TheAnalyticsTeam

Sprocket Central Pty Ltd

Data analytics approach

Sanjay C S, *Junior Consultant*

KPMG

Agenda

1. Introduction

2. Data Exploration

3. Model Development

4. Interpretation

Introduction

Identifying and Targeting High Value Customers

Outline of the problem

- Sprocket Central Pty Ltd is a company that specializes in high-quality bike and cycling accessories.
- By Analyzing the dataset provided, the marketing team is looking for ways to boost sales.
- The aim of this analysis is to analyze the provided 3 datasets and target the new 1000 customers to drive higher value for the company.

Approach for Data Analysis

- Age Distribution of New and Old Customers.
- Past 3 years bike related purchases by different gender.
- Industry contribution to bike related purchases in the past 3 years.
- Wealth segmentation by age category.
- Profits by Wealth Segments of different age groups and Industries.
- Status of car ownership in each state.
- Customer Classification based on RFM Analysis.

Data Exploration

Data Quality Assessment

Key issues for Data Quality Assessment

	Accuracy	Completeness	Consistency	Relevancy	Validity
Customer Demographic	inaccurate DOB	Blanks in Job_title, DOB	Incosistency in gender column	default column is irrelevant	
Customer Address		Incomplete Customer Ids	Inconsistency in State		
Transactions		Incomplete Customer Ids, Columns online_order, brand, product_line, product_class, product_size, standard_cost and product_first_sold_date are empty.			product_first_sold_date is not in proper date format
New Customers					past_3_years_bike_related_purchases, column postcode and property_valuation are set as a Text column

Standard Data Quality Dimensions

Correct Values — Accuracy

Data Fields with Values — Completeness

Values Free from Contradiction — Consistency

Values up to Date — Currency

Data Items with Value Meta-data — Relevancy

Data Containing Allowable Values — Validity

Records that are Duplicated — Uniqueness
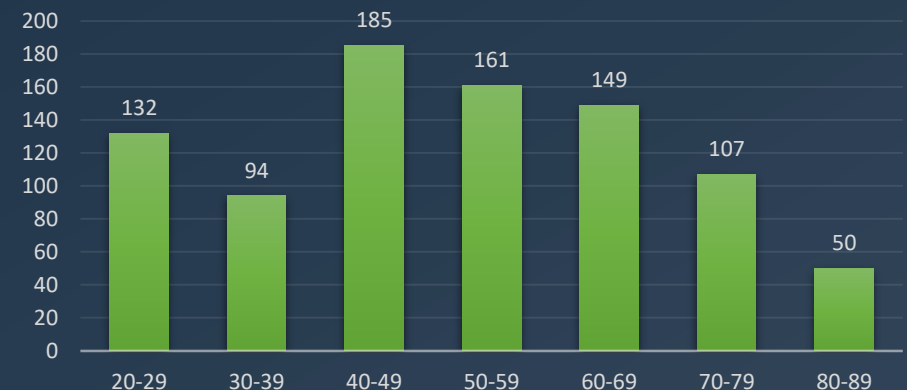
Data Exploration

Age Distribution of New and Old Customers.

- A majority of Old customers are aged between 40 to 50, the same is true with the New Customer List as well. This is followed by age group 50 to 60.

- Lowest age groups are customers aged above 80+.

- There's a steep drop of no. of customers for the age group 50-60 in the Old Customers graph. Whereas for the new customers the steep drop is for age group 30-40.

- The main age group to be focused for a better business is 20 to 70.
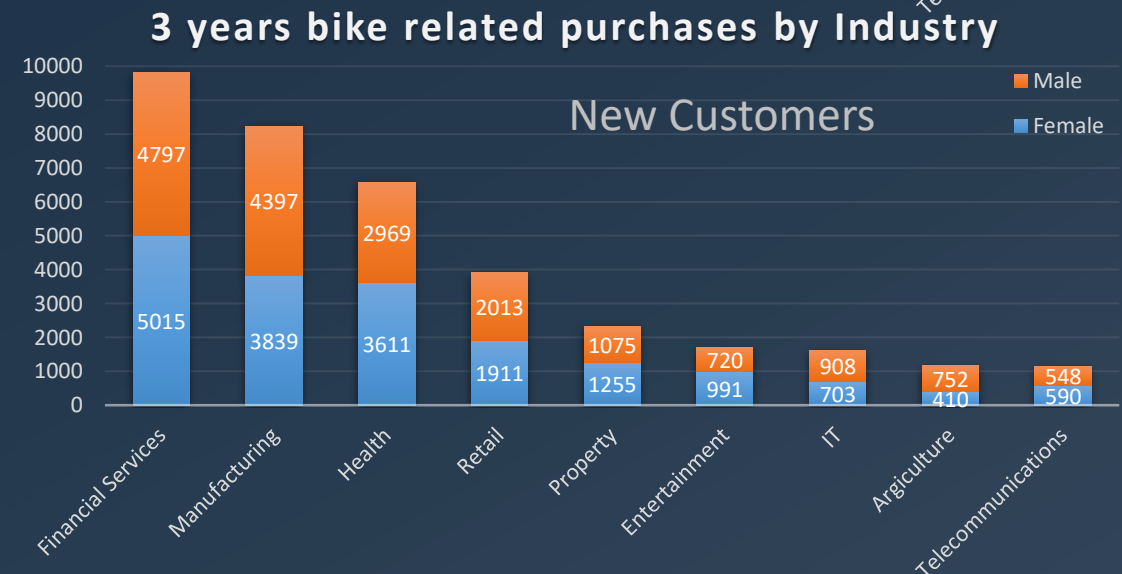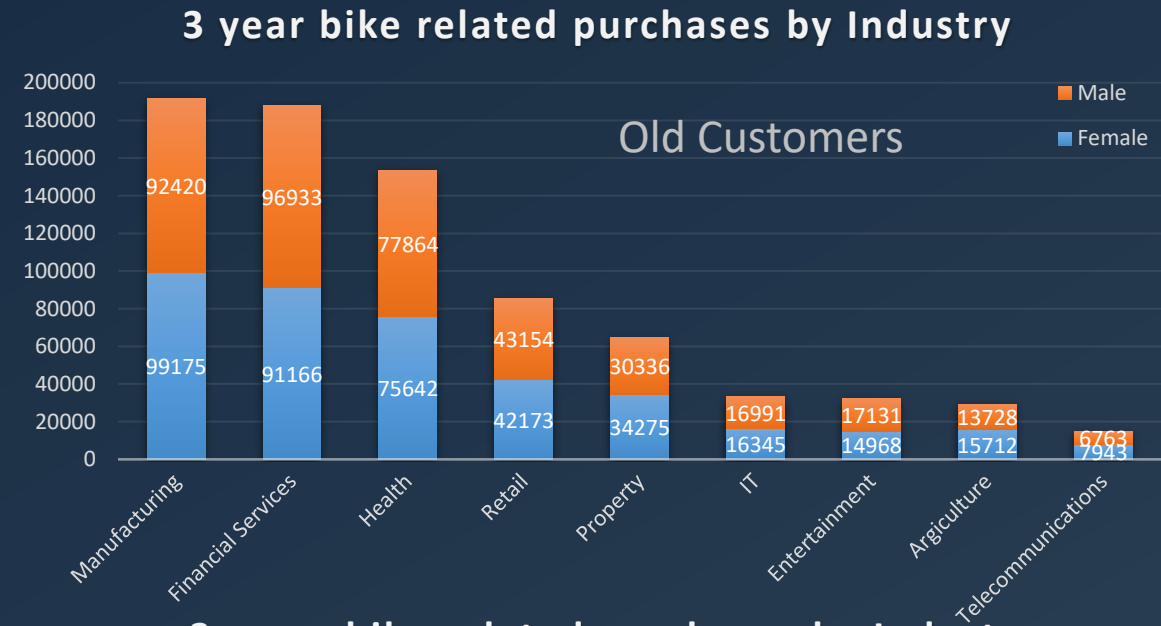
Age Distribution of Old Customers

Age Group	Count
20-30	539
30-40	701
40-50	1254
50-60	748
60-70	653
70-80	13
80-90	3
90-100	1
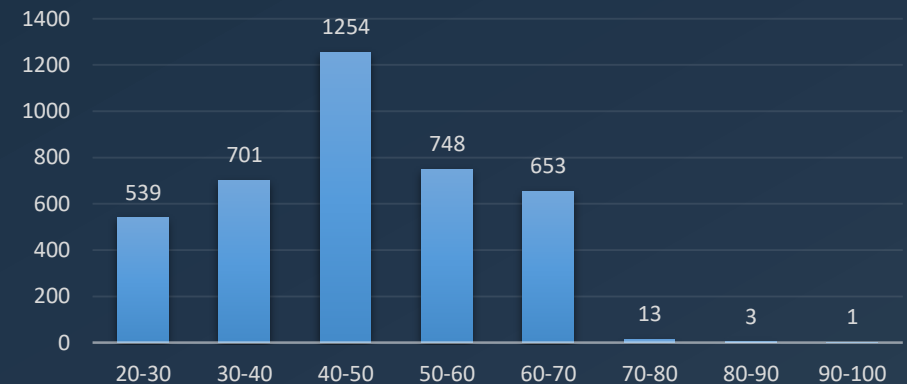
Age Distribution of New Customers

Age Group	Count
20-29	132
30-39	94
40-49	185
50-59	161
60-69	149
70-79	107
80-89	50

Data Exploration

Bike related purchases over the past 3 years by different gender across different Industries.

- Majority of the bike related purchases were from the Manufacturing, Financial Services and Health Industries.

- Females made more Bike related purchases than male.

- IT, Agriculture and Telecommunication Industries have made the least bike related purchases.

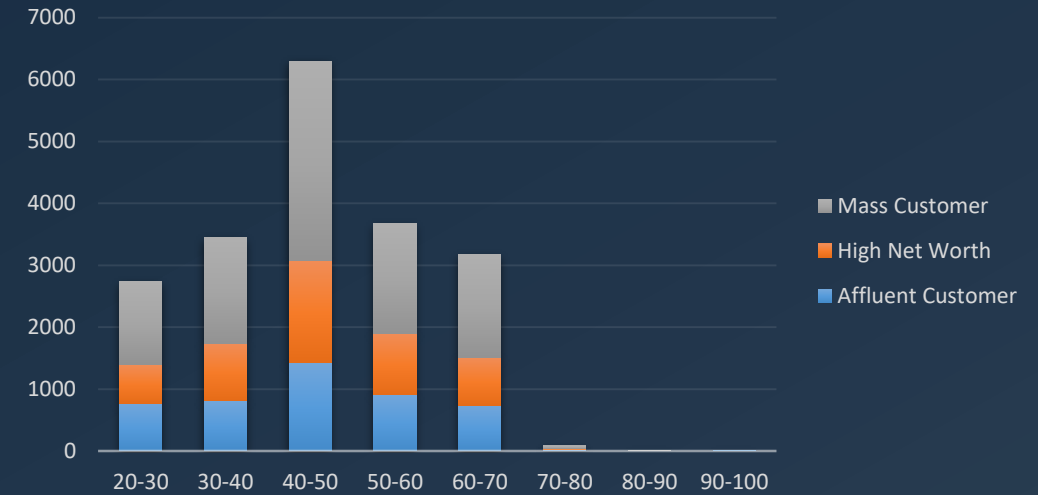- A similar profile can be seen in case of new customers as well.

3 year bike related purchases by Industry

Old Customers

	Female	Male
Manufacturing	99175	92420
Financial Services	91166	96933
Health	75642	77864
Retail	42173	43154
Property	34275	30336
IT	16345	16991
Entertainment	14968	17131
Argiculture	15712	13728
Telecommunications	7943	6763

3 years bike related purchases by Industry

New Customers

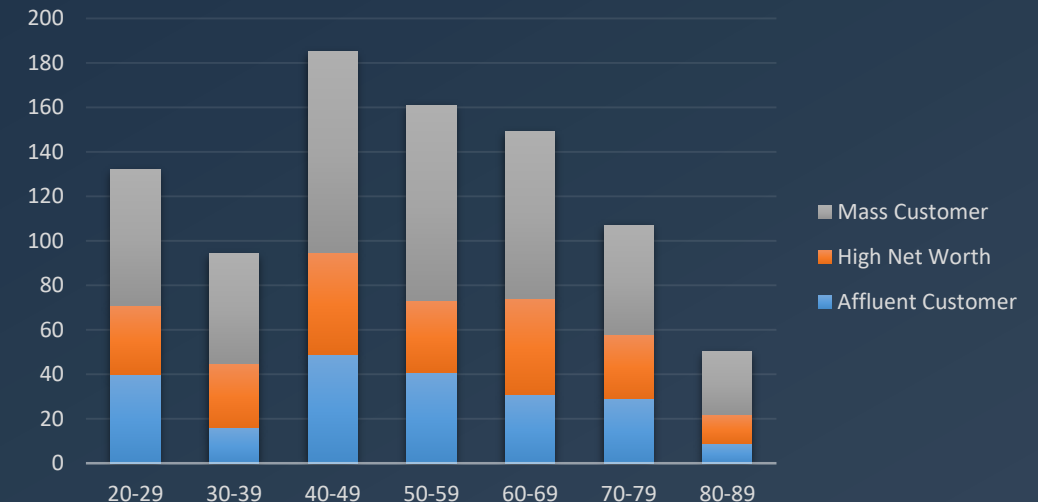|	Female	Male
Financial Services	5015	4797
Manufacturing	3839	4397
Health	3611	2969
Retail	1911	2013
Property	1255	1075
Entertainment	991	720
IT	703	908
Argiculture	410	752
Telecommunications	590	548

Data Exploration

Wealth Segmentation by Age Cluster

- Mass Customers are largest number of customers in any every age groups.

- In many cases Affluent Customers outperform the High Net Worth Customers.

Old Customers Wealth Segment by Age

Legend:
- Mass Customer
- High Net Worth
- Affluent Customer

(Age groups: 20-30, 30-40, 40-50, 50-60, 60-70, 70-80, 80-90, 90-100)

New Customer Wealth Segment by Age

Legend:
- Mass Customer
- High Net Worth
- Affluent Customer

(Age groups: 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80-89)
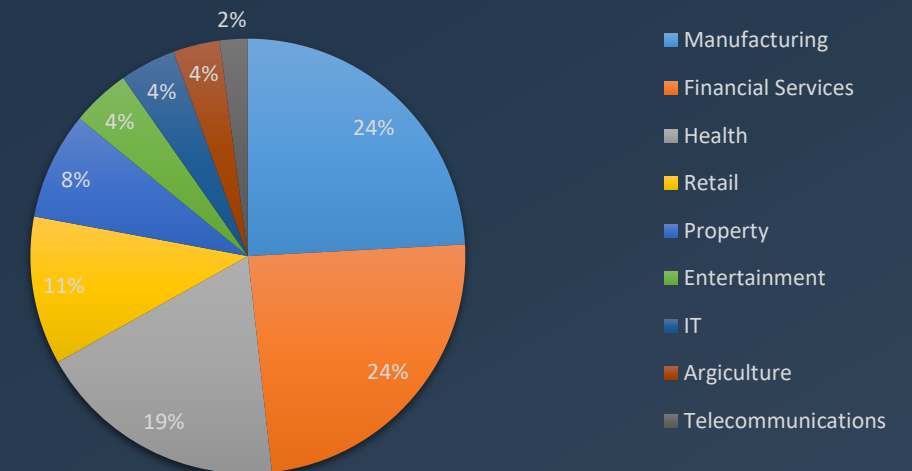
Data Exploration

Profits by Wealth Segments of different age groups and Industries

- Overall Mass Customers generate highest amount of profits.

- Profit is more by customers aged 40 to 50.

- The top 3 Industry Sectors that are generating highest profits are Manufacturing, Financial Services, and Health Industries.

- These 3 Industries generate more than 2Million AU$, which accounts for 67% of total profit.

- IT, Agriculture and Telecommunication Industries have generated the least amount of profit.

Profit by Age Cluster and Wealth Segment
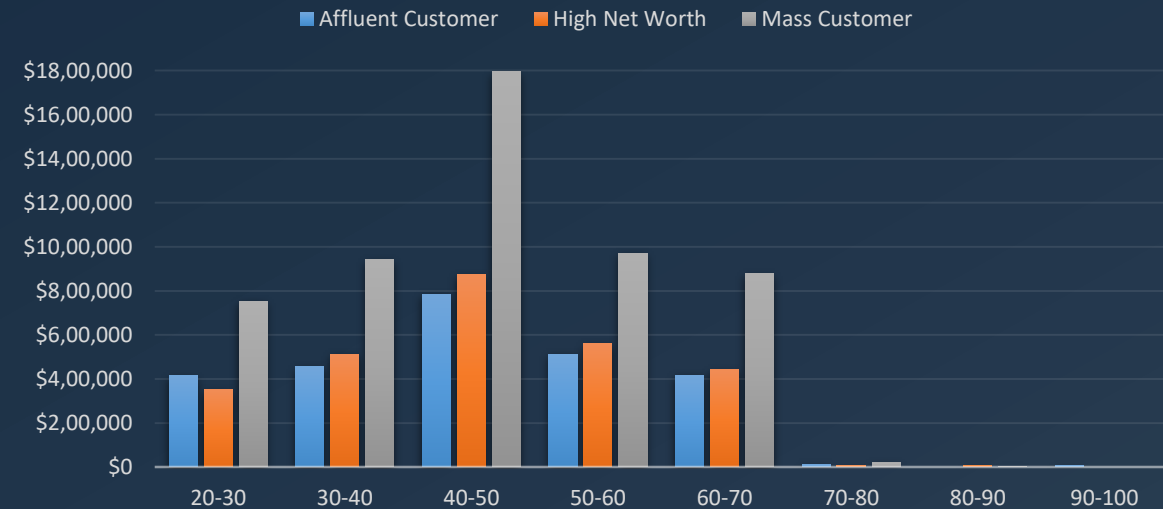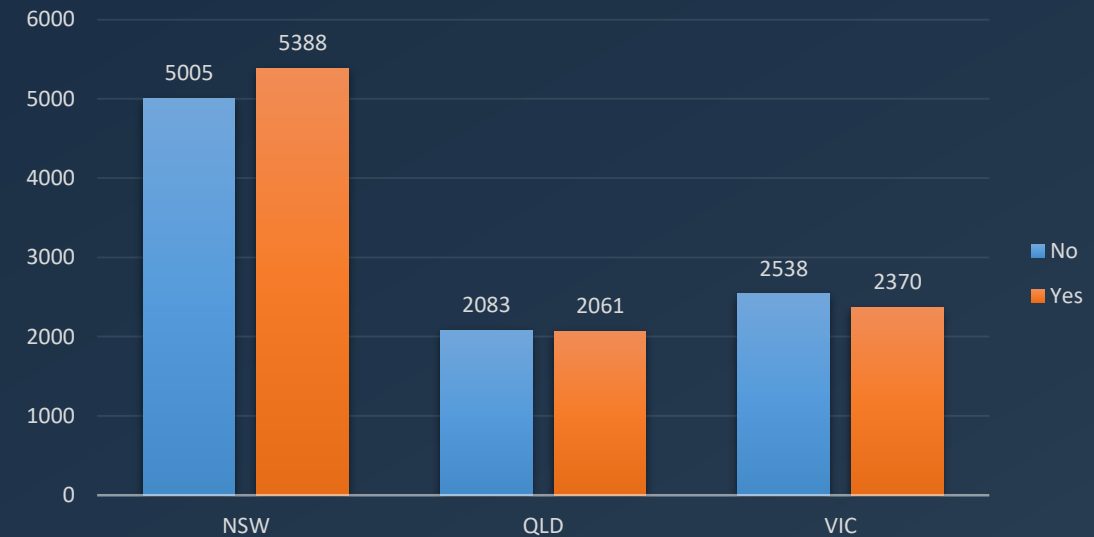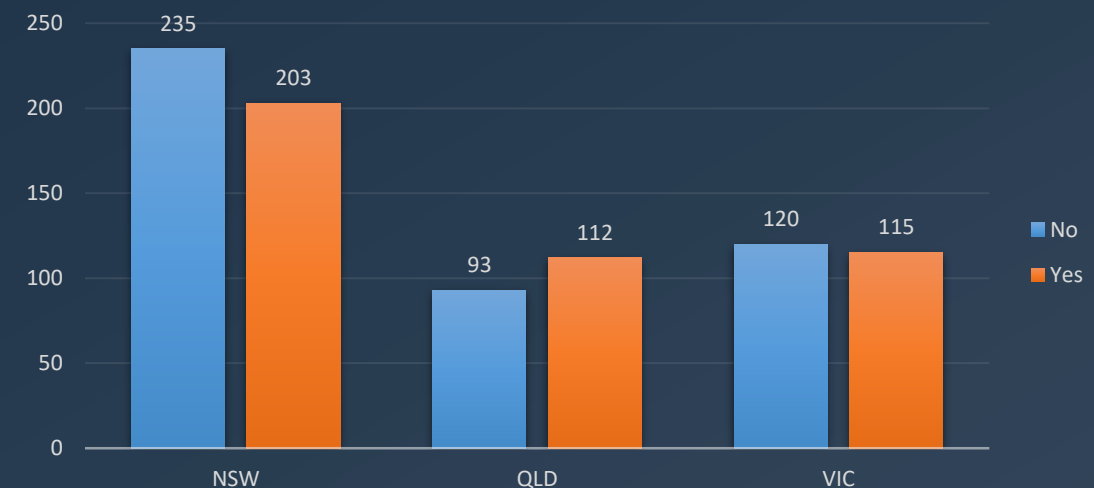

Profit by Industry

Data Exploration

Car Ownership Status in each State

- New South wales has the highest number of people who do not own a car.

- Queensland and Victoria have less number of car ownership compared to New South Wales.

- But both Queensland and Victoria show potential marketplace to boost business.

Old Customers owning Cars in each State

	NSW	QLD	VIC
No	5005	2083	2538
Yes	5388	2061	2370

New Customers Owning Cars in each State

	NSW	QLD	VIC
No	235	93	120
Yes	203	112	115

Model Development

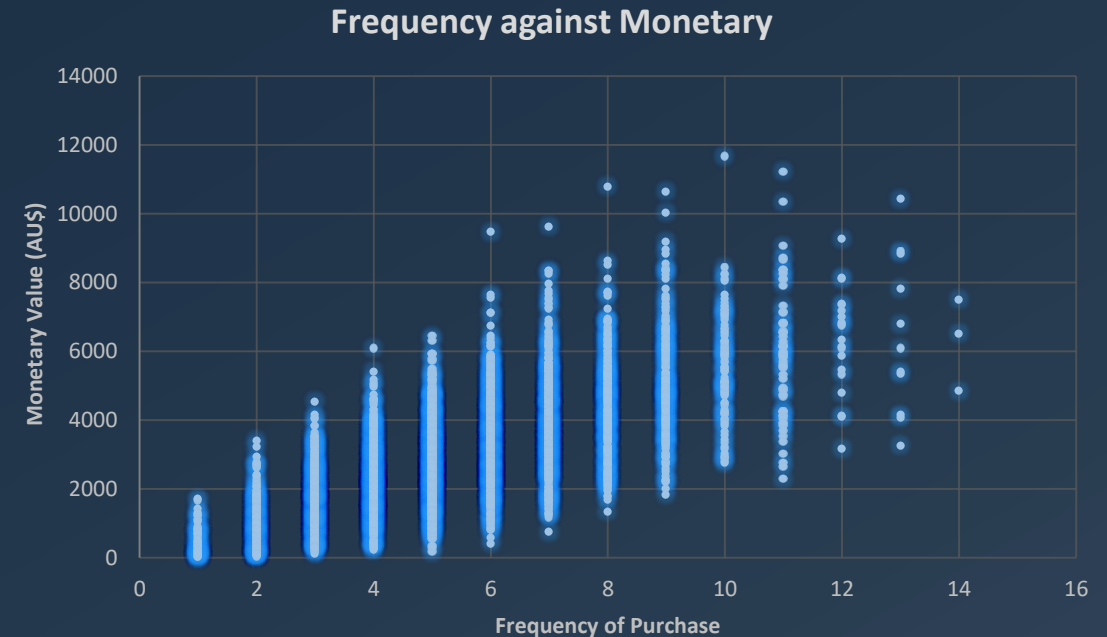## Scatter plot based off of RFM Analysis

- More Revenue was generated by Customers who visited just a while ago.

- Customers who recently visited (50 to 100 days) also generated a moderate amount of Revenue.

- Customers who visited more than 200 days ago generated very less Revenue.
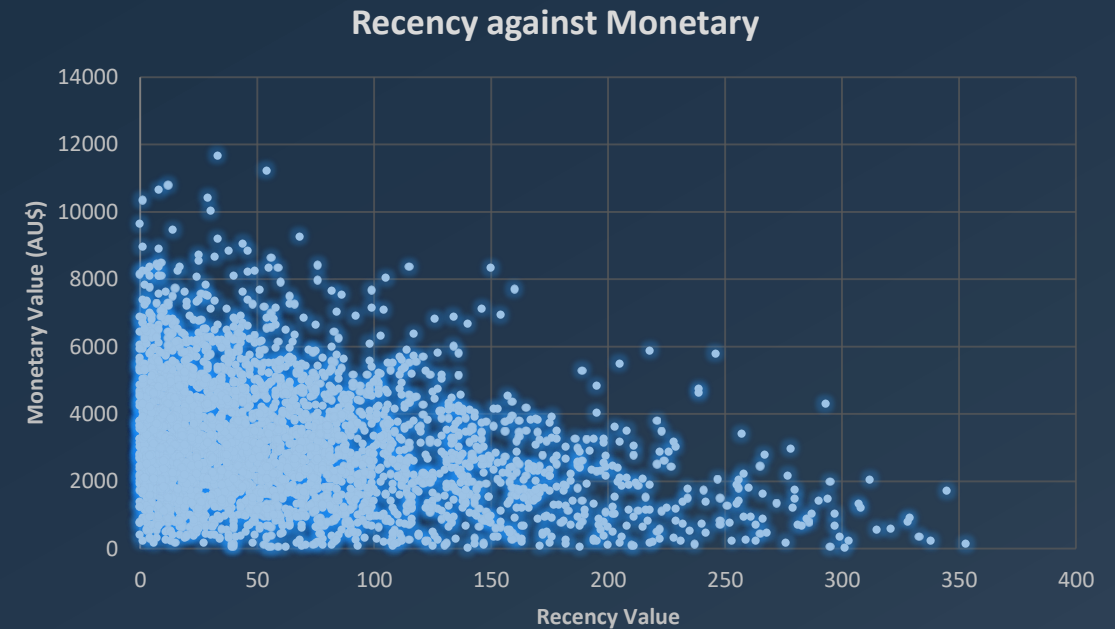
Recency against Monetary

Model Development

## Scatter plot based off of RFM Analysis

- More Revenue was generated by Customers whose Frequency of purchase was more than 8.

- Based on the graph it can be said that the relationship between Monetary Value and Frequency of Purchase is Positive for Business.

Frequency against Monetary

Model Development

Scatter plot based off of RFM Analysis

- There's a high possibility of customers visiting more frequently given they visited the site recently.

- A Higher frequency is inversely related to the recency value.

Frequency against Recency
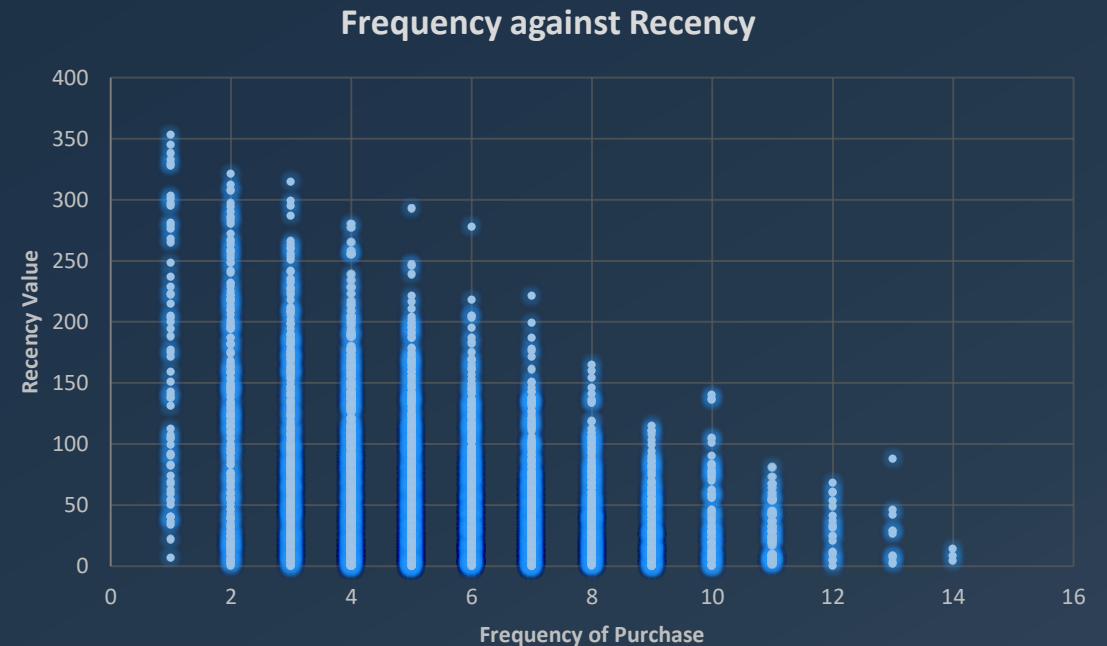
Interpretation

Customer Targeting and Methodology

- Platinum Customers are Very Loyal Customers who most frequently buys from us.

- Gold Customers are Loyal Customers who most often buys from us and spends a large amount of money.

- Silver Customers are those who are becoming Loyal Customers by buying more than once and spends fairly large amounts of money.

- Bronze Customers are Recent Customers who bought recently and have spent average amount of money.

Customer profile

Category	Value
Bronze	1020
Gold	844
Silver	817
platinum	811
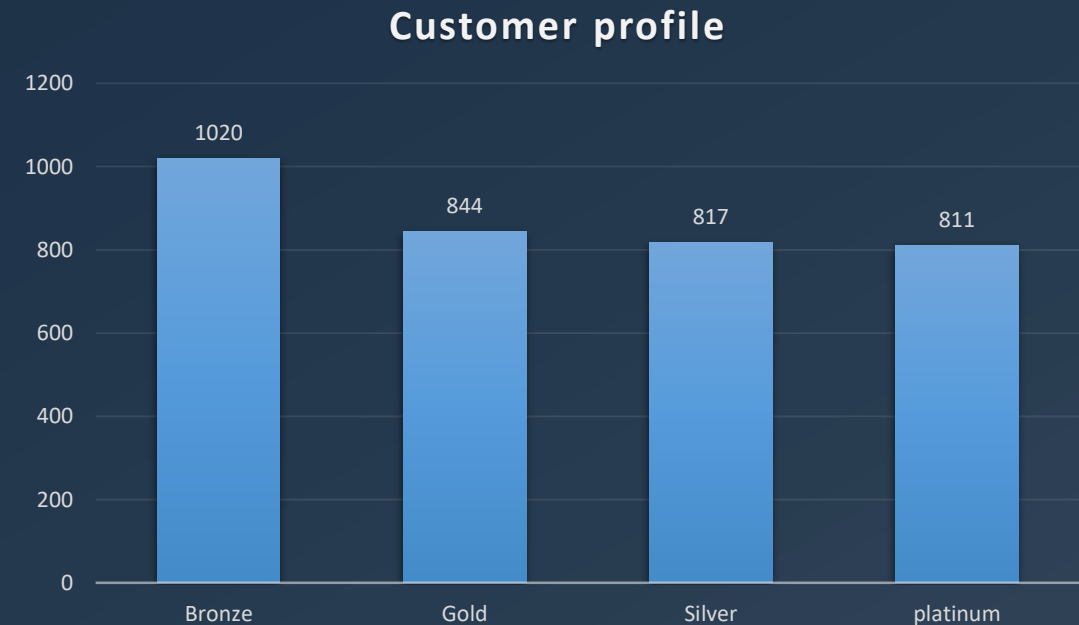
Interpretation

Customer Targeting and Methodology

- Age group to be targeted mainly are those between 20 to 70 specifically 40 to 50.

- Most of the High Value Customers will be Female compared to Male.

- Customers to be targeted are those who are working in Manufacturing, Financial Services, and Health Industries.

- Focus on Mass Customer Wealth Segment as they would be generating a very high amounts of profits.

- A large number of population resides in New South Wales State, targeting them would boost Business significantly.

Interpretation

Customer Targeting and Methodology

An example of Potential Customers Based on the Analysis.

first_name	last_name	past_3_years_bike_related_purchases	Age	job_industry_category	wealth_segment
Melba	Spellacy	38	46	Health	Mass Customer
Martelle	Tuppeny	52	42	Manufacturing	Mass Customer
Patricia	Everix	34	45	Health	Mass Customer
Daryl	Pauncefort	12	44	Financial Services	Mass Customer
Sunny	Christescu	90	48	Financial Services	Mass Customer
Theresa	Cowper	99	47	Manufacturing	Mass Customer
Loleta	Aberdalgy	45	42	Health	Mass Customer
Alexina	Mabley	72	48	Manufacturing	Mass Customer
Katleen	Arnoult	6	46	Manufacturing	Mass Customer
Amabel		71	42	Financial Services	Mass Customer