Customer Satisfaction Analysis

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February 2023

02

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Industry Background

New Zealand's Retail Industry:

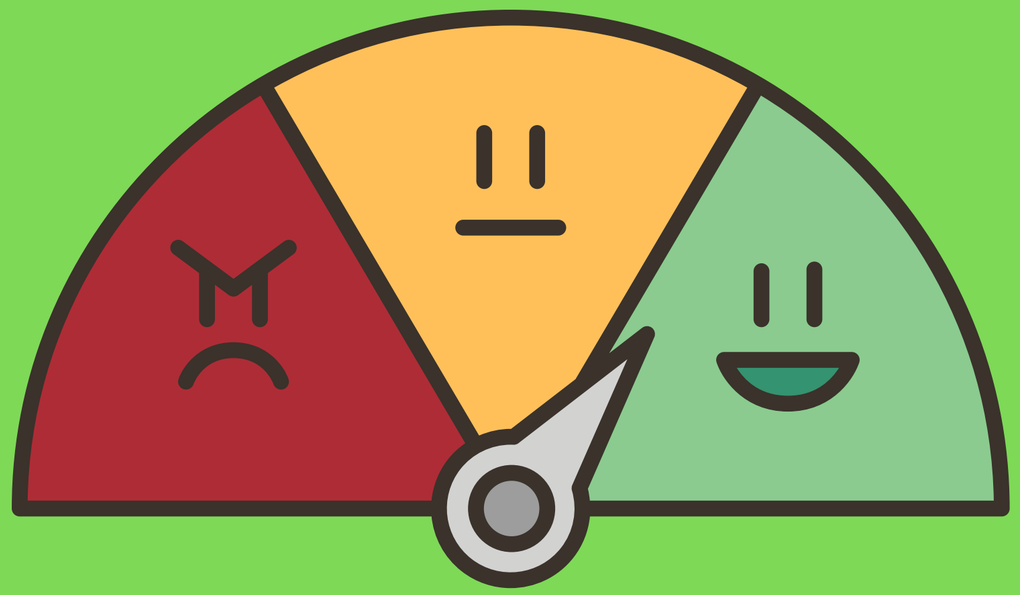
-approximately $92.3 billion (2022)

-3548 businesses in NZ (2023)

-average customer churn approximately 40% per year (Nov,2022)

-a 7% increase in customer satisfaction equates with a 1% increase in revenue overall (2005)

04



What do our customers think?

Can we predict how satisfied our customers are?

Data Pipeline

05

Data Acquisition

Exploratory Data Analysis

Business Question Formulation

Data Munging

Visualisation

Modelling

Interpretation & Next Steps

06

What information do we have?

Kaggle - Retail Sales Sample Database

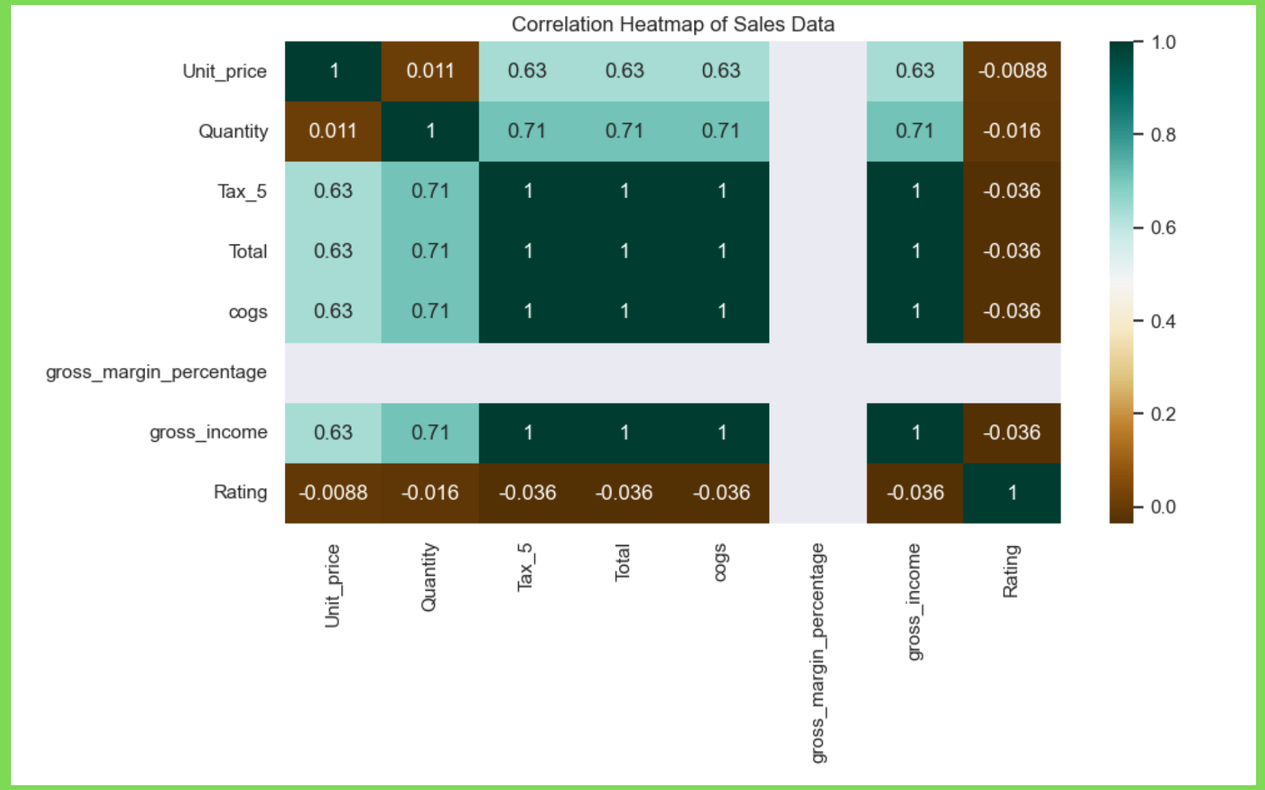
-1000 sales transactions (invoice ID)
-Store locations (city and branch)
-Membership (customer) type
-Gender
-Product line
-Unit price
-Quantity
-Tax %
-Transaction time & date
-Payment type
-Cost of goods sold
-Gross margin percentage
-Gross Income
-Customer satisfaction (rating)

Black = features used

WHAT DID WE FIND?

-Average unit price = $55.67
-Average quantity = 5.5 units
-Average invoice total = $322.96
-Average customer rating = 6.97(out of 10)

Unit price and Quantity both have strongest correlations with Tax %, Invoice Total, Cost of goods sold and Gross income



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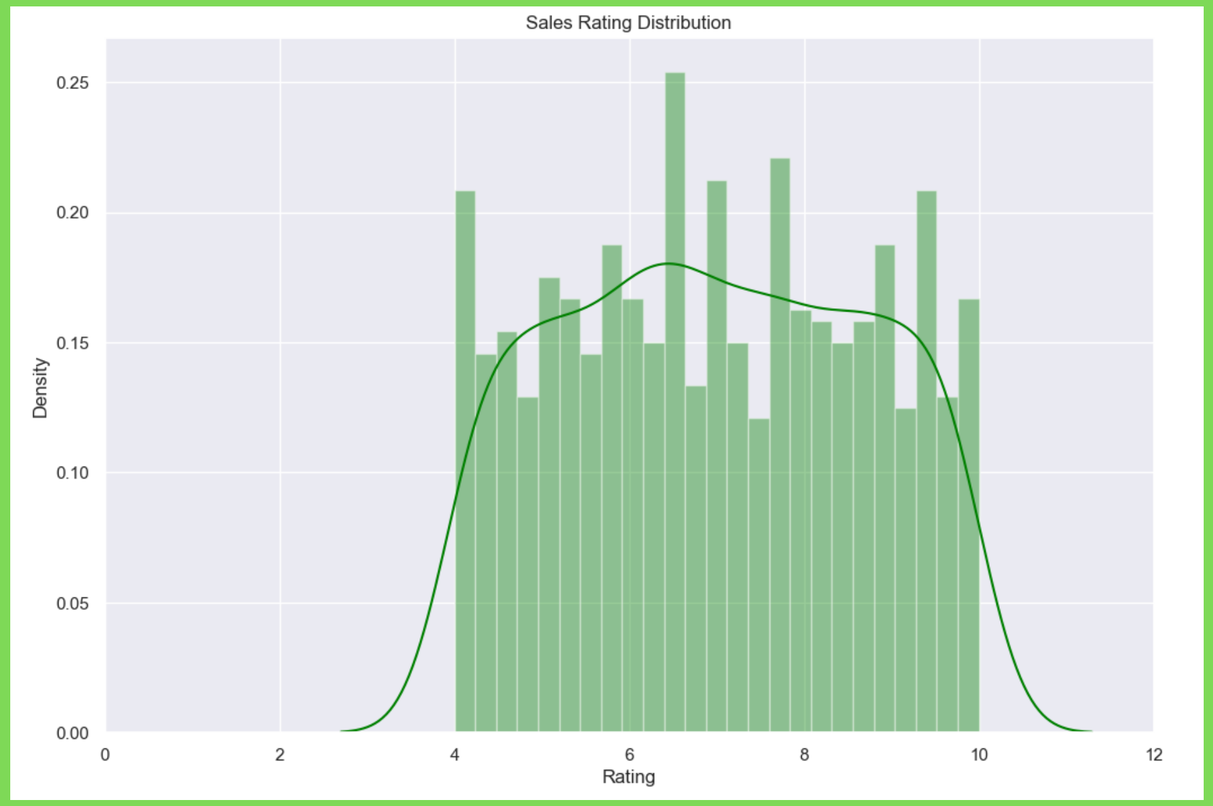
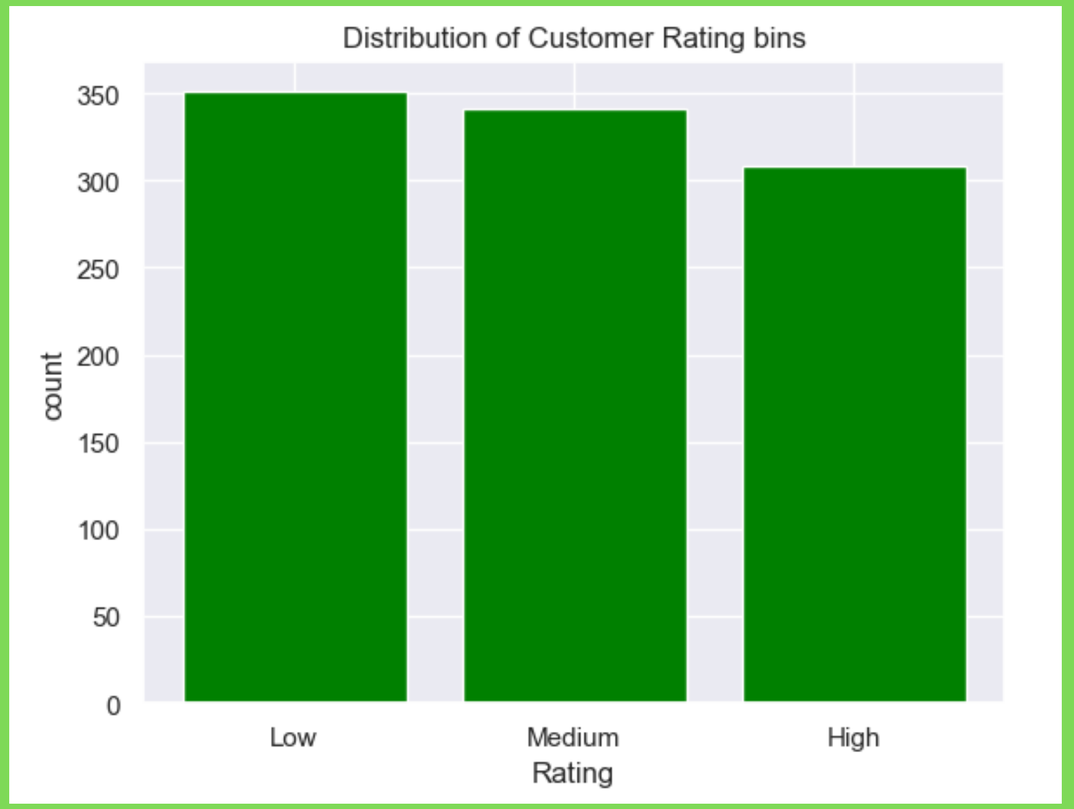

Sales Rating Distribution
Density
0.25
0.20
0.15
0.10
0.05
0.00
0
2
4
6
8
10
12
Rating


Distribution of Customer Rating bins
count
350
300
250
200
150
100
50
0
Low
Medium
High
Rating

09


Distribution of Customer Rating bins
Customer_type
Member
Normal
count
60000
50000
40000
30000
20000
10000
0
Low
Medium
High
Rating by Customer Type


Distribution of Customer Rating bins
City
Yangon
Naypyitaw
Mandalay
count
40000
35000
30000
25000
20000
15000
10000
5000
0
Low
Medium
High
Rating by City

10 Modelling

Regression Model	Score	
Linear Regression	-0.035	
Lasso Regression	-0.034	
Ridge Regression	-0.036	✓

What does this tell us

Model	Mean Squared Error	Root Mean Squared Error	Adjusted R-Squared	K-Fold Cross Validation
Linear Regression	2.913	1.707	-0.070	1.2188
Lasso Regression	**2.910**	**1.706**	**-0.068**	**1.2187**
Ridge Regression	2.912	1.706	-0.069	1.2187

12 Next Steps

-results aren't strong enough for decision making (low model scores)
-more data should be gathered (specifically customer rating data)
-retest models

Thank you!

Any questions?

References

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