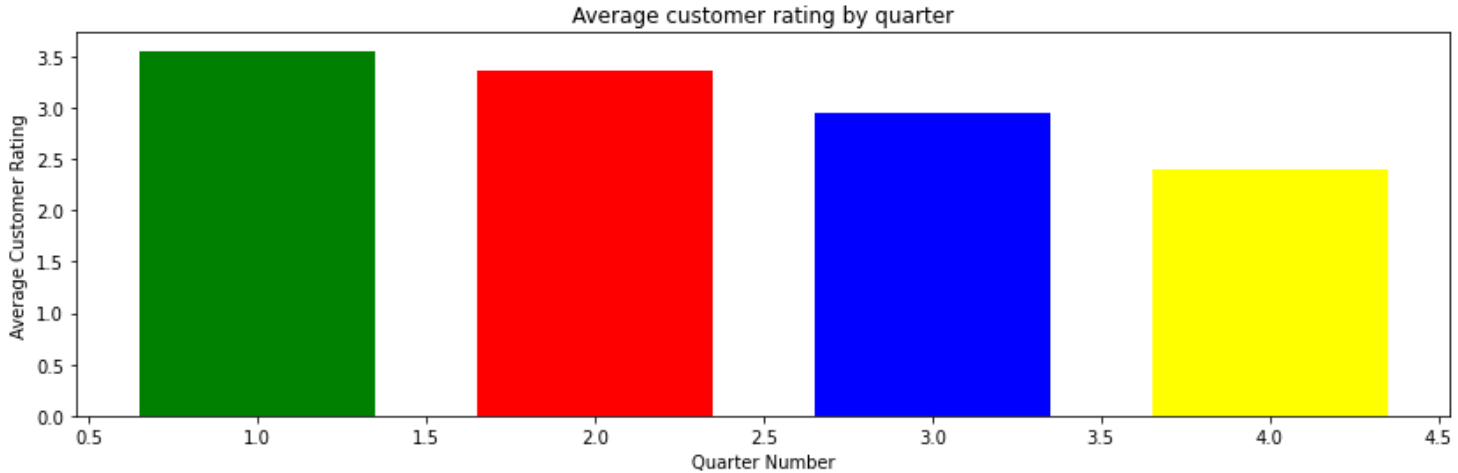
Distribution of Customers across States



OBSERVATION

1. California state and TEXAS state has the same number of customers.
2. District of Columbia state has the lowest customers of the top 5 highest customers state

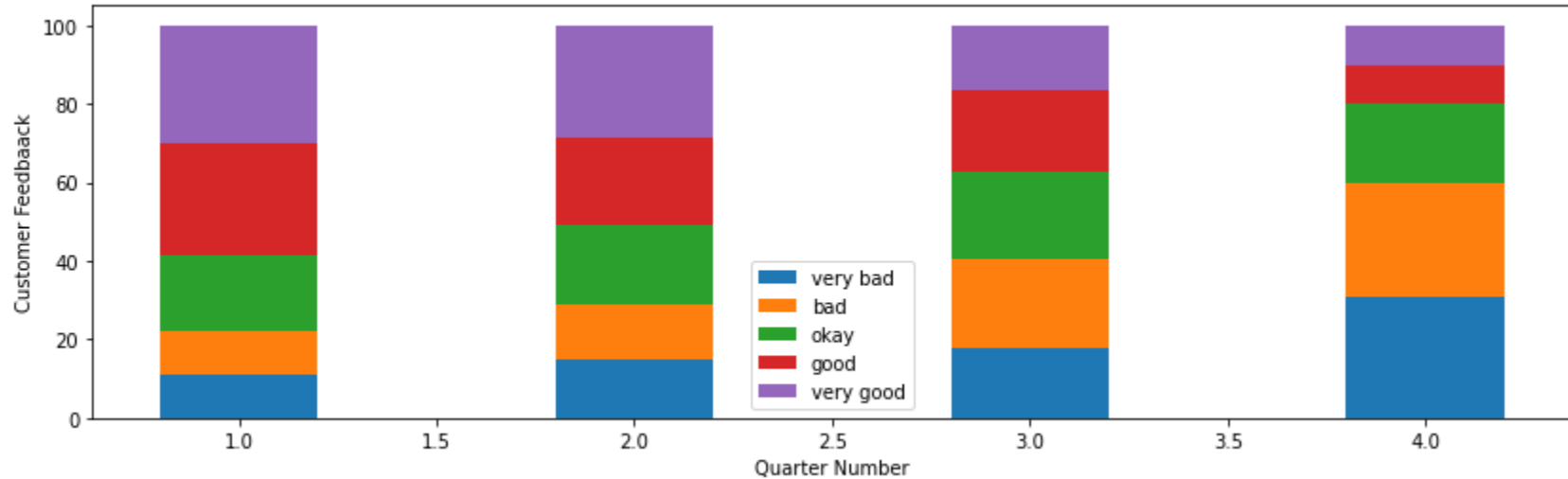
Average Customer Ratings by Quarter



OBSERVATION

1. The first quarter has the highest average customer rating
2. The fourth quarter has the lowest average customer rating
3. The average customer ratings are showing decrease over time which shows dissatisfaction over time.

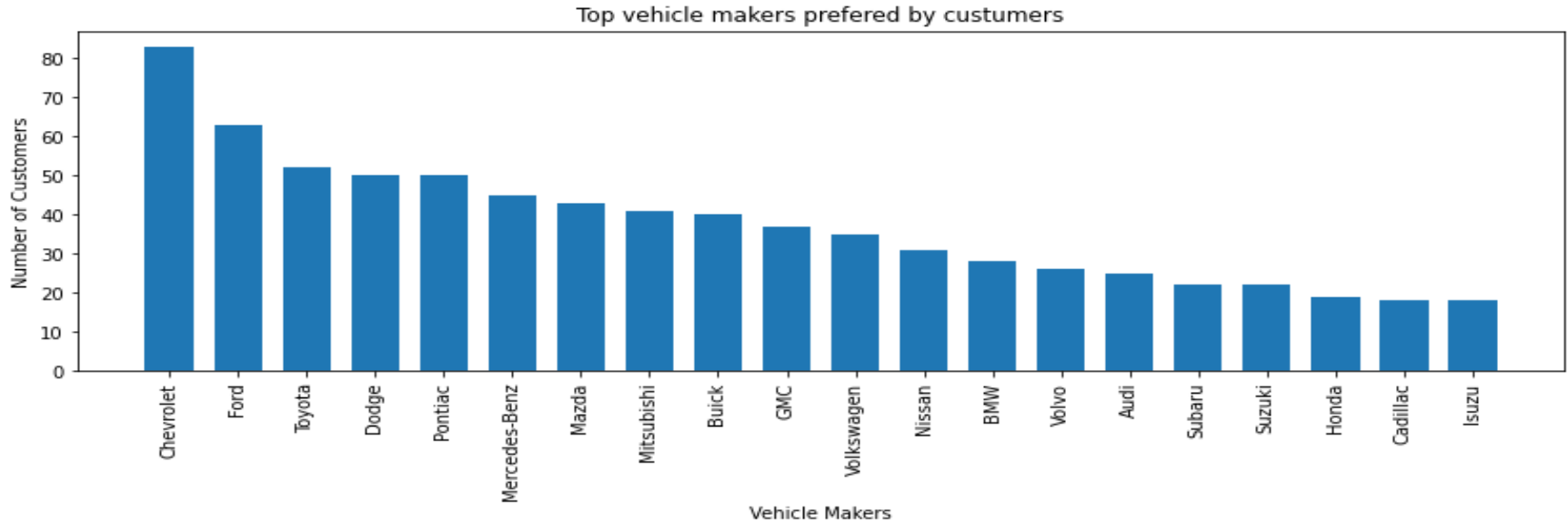
Trend of Customer Satisfaction



OBSERVATIONS

1. Very good and good sentiments are decreasing as quarter number increases.
2. Okay sentiment is not showing much change as quarter increases.
3. Bad and very bad sentiments are increasing as quarter number increases.
4. This shows an overall decline in customer satisfaction.

Top Vehicle makers preferred by customers



OBSERVATIONS

1. N is defined as 20, thus the bar plot present top 20 car makers preferred by customers.
2. Chevrolet and Ford are the leading top brand preferred by customers [Shows American pride i.e. most American prefer local cars].
3. Car makers with low interest are brands known to be foreign, expensive and with less variety of car models.
4. Toyota is the third highest preferred and this could be attributed to the fact that the Car Maker has many options for vehicles.

Most preferred vehicle make in each state

Vehicle maker		American State
0	Mazda	Ohio
1	GMC	Florida
2	Plymouth	New York
3	Ford	Maryland
4	Isuzu	Missouri
5	Chevrolet	Colorado
6	Honda	Louisiana
7	Chevrolet	Texas
8	Toyota	California
9	Dodge	District of Columbia
10	Hyundai	Pennsylvania
11	Chevrolet	Illinois
12	Honda	Oklahoma
13	Mazda	Indiana
14	Toyota	Virginia
15	Mazda	Alabama
16	Hyundai	Iowa
17	Mitsubishi	South Carolina
18	Volvo	North Carolina
19	Volvo	Connecticut
20	Mercedes-Benz	Tennessee
21	Chevrolet	Arizona
22	Ford	Georgia
23	Mazda	Vermont
24	Mitsubishi	Michigan
25	Lamborghini	Washington
26	Dodge	Alaska
27	Dodge	New Mexico
28	Volvo	Minnesota
29	Isuzu	Utah
30	Nissan	Wisconsin
31	BMW	Delaware
32	Dodge	Mississippi
33	GMC	Hawaii
34	BMW	New Jersey
35	Chevrolet	Nevada
36	Saab	Kansas
37	Volkswagen	Nebraska
38	Buick	Wyoming
39	Chevrolet	Montana
40	Lotus	Oregon
41	Mercedes-Benz	Massachusetts
42	Mercury	Kentucky
43	GMC	Arkansas
44	Dodge	Idaho
45	BMW	West Virginia
46	Ford	North Dakota
47	Chrysler	New Hampshire
48	Mercedes-Benz	Maine

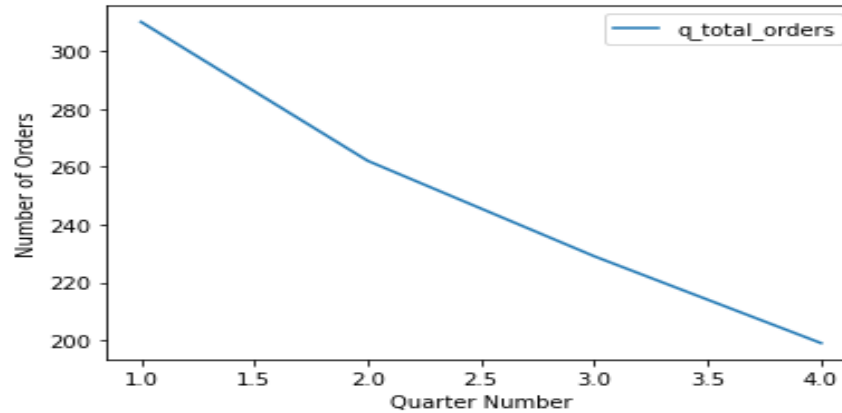
OBSERVATIONS

1. Chevrolet is most preferred in many states and American car makers are popular in most states. Washington has a Lamborghini as a preference which makes it the only State that prefers high end sports car maker.



Revenue Metrics

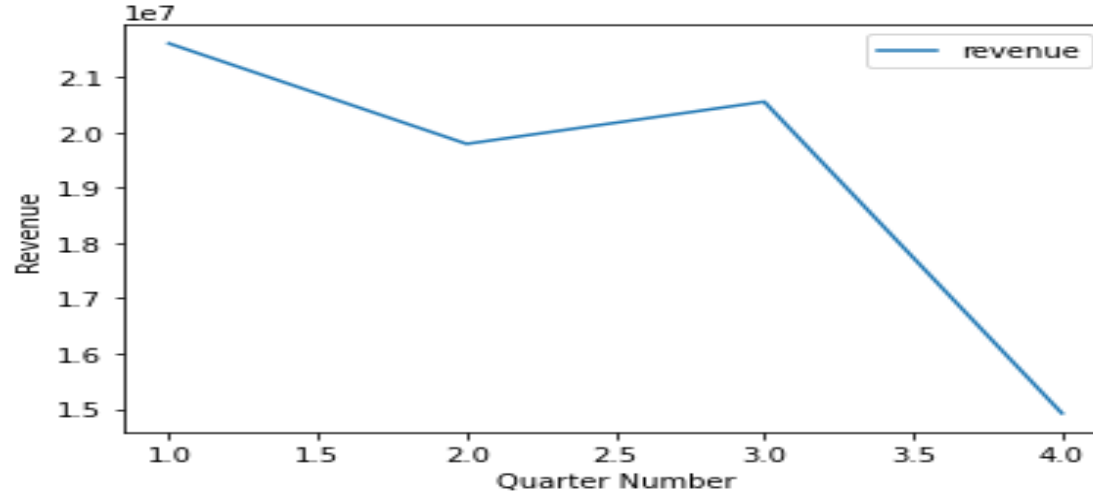
Trend of purchases by Quarter



OBSERVATIONS:

1. All orders are above 190 per quarter.
2. The first quarter had the highest order and the fourth quarter had the lowest orders
3. The graphs shows a decrease linear trend
4. The order reduced by approximately 100 orders for whole duration
5. From quarter 1 to quarter 2 the decrease slope is much steeper than on the rest of the quarters [initial sharp decline in orders]

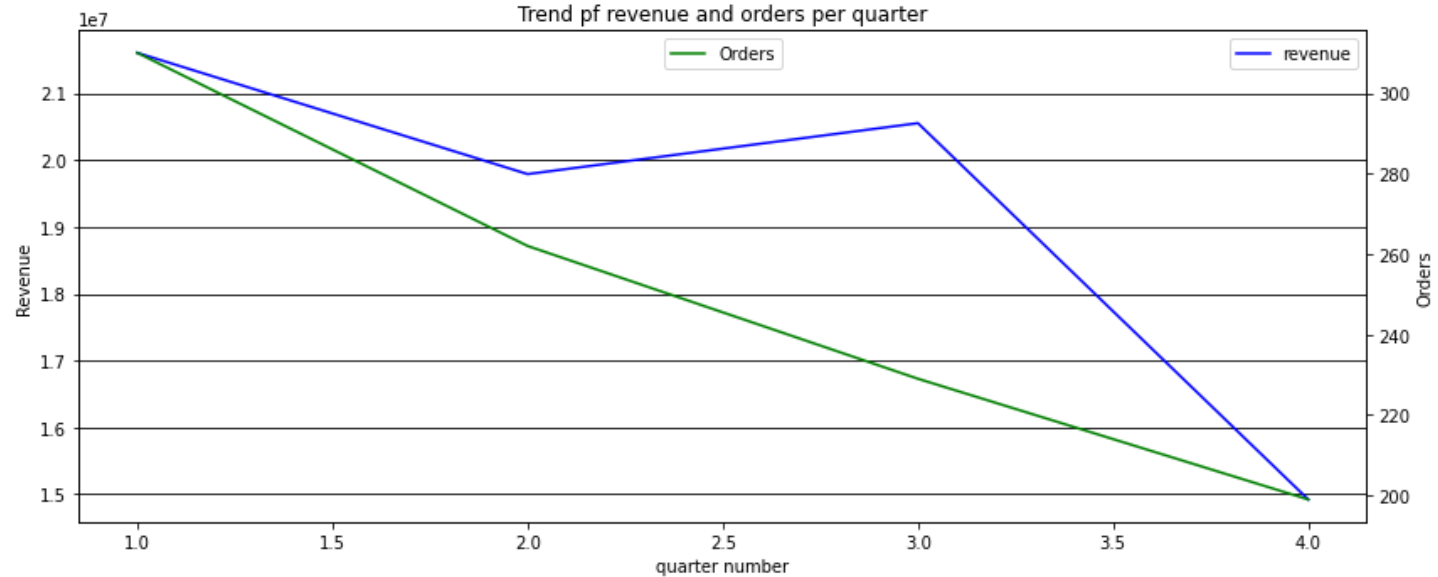
Quarter on Quarter % change in Revenue



OBSERVATION

1. From quarter 1 to quarter 2 the revenue decrease by approximately 9.2%
2. From quarter 2 to quarter 3 the revenue increased by approximately 3.7%
3. From quarter 3 to quarter 4 the revenue decreased sharply by approximately 37.7%
4. The sharp decrease on the last quarter difference can be attributed to low orders and most concerning bad rating from customers state

Trend of Revenue and Orders by Quarter



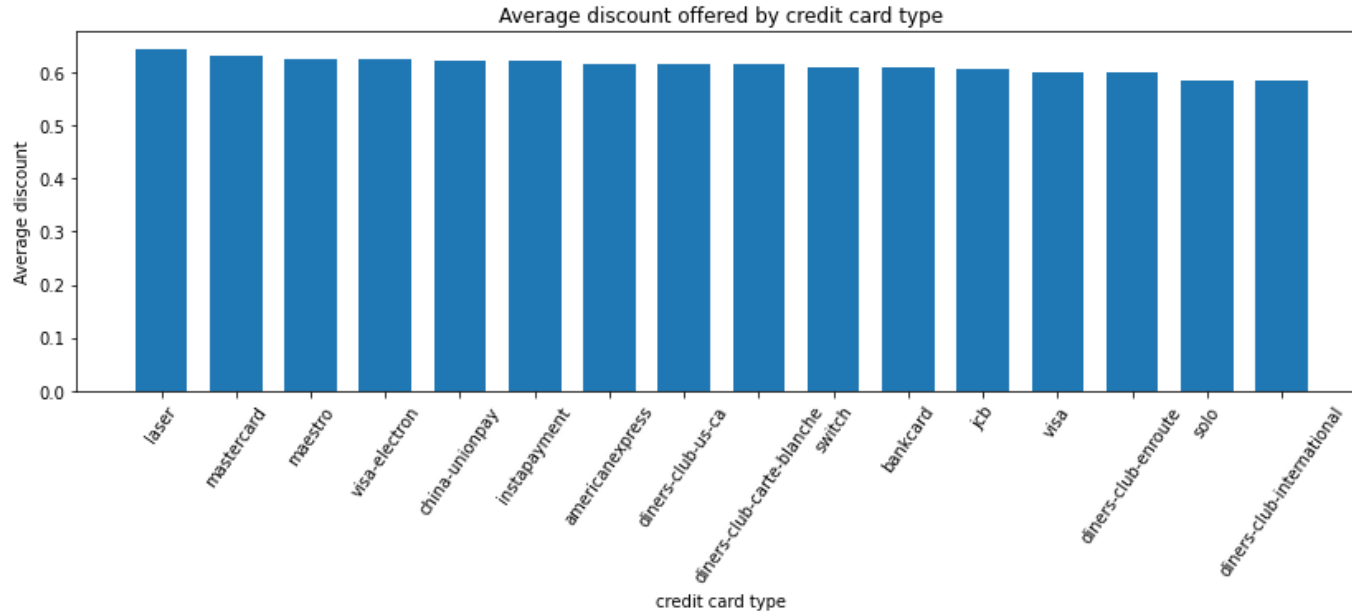
OBSERVATION

1. The revenue and orders graphs follow the same linearly decreasing trend even though revenue shows positive linear trend on quarter 2 and 3.
2. The higher the orders the higher the revenue and the latter is holds with an exception of between quarter 2 and 3,



Shipping Metrics

Average discount offered by Credit Card type



OBSERVATION

1. The average discount for all credit card types are above 0.5.
2. Laser card type has the highest average discount and diners-club-international has the lowest average discount
3. The discount average variation for all card types is less than 0.1 which shows that discount are closely similar and very competitive.

Time taken to ship orders by Quarter



OBSERVATION

1. First quarter delivery service was quick even though orders were many.
2. On the fourth quarter the delivery time is almost triple times slower than first quarter.
3. Delivery time shows to be taking longer as quarters increase.



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Insights and Recommendations

#Recommendations

- From quarter 1 to quarter 4 a) bad rating increase b) good rating decreased, c) shipment takes longer d) revenue is decreasing e) orders are decreasing.
- The company needs to get more feedback from customers as to why they are not happy with the purchase.
- The delivery is of great concern which can attribute to loss of customers and good ratings, communicate delayed shipments to keep clients at ease.
- The company should improve its shipping strategy by finding ways to reduce delivery time i.e. outsource reliable delivery services, consider other efficient modes of shipping.
- Extract more insights about the type of customers likely to give good rating and create ways how to retain them.
- More insights on the likelihood of customers to purchase once and develop a strategy how to retain them.
- Compare data with previous years to see if these trends are seasonal, could weather change affect delivery time.
- Budget for customer acquisition cost to increase customers
- Establish marketing strategy based on actionable insights i.e. customer feedback.
- Establish margin for error or reliability of data used to give these insights
- Explore further relations between other parameters like revenue vs state vs vehicle maker to optimise on which stock to market more etc,