

Data analysis presentation

Sprocket Central Pty Ltd





Fact



The first recognizable bicycle-like machine “the draisine”, was invented by the German Karl von Drais in 1817. It lacked pedals and riders propelled themselves with their feet. His design was quickly replaced by more advanced “velocipede” designs that had a pedal transmission.





**In God we trust.
All others must
bring data.**

- W. Edwards Deming

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Introduction

A brief introduction to the presentation anchor points

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Data Exploration

What the data told us at first glance

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Model Development

The data has more to say if properly analyzed

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Interpretation

Let's thoroughly understand what the data has to say



01

Introduction

A brief introduction to the presentation anchor points



Goal of this presentation

Unleashing High-Value Growth: Targeting Sprocket Central's Next Customers

Good morning/afternoon everyone,

Today, we embark on a data-driven journey to unlock Sprocket Central's hidden growth potential! We're not just analyzing transactions, but delving into a treasure trove of 1,000 new customer profiles. By uncovering their hidden preferences and predicting their next move, we aim to:

Identify Sprocket Central's goldmine: Pinpoint the high-value segments within this untapped audience, revealing who's most likely to become loyal riders. Precision-target your marketing: Ditch the shotgun approach! We'll craft laser-focused campaigns tailor-made to ignite purchase interest in these ideal customers.

Maximize your marketing ROI: Invest with confidence, knowing you're reaching the right individuals at the right time, driving profitable engagement.

This three-week adventure unfolds in three exciting stages:

- **Data Exploration:** We'll unpack the secrets hidden within your existing customer data and these new profiles, understanding their demographics, habits, and buying patterns.
- **Model Development & Training:** We'll build a powerful predictive model, fueled by insights from exploration, to accurately identify the most promising potential customers.
- **Results Interpretation & Reporting:** No model is complete without clear communication. We'll translate data into actionable insights, presenting a roadmap to target your high-value audience with precision and confidence.

Throughout this journey, we'll leverage external data, transform raw fields for optimal analysis, and keep you informed every step of the way. By the end, you'll be equipped with a data-driven blueprint to fuel Sprocket Central's growth and conquer the cycling market!

Get ready to unleash the power of data and discover your most valuable customers! Let's begin!

The background features a minimalist illustration. At the top, there are three light gray, fluffy clouds. On the right side, there are two stylized trees with bright red, rounded canopies and thin white trunks. The trees are set against a light gray, rounded shape that resembles a hill or a large rock. The ground is a light gray surface with a few small, dark gray rocks and a single red flower-like shape near the bottom center.

Whoa!

Sprocket Central, buckle up! We're unlocking growth with 1,000 new customers.

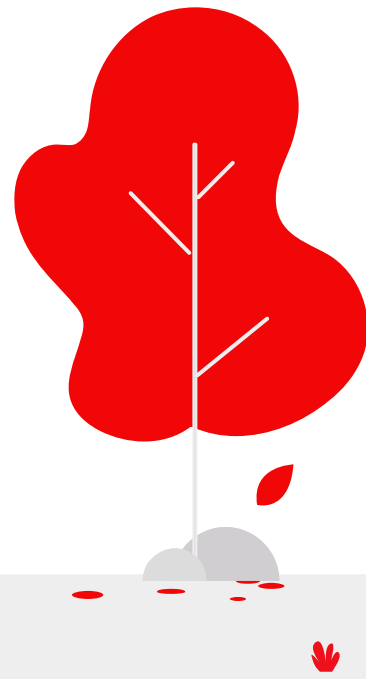
Forget guesswork, let data guide your marketing! In 3 weeks, we'll:

- **Find your high-value riders:** pinpoint who's likely to buy.
- **Target them like pros:** laser-focused campaigns for max impact.
- **Maximize your ROI:** spend smarter, not harder.

Data exploration, model building, and actionable insights – prepare to win the cycling market! Let's dive in.

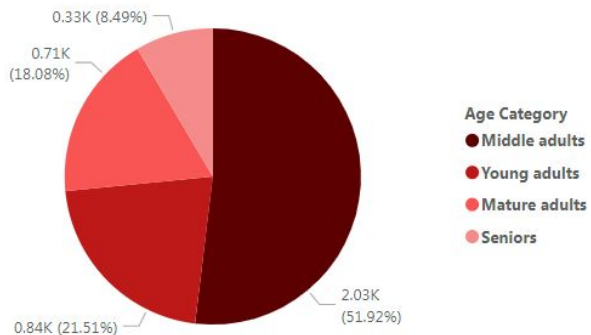
Well!

Let the journey begin!

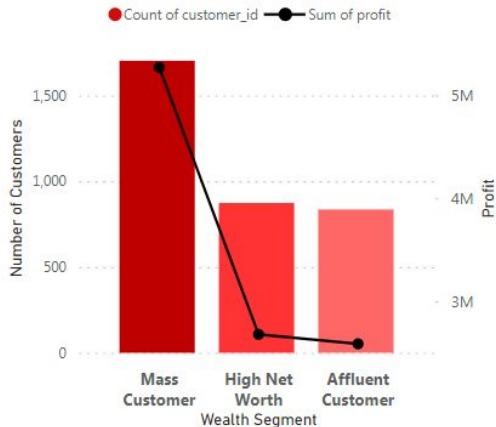


Overview

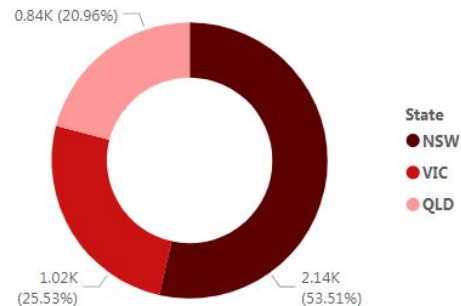
Customers by age category



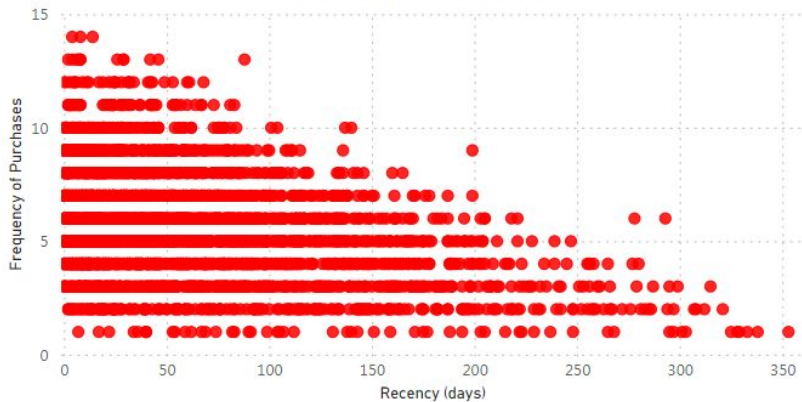
Profit by Wealth Segment



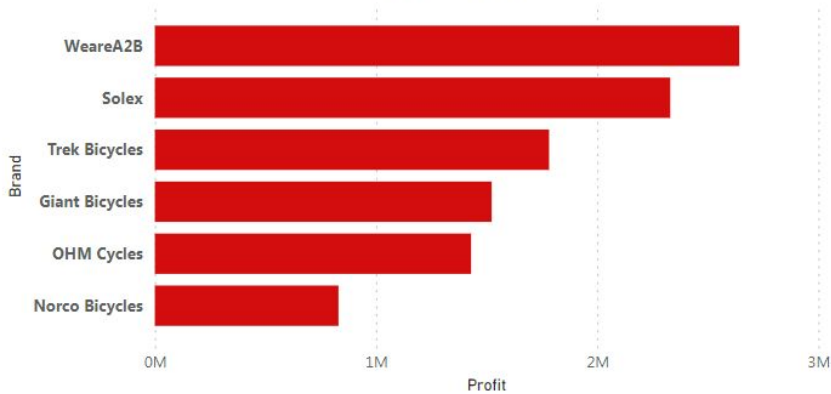
Customers by state



Recency against Frequency



Profit by Wealth Segment



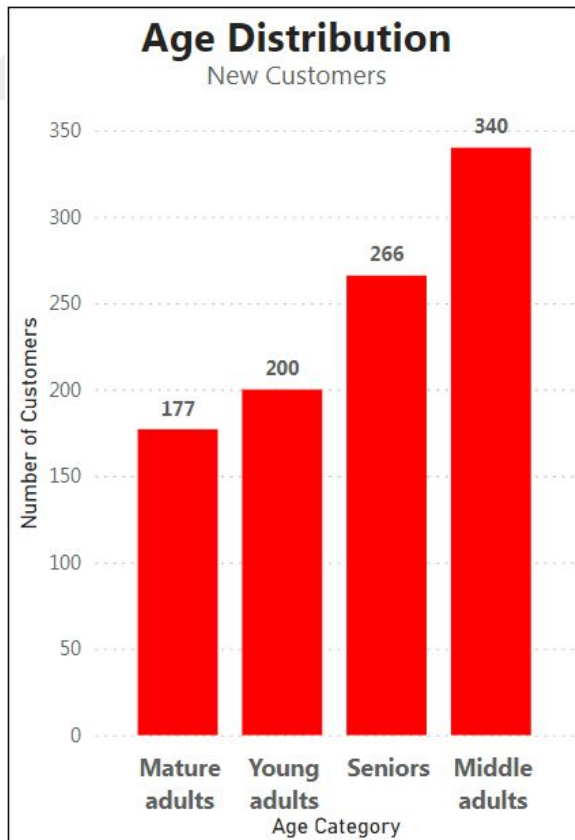


02

Data Exploration

This is what the data told us at first glance

Age Distribution

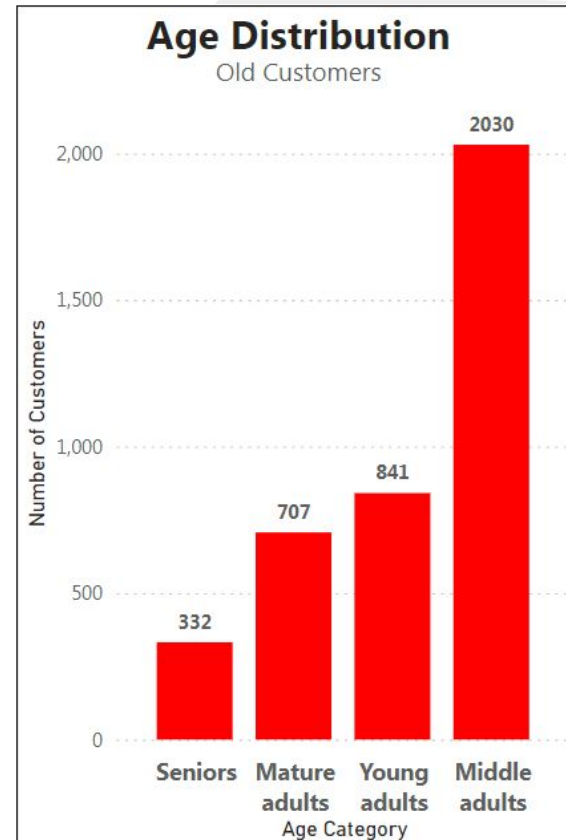


- Across both new and existing customers, the largest group falls in the middle-aged adult category (34-54 years old).
- We see a strong mix of middle-aged adults (34-54) and seniors (65+) among our new customers.
- The old customers dataset has a minority of Seniors aged 65+.
- both new and existing customers separately have roughly equal proportions of young adults (21-34) and mature adults (55-64).



Young adults = 21 - 34
Mature adults = 55 - 64

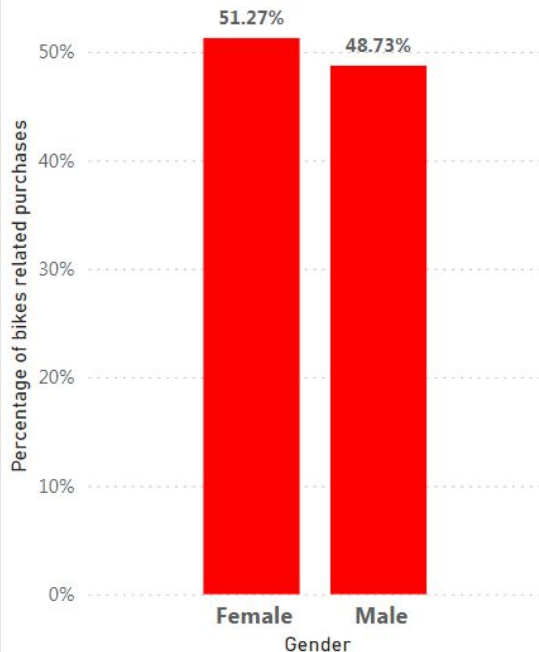
Middle adults = 34 - 54
Seniors = 65+



Bike Related Purchases

Percentage of Bike related purchases for the past 3 years

Old Customers List



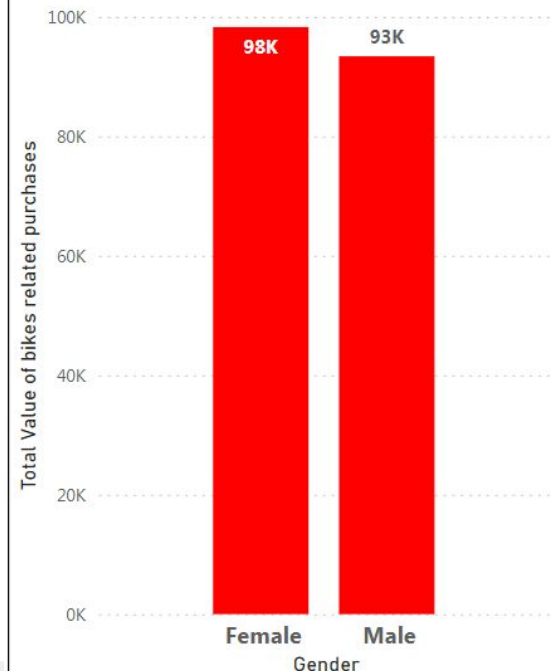
Old Customers Dataset

- In the past 3 years, our data shows that female customers purchased slightly more bikes than male customers.
- Specifically, females made about 5,000 more bike-related purchases than males. This translates to 2.54% of all purchases made during that time.



Amount of Bike related purchases for the past 3 years

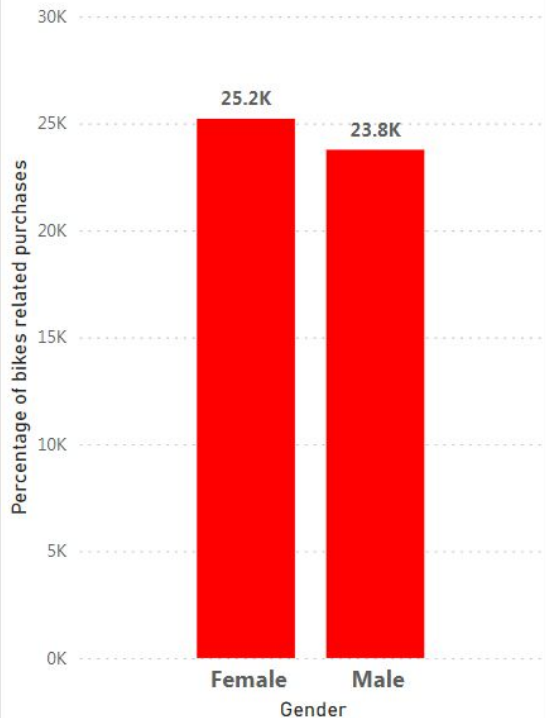
Old Customers List



Bike Related Purchases

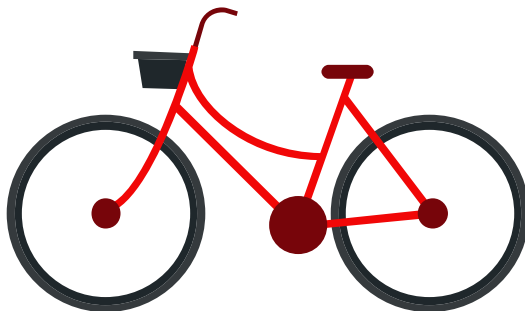
Amount of Bike related purchases for the past 3 years

New Customers List



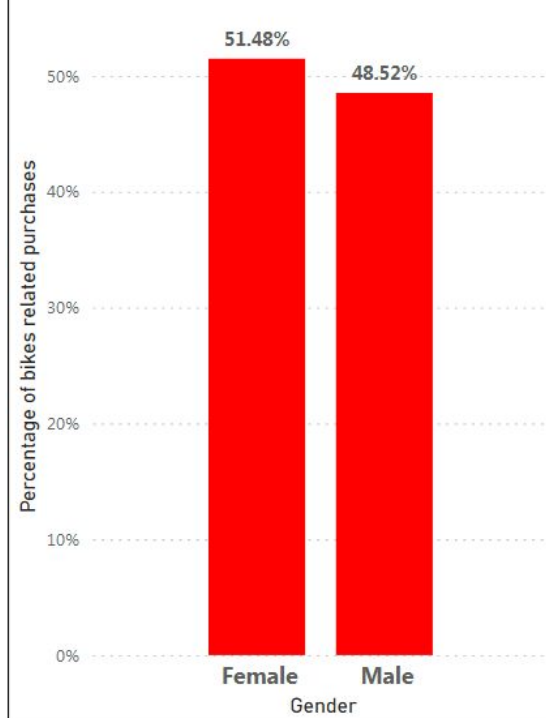
New Customers Dataset

- In our new customer data, we've noticed a trend over the past 3 years: female customers are making slightly more bike-related purchases than males.
- Specifically, females have made roughly 1400 more bike purchases compared to males during this time period. This translates to about 2.96% of all bike purchases.



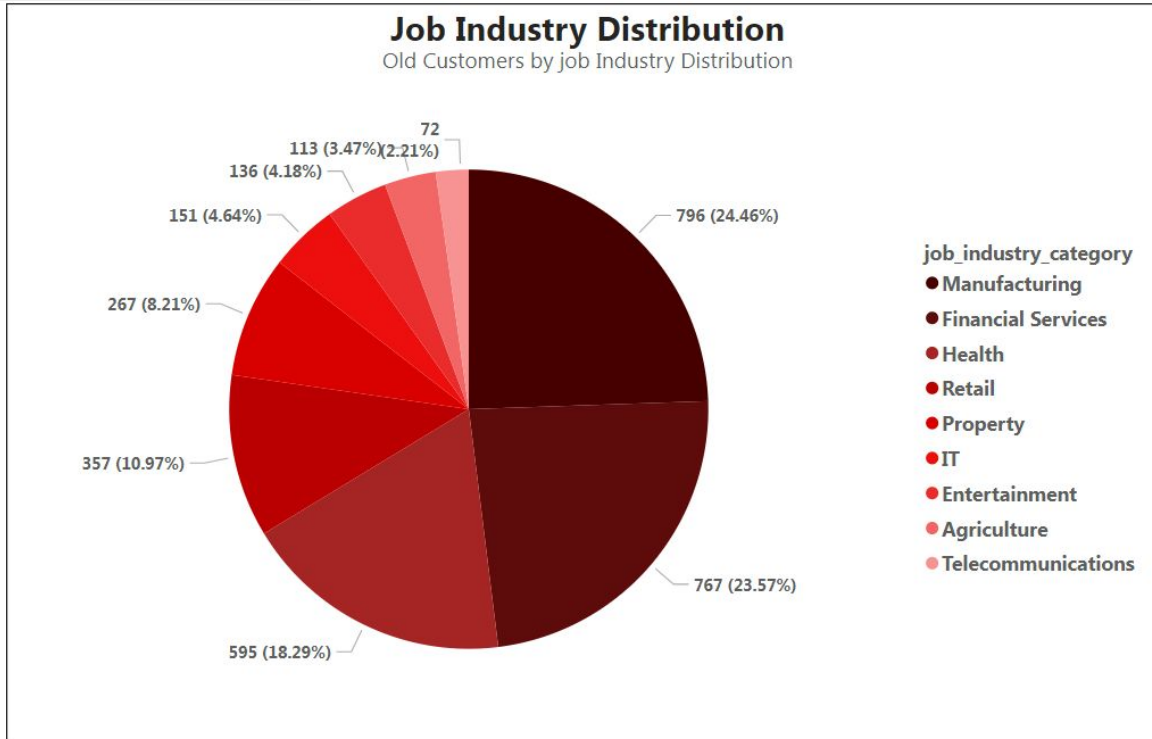
Percentage of Bike related purchases for the past 3 years

New Customers List



Job Industry Distribution

Old Customers Dataset



- Nearly half (around 48%) of our customers come from manufacturing and financial services.
- The health and retail sectors together make up another 30%.
- Manufacturing is our biggest group, with roughly a quarter (24.46%) of all our customers.
- Telecommunications is on the smaller side, accounting for 2.21%.

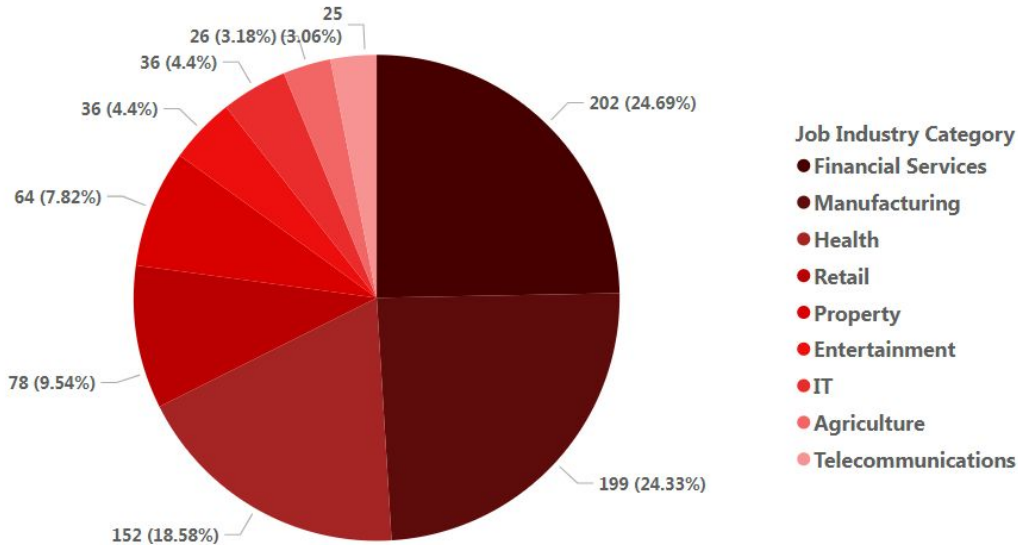


Job Industry Distribution

New Customers Dataset

Job Industry Distribution

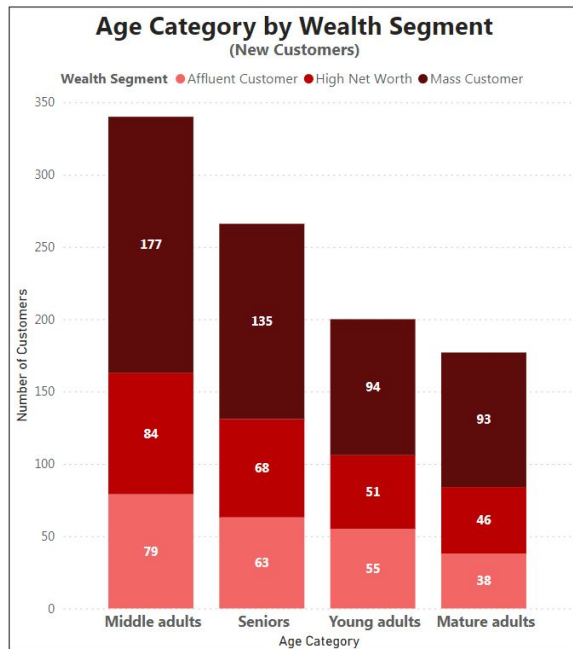
New Customers by Job Industry Distribution



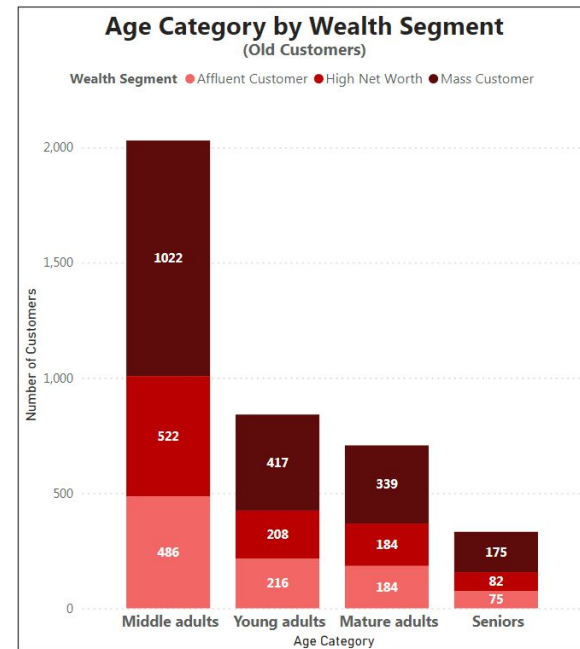
- Similar to our existing customers, new customers in manufacturing and financial services make up about half (around 50%) of our data. The health and retail sectors come in second at roughly 28%.
- Within the new customer group, financial services takes the lead with nearly a quarter (24.69%) of the total. Manufacturing follows closely behind at 24.33% – it's almost a tie!
- Telecommunications rounds out the group with a smaller share, contributing around 3% of the new customers.



Age Category by Wealth Segment



- The majority of our customers fall into the "mass customers" group. This includes both new and existing customers, and spans across all age categories.
- High-net-worth individuals make up the second-largest customer segment across most age categories.
- Young adults are a bit of an exception, with a slightly larger number of affluent customers compared to high-net-worth individuals.

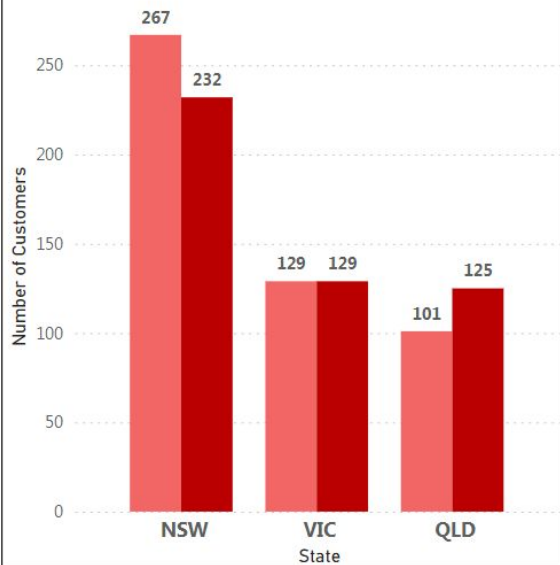


Cars Ownership

Number of Cars owned in each state

(New Customers)

Owns Car ● No ● Yes



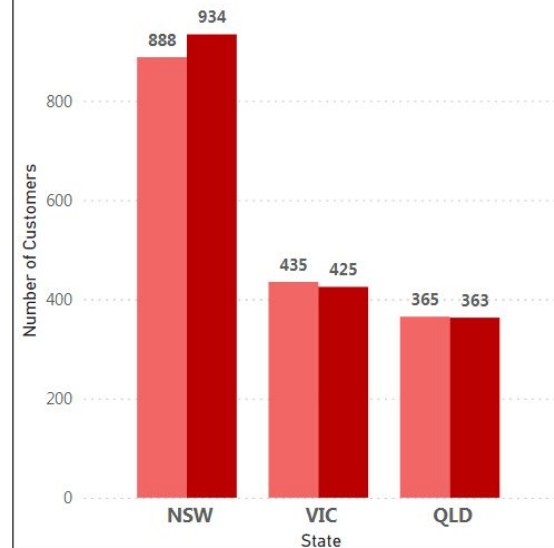
- It appears New South Wales (NSW) has the most customers overall, regardless of car ownership.
- Among existing customers, NSW has a slightly higher proportion of car owners compared to the other two states (QLD, VIC)
- Interestingly, car ownership trends differ slightly for new customers. In QLD, there are slightly more car owners than non-car owners, while NSW has a bit fewer car owners. Victoria shows an even split between car owners and non-car owners for new customers.



Number of Cars owned in each state

(Old Customers)

Owns Car ● No ● Yes





03

Model Development

The data has more to say if
properly analyzed



RFM Segmentation

RFM segmentation is a marketing technique used to identify and group customers based on their recent purchase history.

It considers three key factors:

Recency

How recently a customer made a purchase

Frequency

How often a customer makes purchases

Monetary

How much a customer spends per purchase



RFM Segments

RFM is a behavior-based segmentation approach, which stands for Recency, Frequency, and Monetary value, each corresponding to key customer trait. These RFM metrics are important indicators of a customer's behavior because:

- frequency and monetary value affect a customer's lifetime value, and
- recency affects retention, a measure of engagement.

RFM factors illustrate these facts:

- The more recent the purchase, the more responsive the customer is to promotions.
- The more frequently the customer buys, the more engaged and satisfied they are.
- Monetary value differentiates heavy spenders from low-value purchasers or users.


How RFM Segmentation works:

We give every customer a score from 1 to 5 on every factor. The most active customer should have a score of 5 on each of recency, frequency and monetary, that gives him a 555 score in total, and the least active customer should have the score 1 on all factors and his total score is 111.



RFM Segments

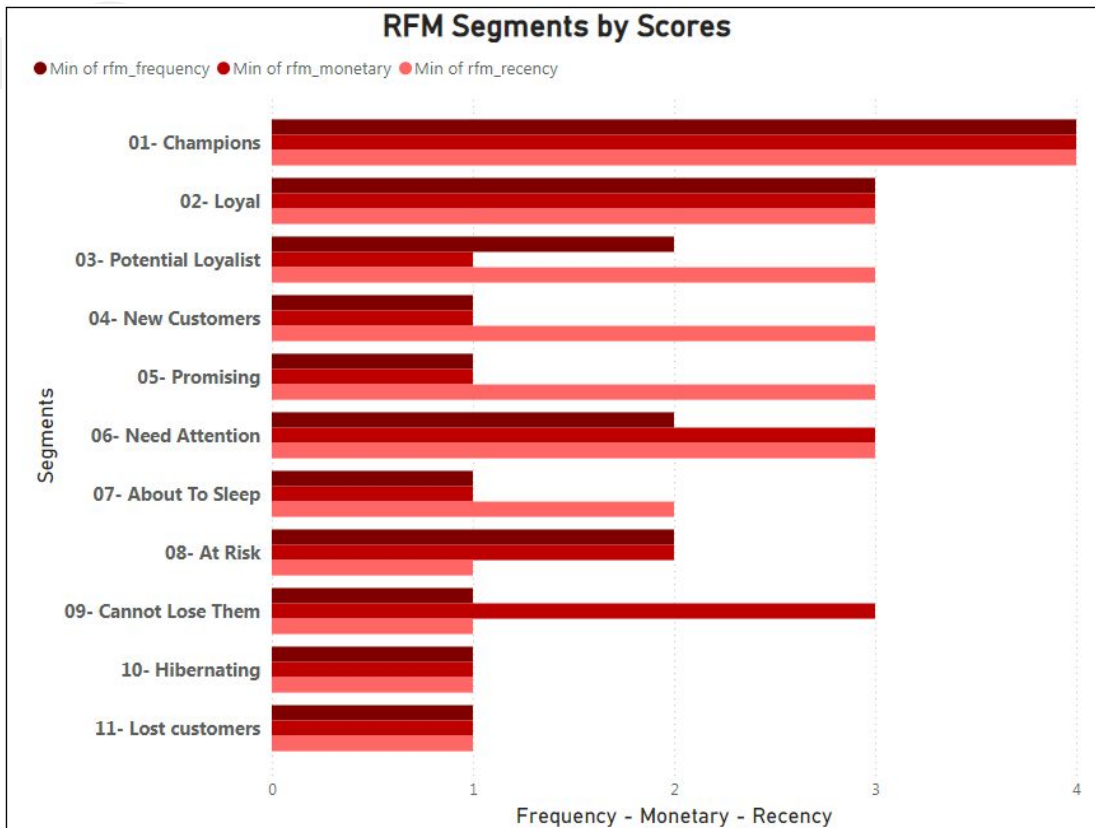
Champion	Bought recently, order often, and spend the most.
Loyal	Orders regularly. Responsive to promotions.
Potential Loyalist	Recent customers, and spent a good amount.
New Customers	Bought most recently.
Promising	Spends frequently and a good amount. But the last purchase was several weeks ago.
Needs attention	Core customers whose last purchase happened more than one month ago.
About To Sleep	Standard customers with quite too long-ago purchases.
At Risk	Similar to “Can’t lose them but losing” but with smaller monetary and frequency value.
Can’t lose them	Made the largest orders, and often. But haven’t returned for a long time.
Hibernating	Made their last purchase a long time ago but still engaged with the business.
Lost	Made last purchase a long time ago and didn’t engage at all in the last 4 weeks.



RFM Score-based Segments

Champion	555, 554, 544, 545, 454, 455, 445
Loyal	543, 444, 435, 355, 354, 345, 344, 335
Potential Loyalist	553, 551, 552, 541, 542, 533, 532, 531, 452, 451, 442, 441, 431, 453, 433, 432, 423, 353, 352, 351, 342, 341, 333, 323
New Customers	512, 511, 422, 421 412, 411, 311
Promising	525, 524, 523, 522, 521, 515, 514, 513, 425,424, 413,414,415, 315, 314, 313
Needs attention	535, 534, 443, 434, 343, 334, 325, 324
About To Sleep	331, 321, 312, 221, 213, 231, 241, 251
At Risk	255, 254, 245, 244, 253, 252, 243, 242, 235, 234, 225, 224, 153, 152, 145, 143, 142, 135, 134, 133, 125, 124
Can't lose them	155, 154, 144, 214,215,115, 114, 113
Hibernating	332, 322, 233, 232, 223, 222, 132, 123, 122, 212, 211
Lost	111, 112, 121, 131,141,151

RFM Segments by score



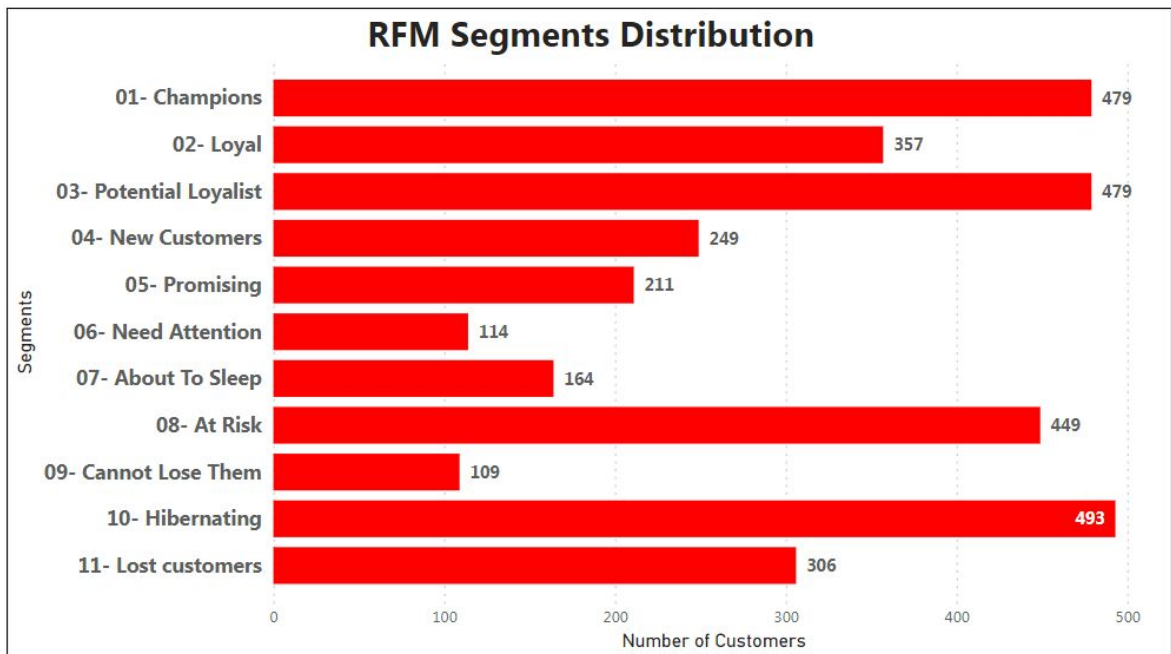
RFM Segmentation in Action:

We have sorted customers by recency, with the most recent purchasers at the top. Since customers are assigned scores from 1-5, the top 20% of customers (customer 12, 11, 1) receive a recency score of 5, the next 20% (the next 3 customers 15, 2, 7) a score of 4, and so on.

Similarly, we can then sort customers by frequency from most to least frequent, assigning the top 20% a frequency score of 5, etc. For the monetary factor, the top 20% of customers (big spenders) will be assigned a score of 5 and the lowest 20% a score of 1.

Finally, we can rank these customers by combining their individual R, F, and M rankings to arrive at an aggregated RFM score.

RFM Segments Distribution

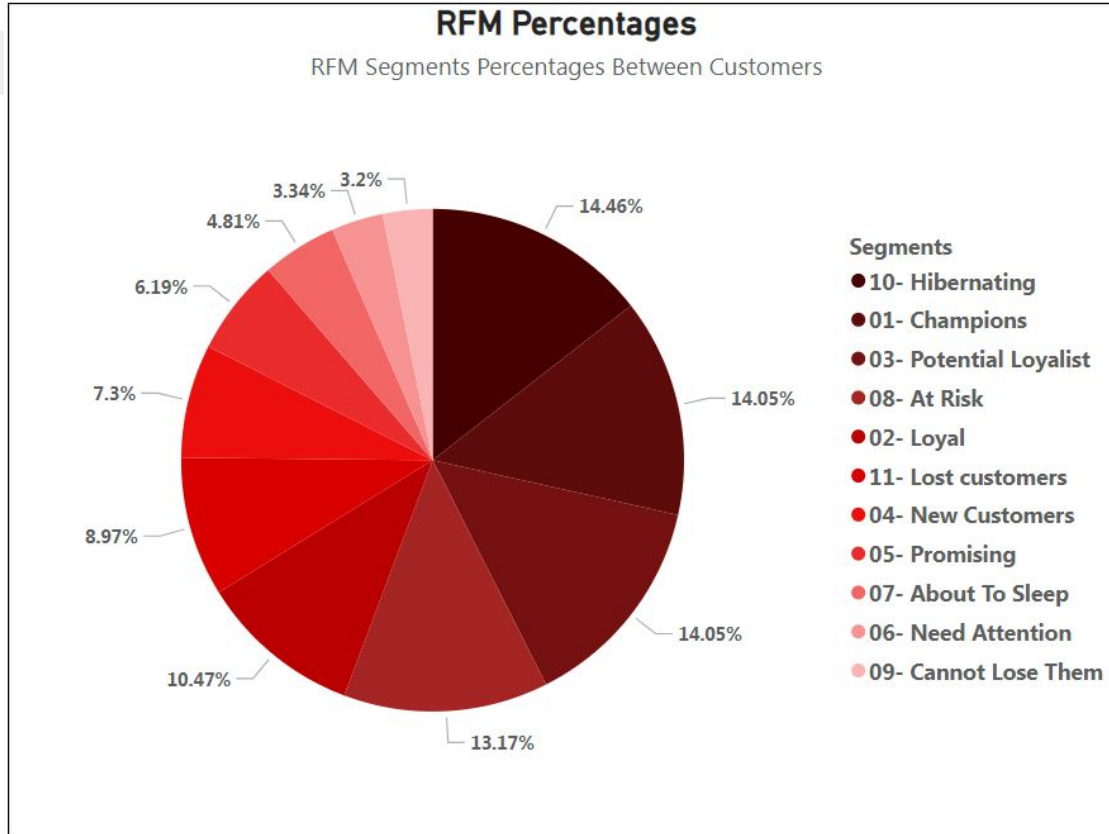


Eleven Segments:

We can now split our customers list into 11 customer segments based on their total scores. The largest segment is “Hibernating” (493 customers), followed by “At Risk” (449 customers), “Champions” (479 customers) and “Potential Loyalist” also (479 customers). The smallest segment is “Cannot Lose Them” (109 customers).

NOW, you can use RFM analysis to identify your most valuable customers and target your marketing campaigns accordingly.

RFM Segments Percentages



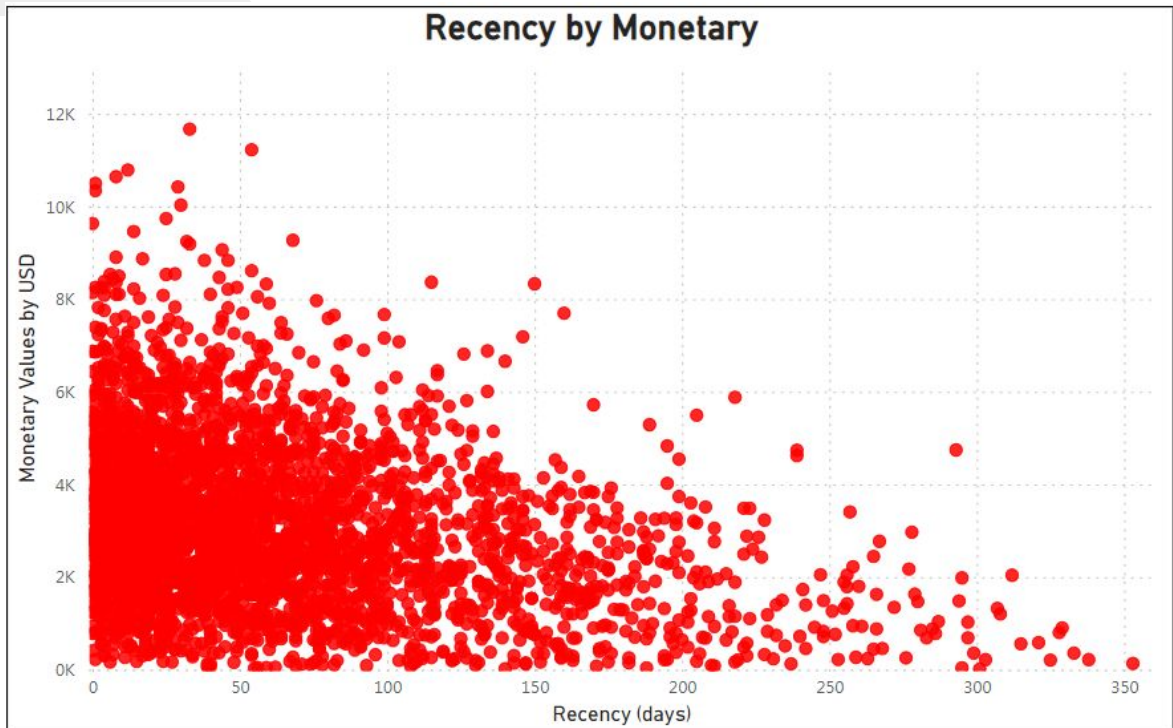
Segments in Order:

We can see that the largest segment is “Hibernating” with 14.46% and the “Champions” segment comes in the second place with a slight difference making 14.05% of all the customers.

The “Potential loyalist” segment shares the same rank with “Champions” segment with an equal percentage of 14.05%.

The smallest segments are “Cannot lose them” with 3.2%, “Need Attention” with 3.34% and “About to sleep” with 4.81%.

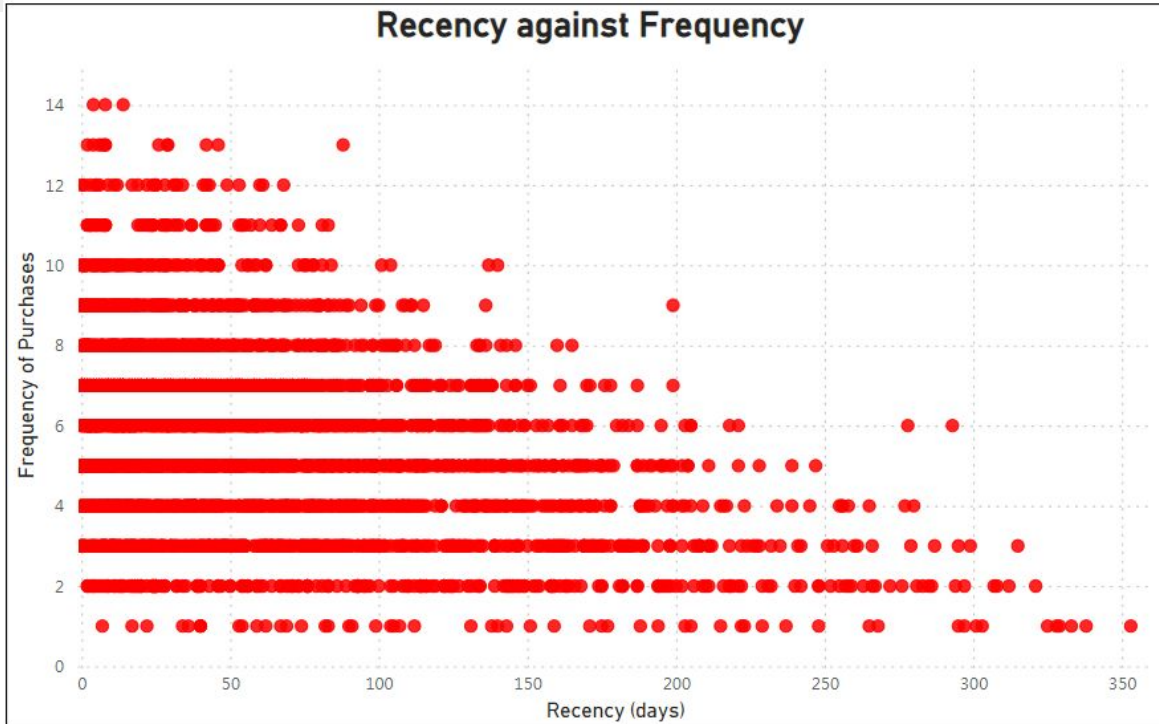
Recency by Monetary



Trends and Patterns:

- The Majority of customers generated revenue between 0 to \$6000.
- The customers who generated the most revenue have purchased the most recent.
- A moderate amount of revenue have been generated between the last 50 to 100 days.
- A moderate amount of customers have generated revenue between 6K to 8K USD.
- Fewer customers have purchased more than \$8000.
- The fewest customers have purchased more than 200 days ago and they generated low revenue.

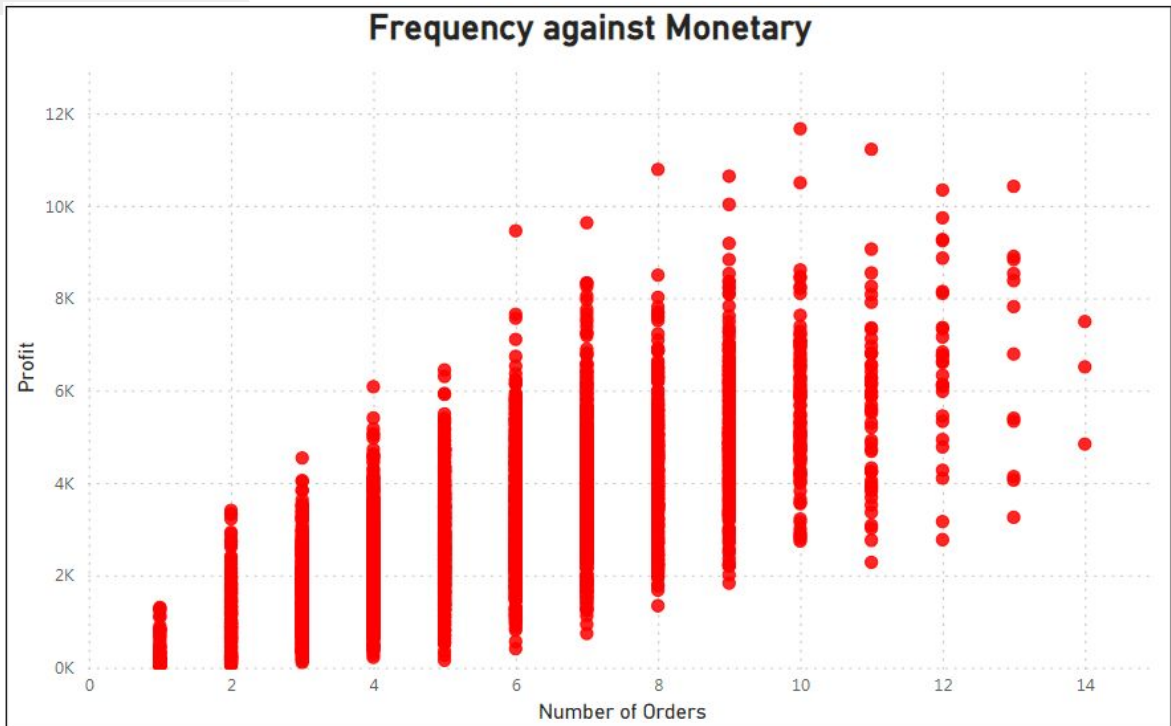
Recency by Frequency



Trends and Patterns:

- The Majority of customers have purchased recently (in the last 150 days).
- Customers who purchased the most frequent (more than 10 times) are also the most recent to purchase (in the last 100 days).
- Customers who purchased the least recent (200+ days) are less frequent purchasers (6 purchases MAX).
- A minority of customers are one time purchasers and they are distributed almost equally on the whole year.

Frequency by Monetary



Trends and Patterns:

- Naturally, there is a positive relationship between the frequency (Number of orders) and the monetary (Profit), meaning; the higher the profit the higher the count of orders, with some exceptions for customers who purchased more than 12 times.
- Few customers have purchased more than 12 times and they still in a high profit range from 2K to 10K approximately.
- Also, few customers have generated profit more than 8K but they share a tendency for purchasing more frequent than 6 times.

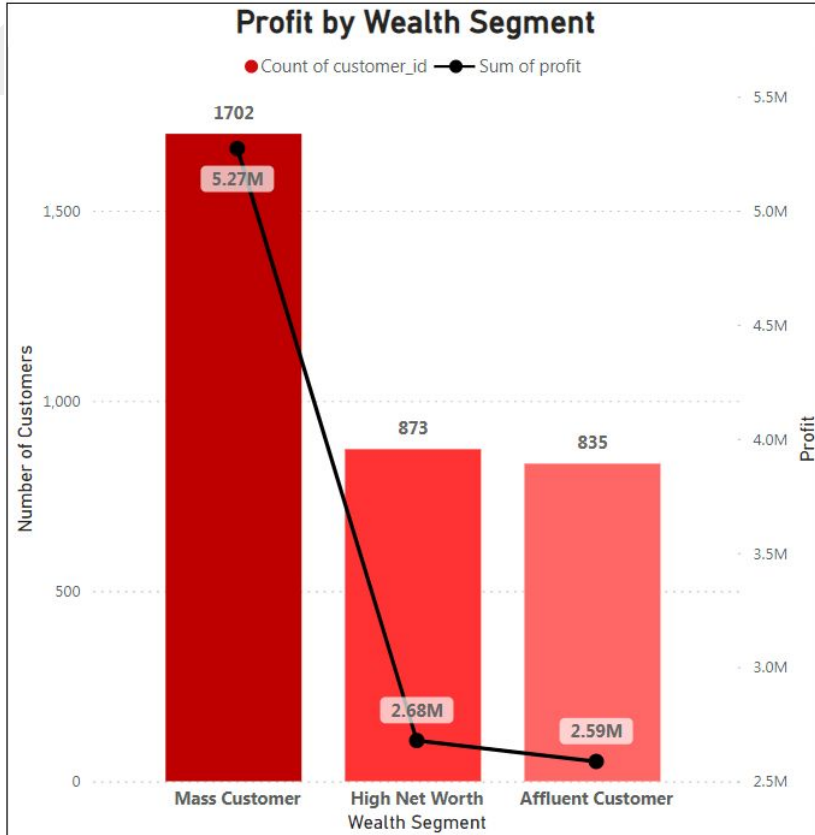
More insights

The data still have more to say

The model development phase has generated some extra insights that might be helpful.



Profit by Wealth Segment

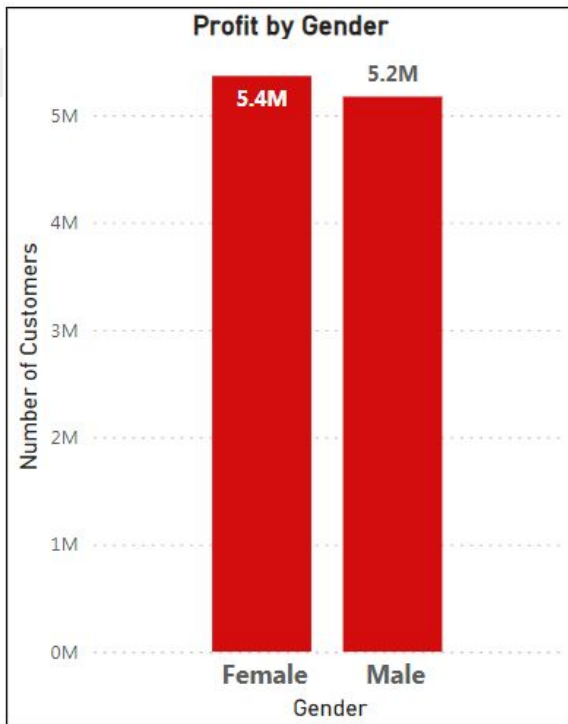


Observations:

- The majority of customers are in the “Mass customers” segment (1702 customers) and they have generated about 5.27M USD.
- “High Net Worth” segment comes second with 873 customers making 2.68M USD.
- “Affluent Customer” segment comes third with 835 customers with 2.59M USD.

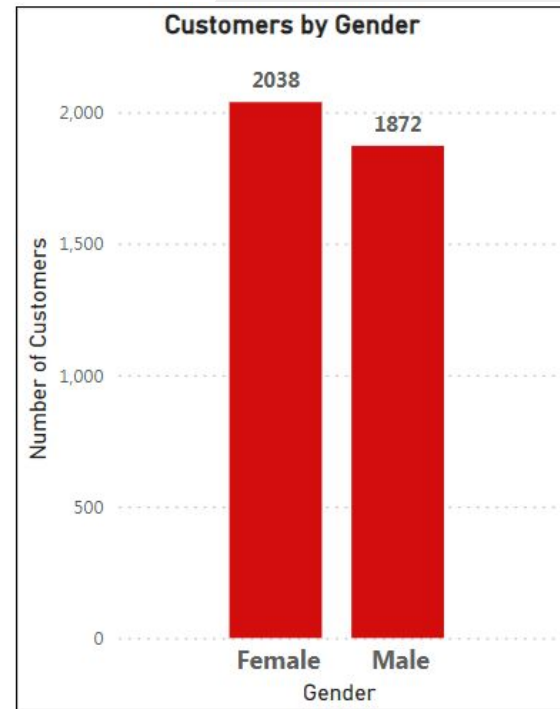


Gender/Profit

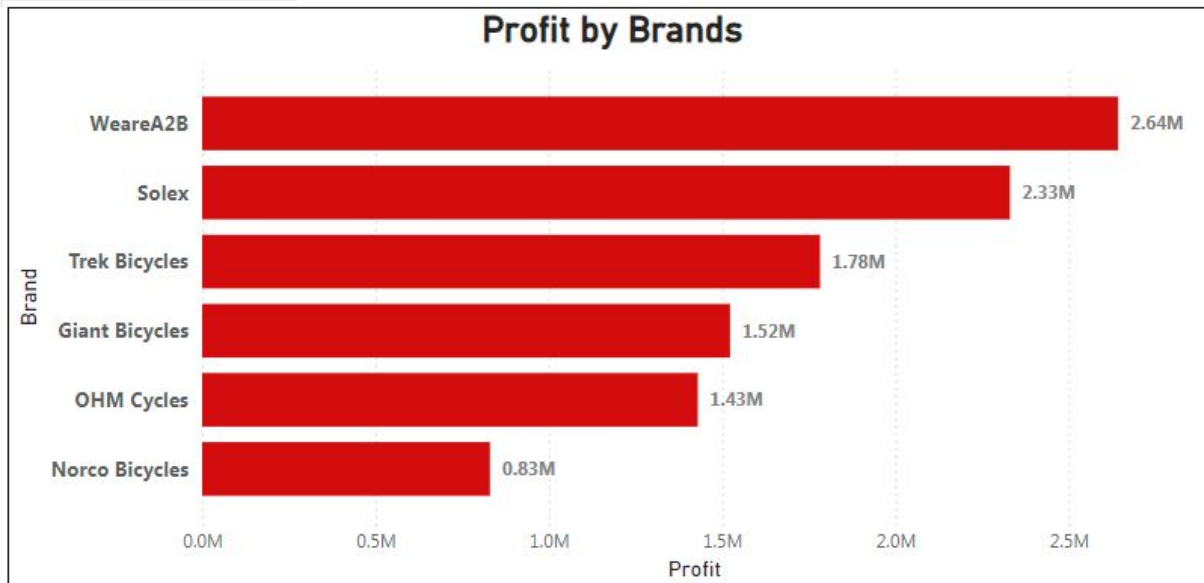


Observations:

- The majority of customers are females (2038 customers) and they generate slightly more profit than the male customers do with 5.4M USD.
- Male customers (1872 customers) are slightly fewer than females making 5.2M USD.



Profit by Brands



Observations:

- WeareA2B comes in the first rank making 2.64M USD.
- In the second rank, Solex comes with 2.33M USD.
- Norco Bicycles make the least of the profit with 0.83M USD.





04



Interpretation

Let's thoroughly understand what the data has told us

Focus Areas



Age

The Middle adults are the best target for you.



Wealth

Mass customers are majority and profitable.



Gender

Both Females and males may be targeted equally.



Industry

Manufacturing and financial services are promising.



Address

Customers who are living in NSW are majority.



RFM Segments

“Champions” and “Potential Loyalist” are promising.

Recommendations:

Based on the RFM analysis, here are some recommendations for what Sprocket Central could do:



Retaining high-value customers!

The company has a large segment of “Hibernating” customers (493) who haven't purchased recently. Win them back with targeted campaigns and special offers. Additionally, the “At Risk” segment (449) are previously frequent high-spending customers who need attention to prevent churn. Address their concerns and offer incentives to keep their business. They should prioritize retaining these segments because they likely have a high customer lifetime value.

More Recommendations!

Nurture promising segments

The “Potential Loyalists” and “Promising” segments show buying potential. Engage them with personalized recommendations and loyalty programs to convert them into high-value customers.



More Recommendations!

Maintain relationships with loyal customers

The “Champions” and “Loyal” segments are valuable assets. Reward their loyalty with exclusive benefits and keep them engaged with the brand.



Convert new customers

The “New Customers” segment has promise, but they need encouragement to come back more often and spend more. Targeted promotions and special offers can help move them up the customer value ladder.



Time has passed!

*We've reached the end
of our journey!*



A stylized illustration of a park scene. On the left, there is a large red tree with a white trunk and branches. Below it, a grey bench is positioned. To the right of the bench is a black lamppost with a grey top. The ground is light grey with some red leaves scattered around. In the background, there are grey clouds and a white sky.

”

**My chief motive was to create
a machine which would
enable men to travel with
convenience and celerity
without the aid of horses or
other animals.**

—Karl Drais



Resources

Visuals:

- [Free Google Slides themes and Powerpoint templates | Slidesgo](#)

Technical Tools:

- Linux (ubuntu 22.4 LTS)
- PostgreSQL
- Microsoft Power Bi
- Microsoft Excel
- Google Slides

Theoretical and Technical help:

- [PostgreSQL Tutorial \(w3schools.com\)](#)
- [RFM\(E\) Customer Segmentation - Recency, Frequency, Monetary \(or Engagement\) Analysis - ShopUp](#)

**You can have data without information, but
you cannot have information without data.**

- Daniel Keys Moran



Thank you!

Do you have any questions?

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