

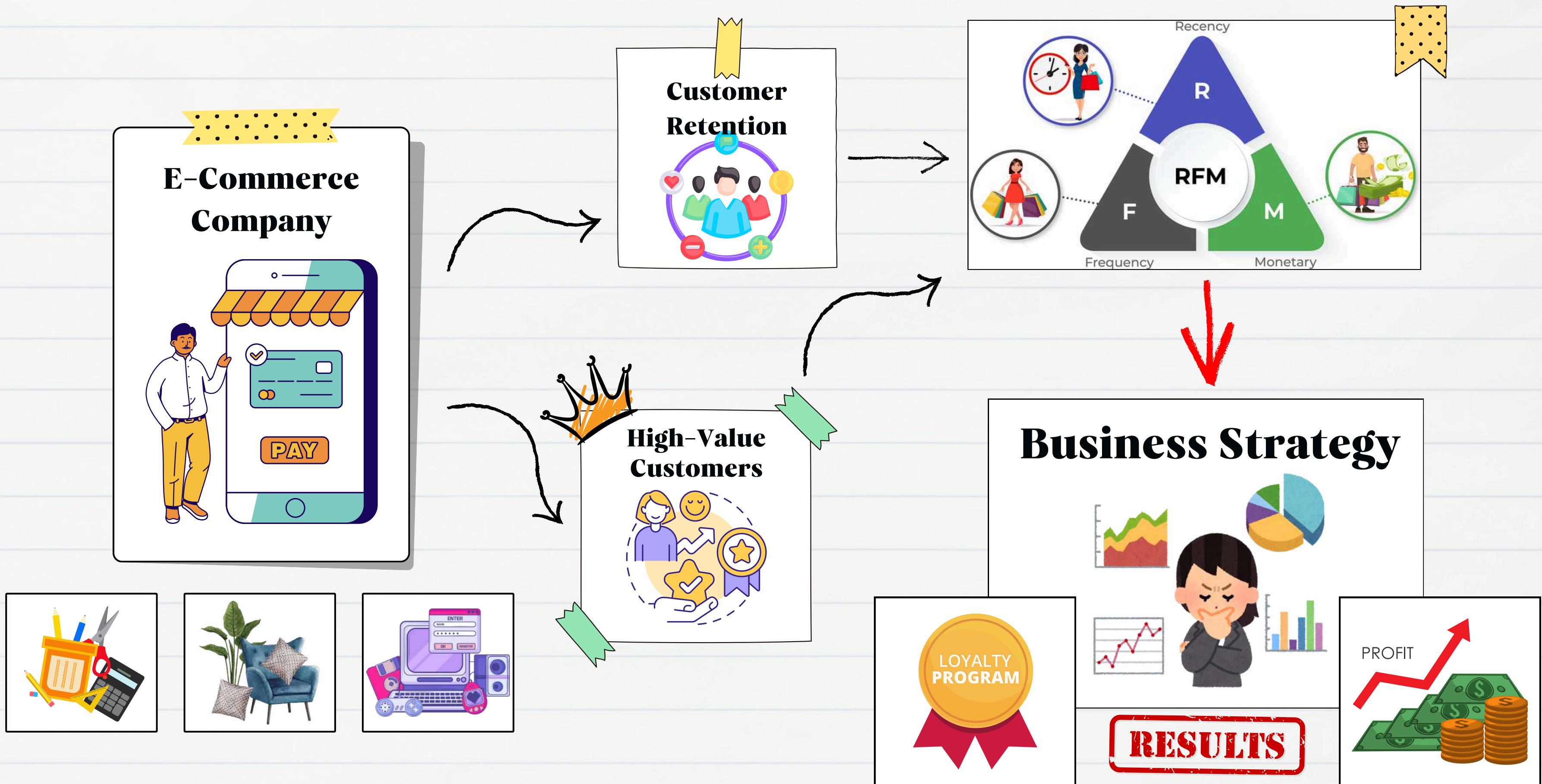
Customer Loyalty Improvement Strategy for E-Commerce Using RFM Analysis at Company XYZ

Overview

- Background
- Problem
- Tools & Materials
- Data Understanding
- Data Analysis
- Recommendation
- Conclusions



Background



Problems



- 1** Who are the best customers that need special attention from the company?
- 2** How can the loyalty of customers with the potential to become more loyal be improved?
- 3** Which customers are at risk of not returning to shop, and how can they be recovered?

Tools & Materials

XYZ Company Sales Dataset
2011 – 2014

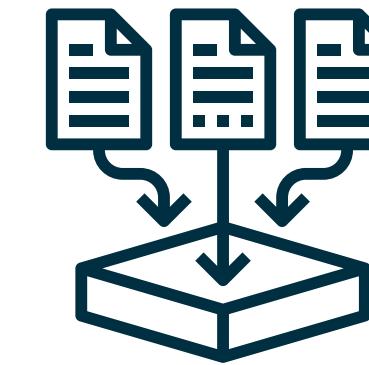


Libraries

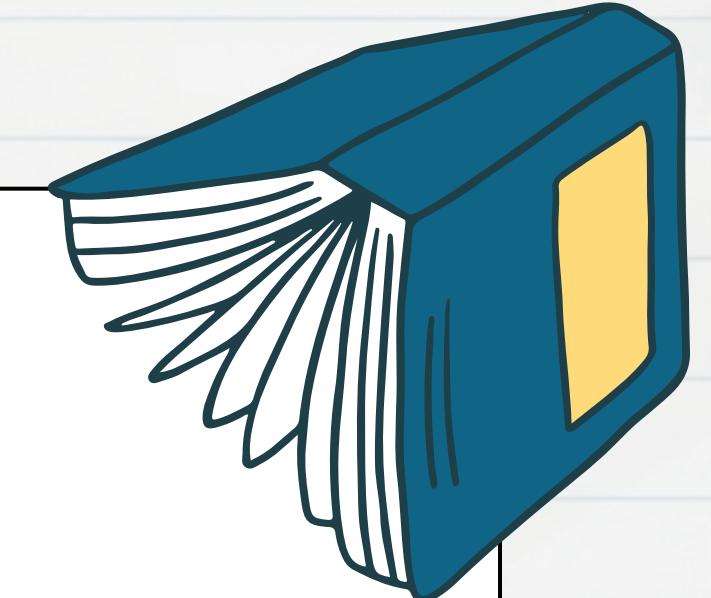


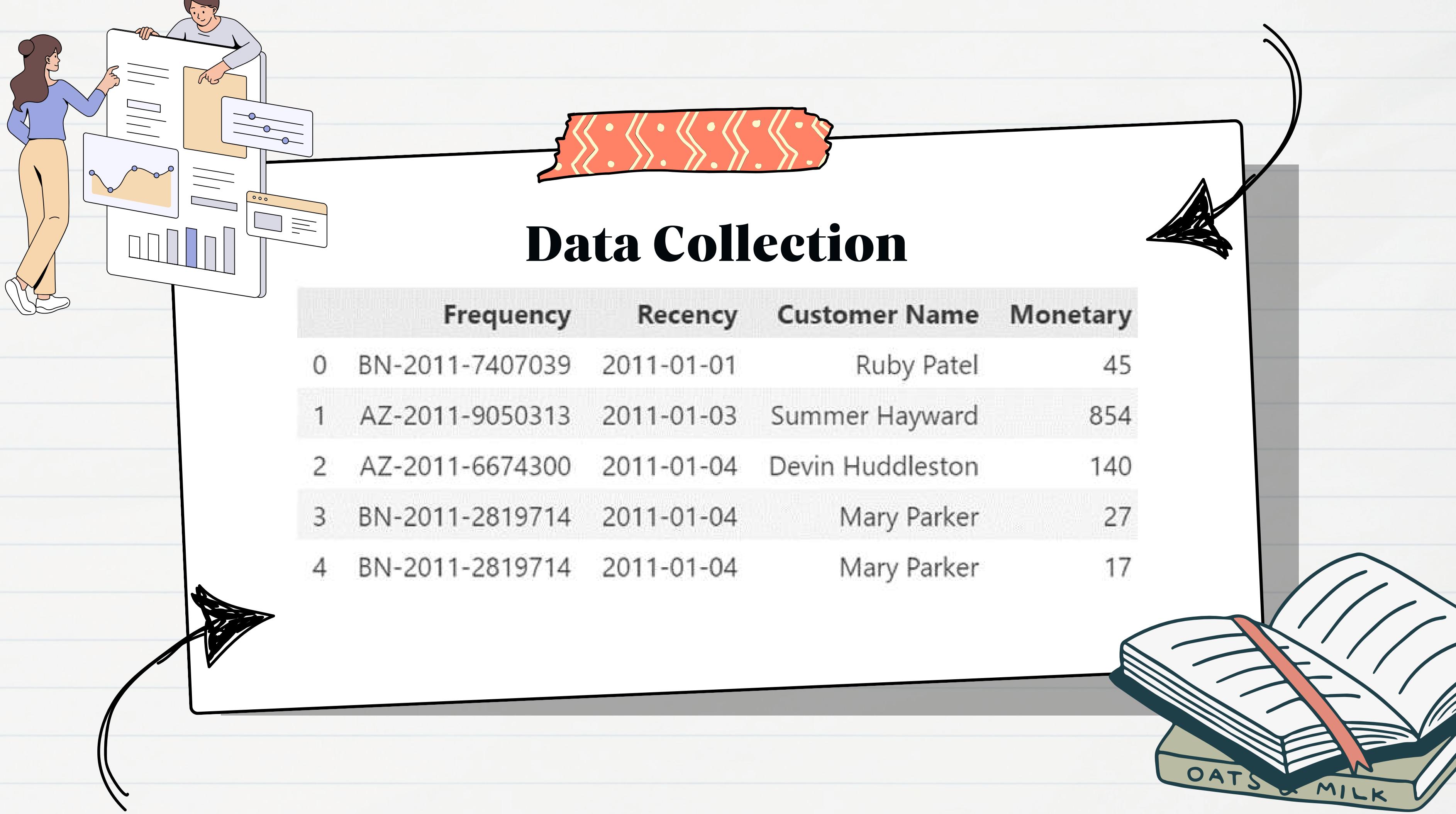
```
import pandas as pd  
import seaborn as sns  
import matplotlib.pyplot as plt
```

The main columns to be used



```
'Order Date': 'Recency',  
'Order ID': 'Frequency',  
'Sales': 'Monetary'
```

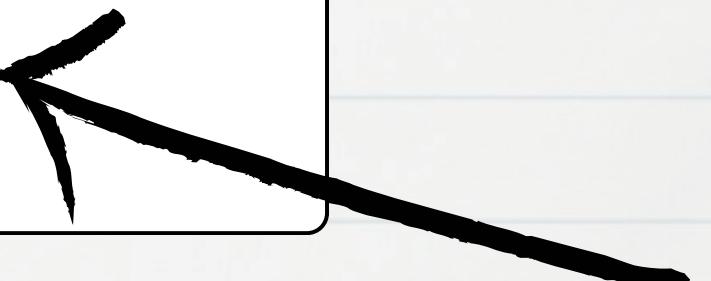




Descriptive Statistics

	Recency	Monetary
count	8047	8047.000000
mean	2013-04-19 12:25:40.748104704	291.845657
min	2011-01-01 00:00:00	3.000000
25%	2012-06-08 00:00:00	48.000000
50%	2013-06-11 00:00:00	117.000000
75%	2014-04-30 00:00:00	313.000000
max	2014-12-31 00:00:00	6517.000000
std	NaN	485.212156

	Frequency	Customer Name
count	8047	8047
unique	4117	792
top	AZ-2014-7040665	Joel Peters
freq	11	32



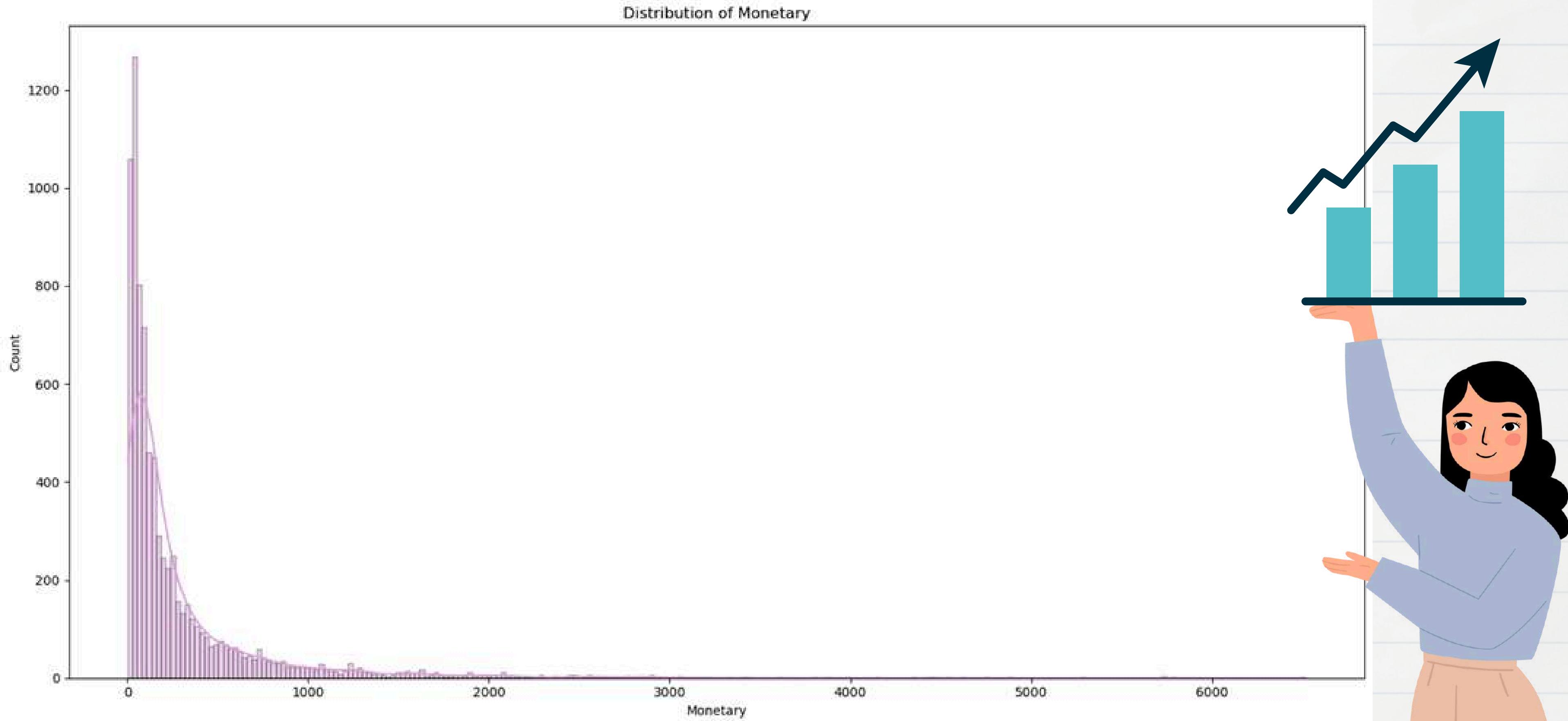


Top 5 Person with Highest Monetary

	Frequency	Recency	Customer Name	Monetary
442	AZ-2011-2948812	2011-06-06	Eva Butler	104
986	BN-2011-188092	2011-09-27	Peter Daly	117
1099	BN-2011-4260093	2011-11-01	Casey Forte	87
1273	AZ-2011-6683192	2011-12-03	Gracie Hicks	36
1315	AZ-2011-9732880	2011-12-10	Sofia Goddard	34

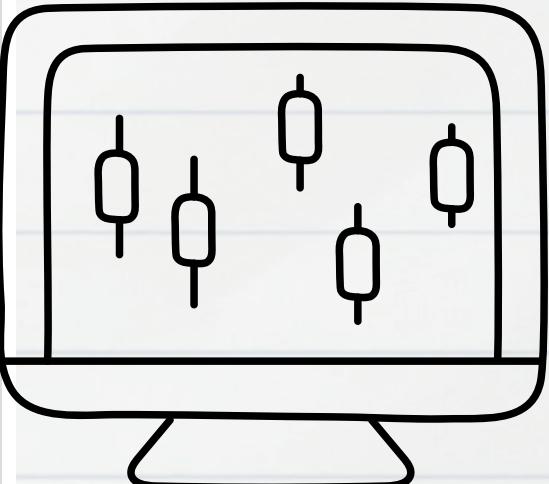
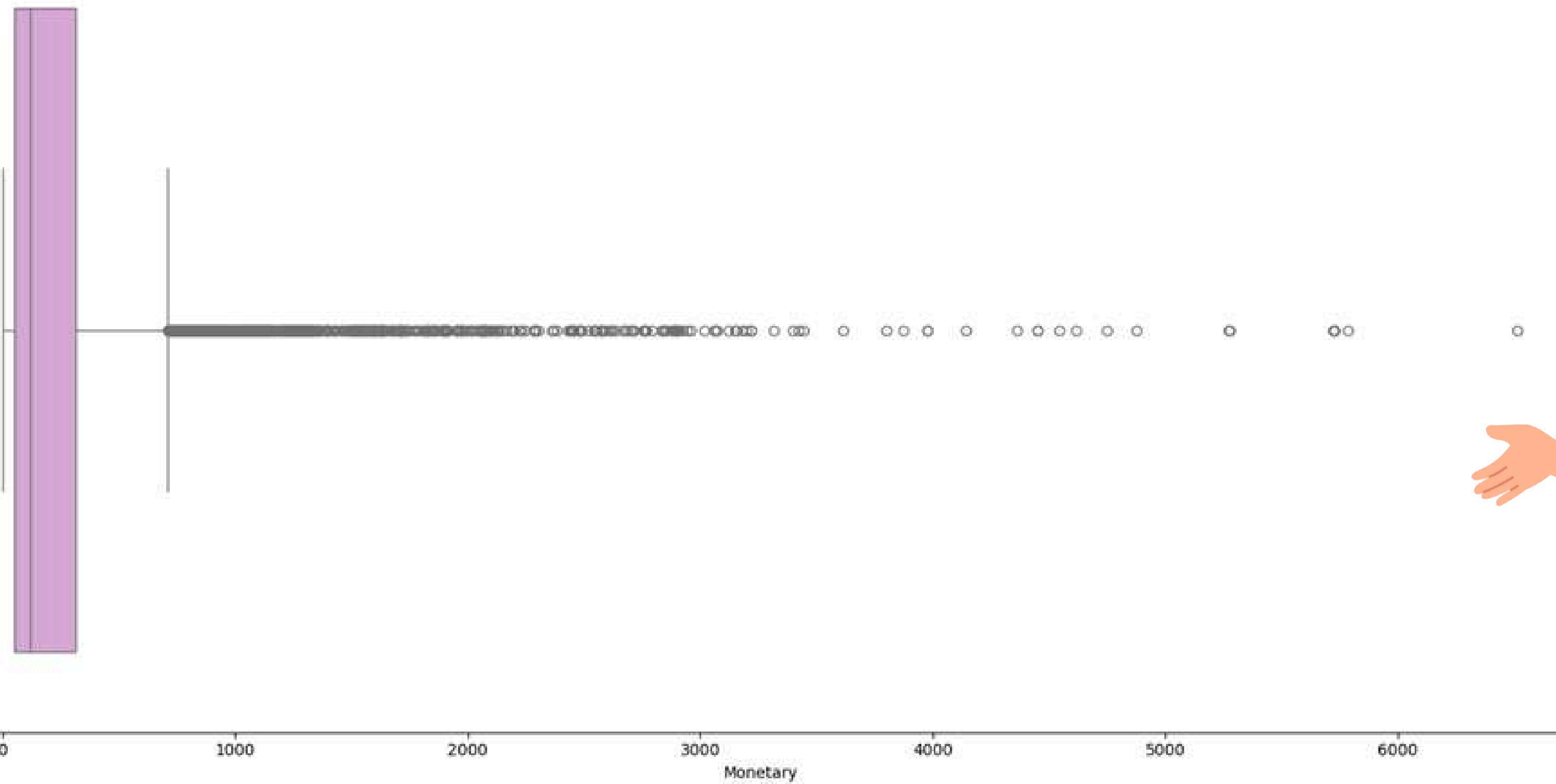


Histogram Distribution of Monetary



Boxplot Distribution of Monetary

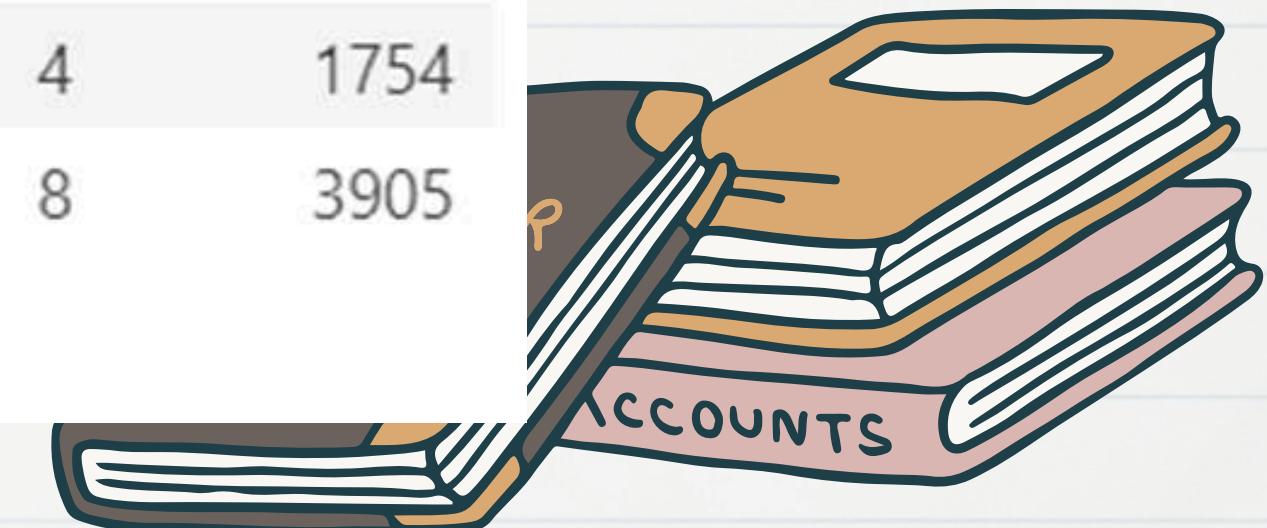
Distribution of Monetary



Recency, Frequency, and Monetary (RFM) Table

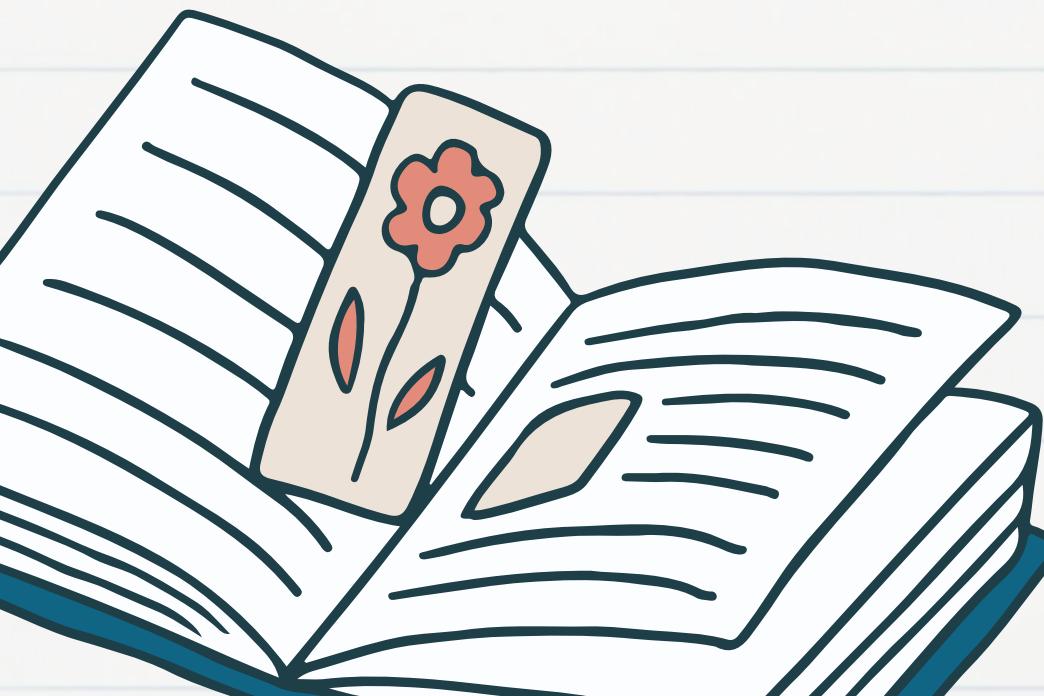
	Customer Name	Recency	Frequency	Monetary
0	Aaron Bootman	252	11	4281
1	Aaron Cunningham	211	8	2463
2	Aaron Davey	636	4	2238
3	Aaron Macrossan	1199	1	81
4	Abbie Perry	97	4	1313
...
787	Zara Loton	116	3	1614
788	Zara Money	12	5	2862
789	Zoe Lanigan	173	4	3249
790	Zoe Lowin	5	4	1754
791	Zona Meyer	13	8	3905

792 rows × 4 columns



RFM Score Assignment

	Customer Name	Recency	Frequency	Monetary	Recency_Score	Frequency_Score	Monetary_Score
0	Aaron Bootman	252	11	4281	1	4	4
1	Aaron Cunningham	211	8	2463	1	4	4
2	Aaron Davey	636	4	2238	1	2	4
3	Aaron Macrossan	1199	1	81	1	1	1
4	Abbie Perry	97	4	1313	2	2	3

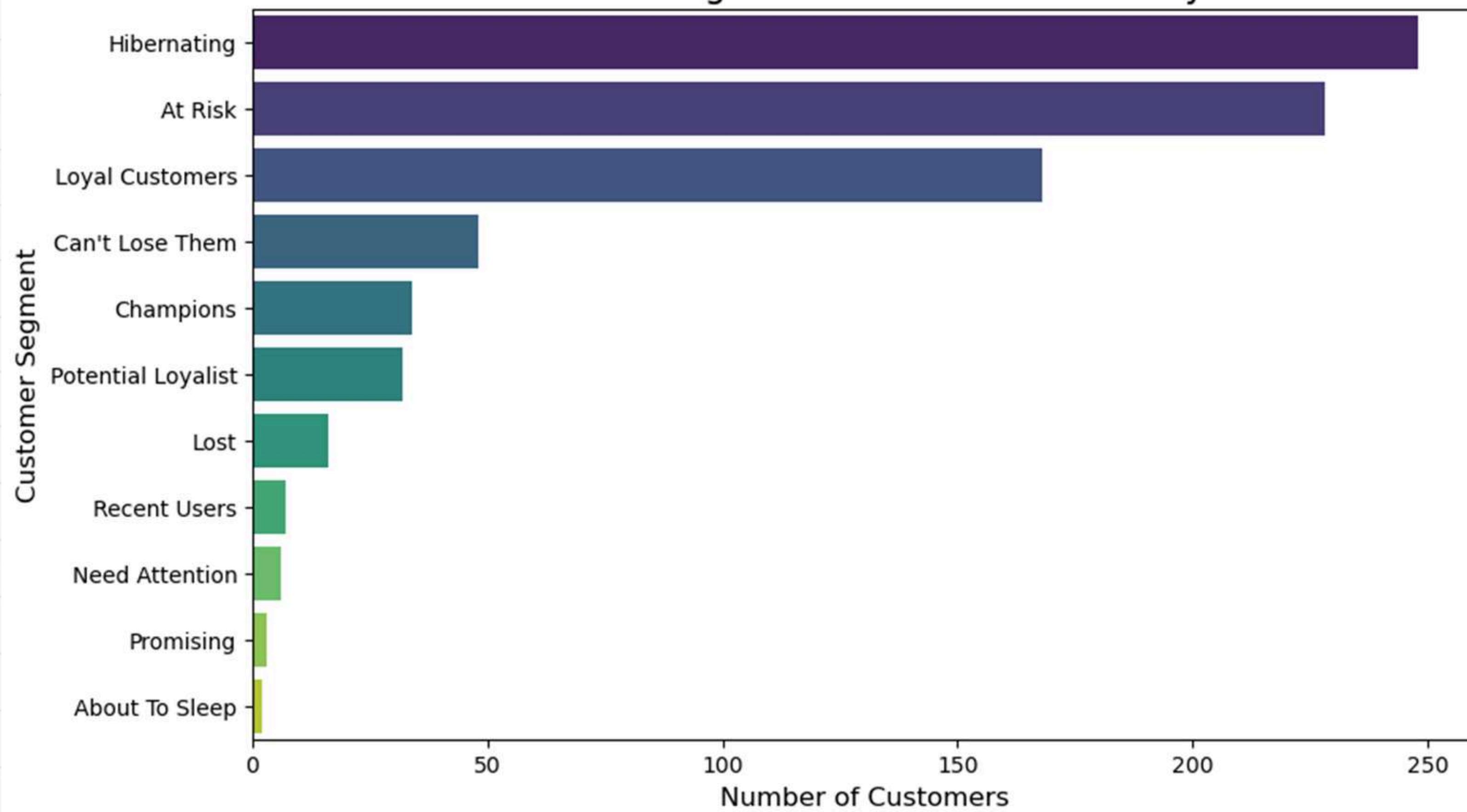


Data Collection for Segmentation

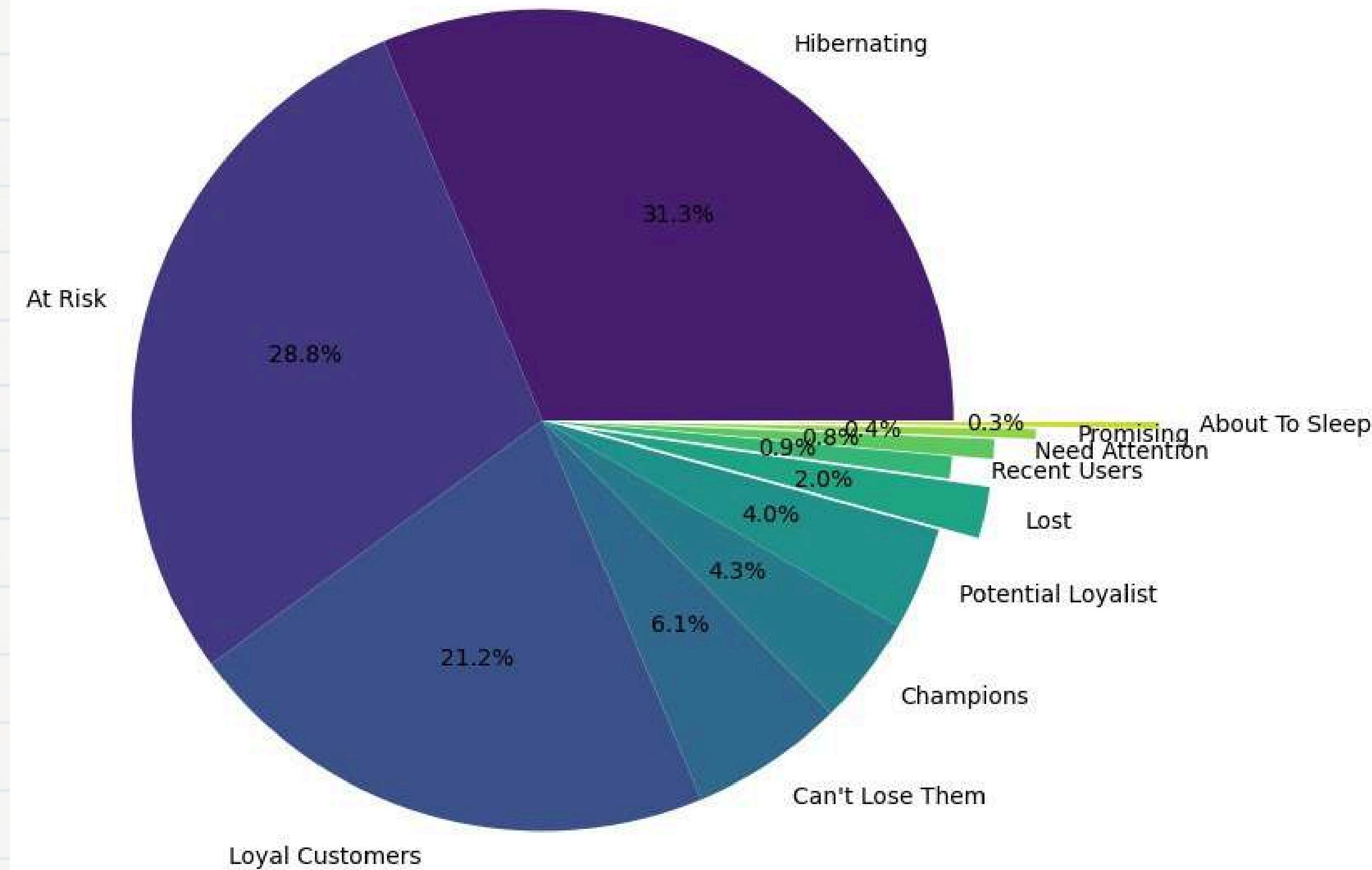
	Customer Name	Recency_Score	Frequency_Score	Monetary_Score	Segment
0	Aaron Bootman	1	4	4	At Risk
1	Aaron Cunningham	1	4	4	At Risk
2	Aaron Davey	1	2	4	Hibernating
3	Aaron Macrossan	1	1	1	Lost
4	Abbie Perry	2	2	3	Hibernating



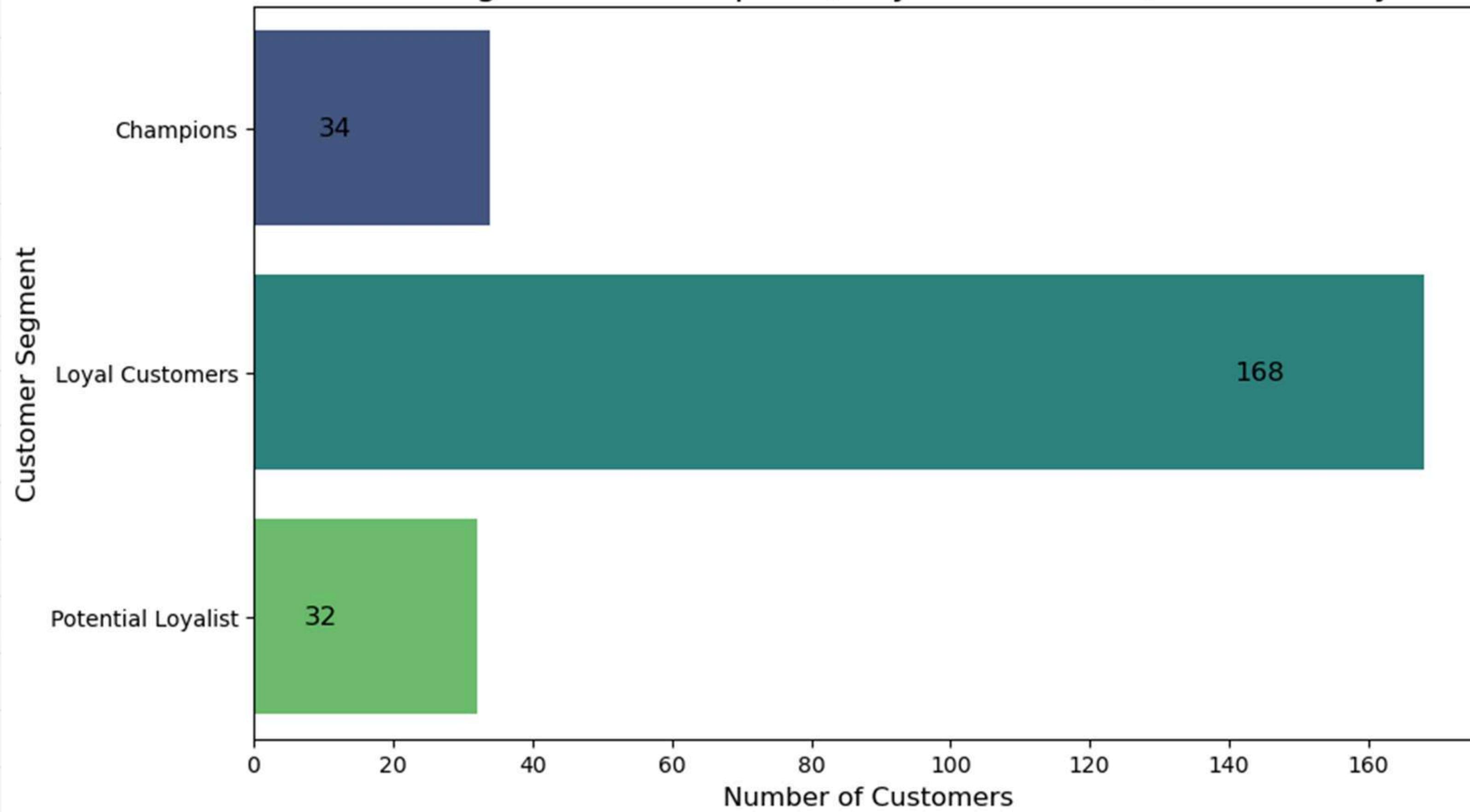
Customer Segments Based on RFM Analysis



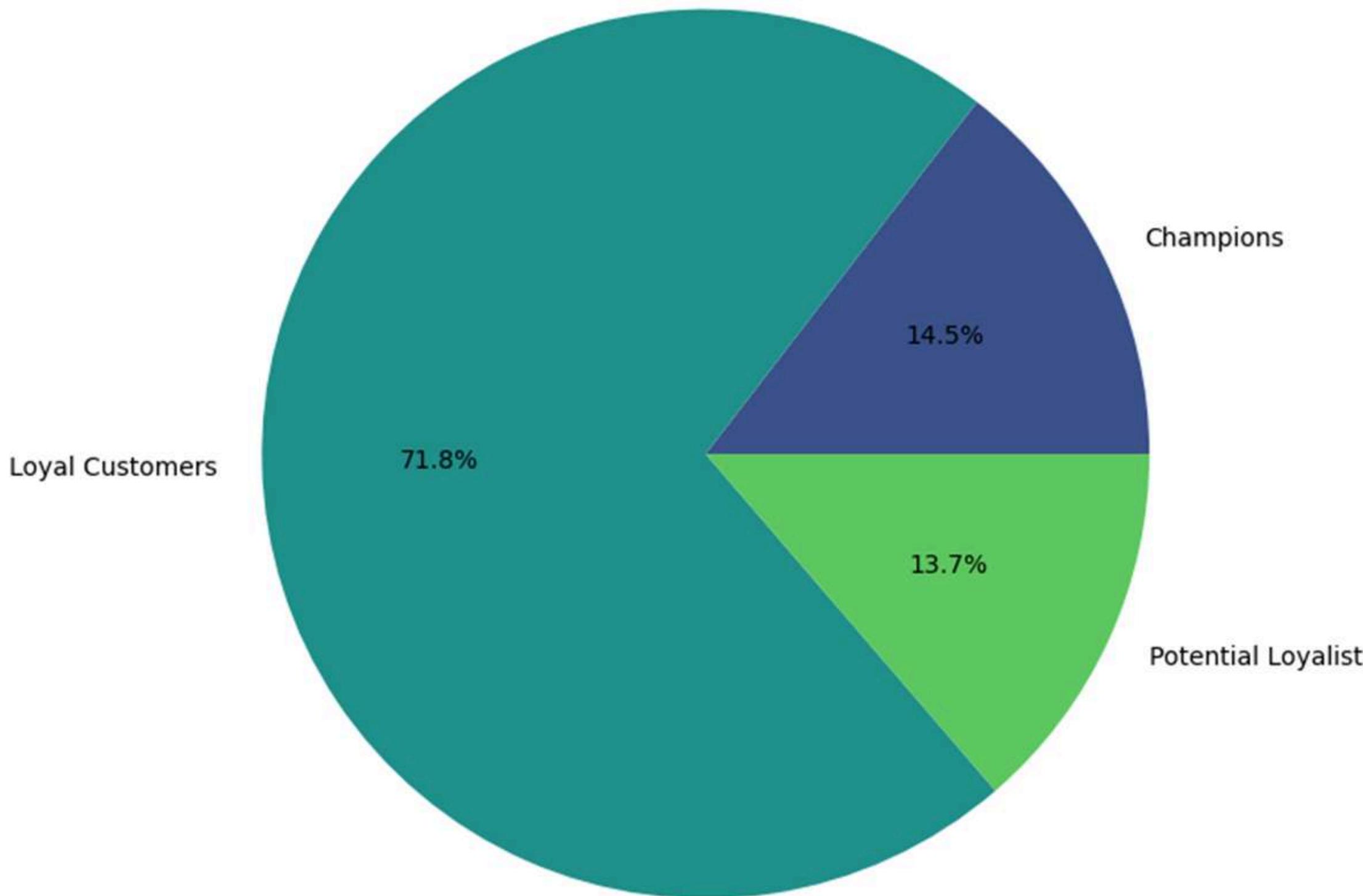
Customer Segments Distribution



Customer Segments: Champions, Loyal Customers, Potential Loyalists



Customer Segments Distribution: Champions, Loyal Customers, Potential Loyalists

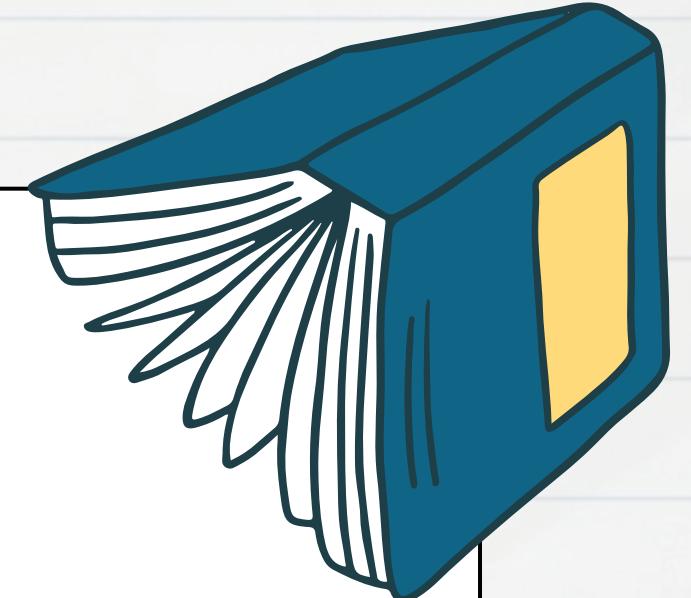


Priority Customer

	Customer Name	Segment
0	Abby Muramats	Loyal Customers
1	Adam Walpole	Loyal Customers
2	Aidan Rowe	Loyal Customers
3	Alex Greenwood	Loyal Customers
4	Alexander Bennett	Loyal Customers
5	Alexandra Portus	Loyal Customers
6	Alta Nokes	Loyal Customers
7	Amanda Hutcherson	Loyal Customers
8	Amber Adams	Loyal Customers
9	Anna Kelly	Loyal Customers

	Customer Name	Segment
0	Adam Harte	Champions
1	Alexis Code	Champions
2	Angelina Hurst	Champions
3	Anna Macdonald	Champions
4	Audrey Knowles	Champions
5	Charles Builder	Champions
6	Craig Rayner	Champions
7	Eloise Sykes	Champions
8	Evie Flockhart	Champions
9	Georgina Garner	Champions

	Customer Name	Segment
0	Alannah Callaway	Potential Loyalist
1	Alice Black	Potential Loyalist
2	Alice Currie	Potential Loyalist
3	Angus Ibsch	Potential Loyalist
4	Archer Hort	Potential Loyalist
5	Ashton Charles	Potential Loyalist
6	Brooke Horton	Potential Loyalist
7	Charlie Power	Potential Loyalist
8	Cynthia Zielinski	Potential Loyalist
9	Erin Gill	Potential Loyalist



Descriptive Statistics for Segmentation

Segment	Recency			Frequency			Monetary		
	mean	count	max	mean	count	max	mean	count	max
About To Sleep	121.500000	2	125	1.000000	2	1	52.000000	2	57
At Risk	229.592105	228	762	6.412281	228	11	3797.083333	228	16047
Can't Lose Them	335.750000	48	1112	3.104167	48	4	783.687500	48	999
Champions	13.970588	34	30	9.088235	34	13	5649.352941	34	13191
Hibernating	273.274194	248	1309	3.487903	248	8	2018.229839	248	8701
Lost	700.812500	16	1412	1.000000	16	1	170.250000	16	470
Loyal Customers	29.696429	168	58	6.279762	168	11	3620.398810	168	10466
Need Attention	77.500000	6	89	3.166667	6	4	712.500000	6	927
Potential Loyalist	73.718750	32	89	6.718750	32	10	4051.687500	32	13056
Promising	48.666667	3	53	2.666667	3	4	595.000000	3	810
Recent Users	10.000000	7	26	2.428571	7	3	512.714286	7	854

Table Summary

Aspect	Champions	Loyal Customers	Potential Loyalists
Recency	Very high (recently purchased)	High (recently purchased)	High (recently started being active)
Frequency	Very frequent	Frequent	Medium (potential to increase)
Monetary	Very high transaction value	High transaction value	Medium transaction value
Strategic Focus	Exclusivity, premium experience, maintaining long-term relationships	Retention, increasing purchase frequency	Increasing frequency and retention, converting into loyal customers
Role in Business	Best customers, business advocates	Loyal customers, contribute significantly	Potential future loyal customers



Actionable Recommendation



Champions

Customers who shop most frequently, have recently made a purchase, and have high transaction value



Exclusivity & Premium Experience

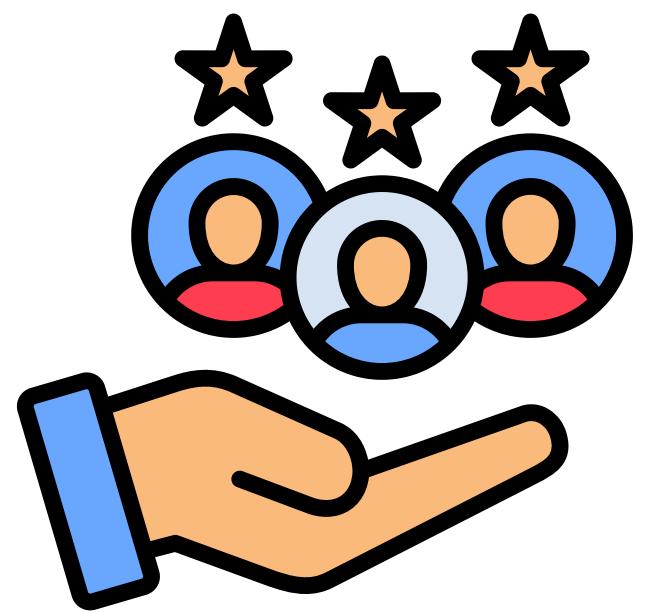
EXTRA DISCOUNT



Premium Loyalty Program & High Rewards



Actionable Recommendation



Loyal Customer

Customers who shop frequently and hold significant value, though not as much as the Champions. They are loyal but do not purchase as often as the Champions segment.

Maintaining retention & Increasing shopping frequency



Points-based loyalty program



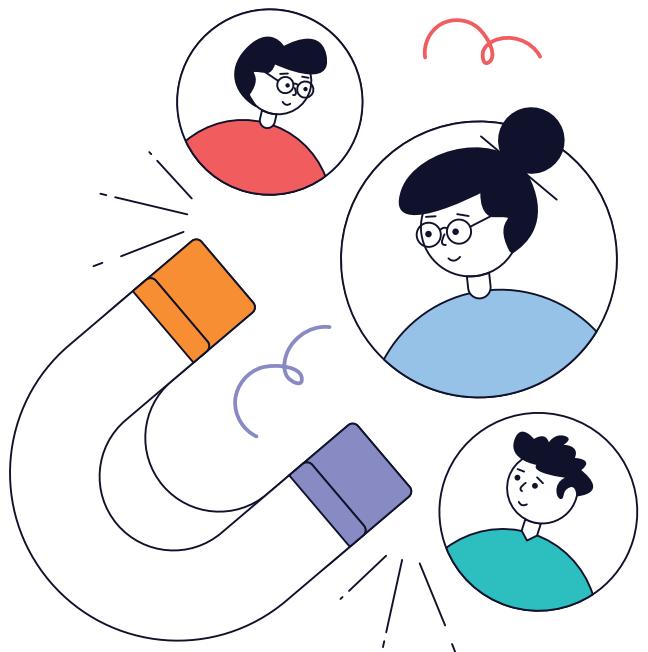
Periodic exclusive offers for loyal customers



Conducting surveys and gathering feedback

Loyal Customers who contribute significantly to the business and need to be retained to remain active customers, with the potential to move up to the Champions category.

Actionable Recommendation



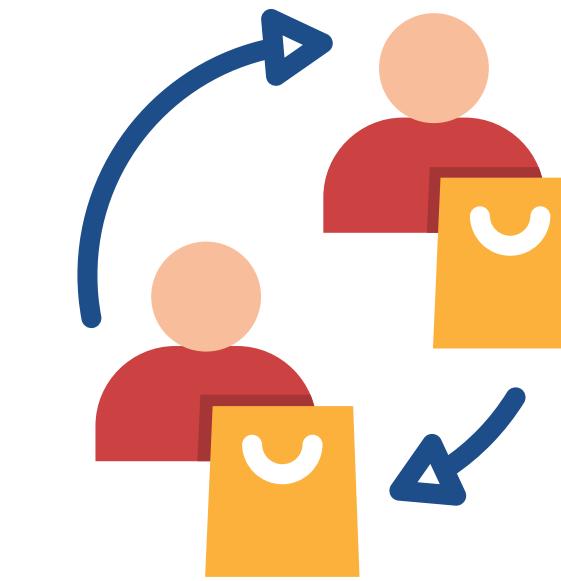
Potential Loyalist

Customers who have just started shopping actively and have the potential to become loyal customers in the future if given the right incentives.

Increasing retention & shopping frequency



Personalized product
Recommendation



Creating programs to increase
engagement & retention



Free shipping or exclusif
promotions

Potential customers who show signs of becoming loyal, requiring special attention to ensure they remain engaged and do not switch to competitors.

Thank You

