Recency Frequency Monetary Analysis

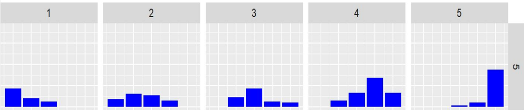
Ashish Bhargav Gampa, Esha Singh, FNU Ayesha, Taruna Sanjay Pakhare, Tiago Souza Asakawa
Department of Information Systems, University of Maryland Baltimore county

Introduction

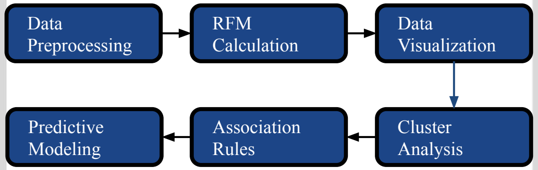
Many businesses struggle to understand their customers' buying habits and create effective marketing strategies, which leads to less customer loyalty and less profit. To solve this, businesses need a reliable method to group customers based on their buying behavior and create better marketing strategies. RFM analysis is a data-driven approach that can help businesses group their customers and create better marketing strategies, but the challenge is to use RFM analysis effectively and integrate it into the business's marketing plan to achieve sustainable growth and profit. However, the challenge lies in implementing RFM analysis effectively and integrating it into the business's marketing strategy. It requires careful planning and execution to achieve sustainable growth and profitability. Therefore, there is a requirement of creating and utilizing a detailed plan about RFM analysis in their marketing strategies which improves customer loyalty and retention, leading to increased profitability.

Objectives

RFM analysis is a powerful marketing technique that is used to identify the most valuable customers of a business by analyzing their transactional behavior. The acronym RFM stands for Recency, Frequency, and Monetary Value, which are the three key indicators used in the analysis. Recency refers to how recently a customer has made a purchase, while Frequency refers to how often they make purchases. Monetary Value refers to the amount of money that the customer has spent with the business. The goal of an RFM analysis project is to use this technique to identify the customers who are most likely to make future purchases and to target marketing efforts towards them. This can help to increase customer retention, improve customer satisfaction, and drive revenue growth.



Methods

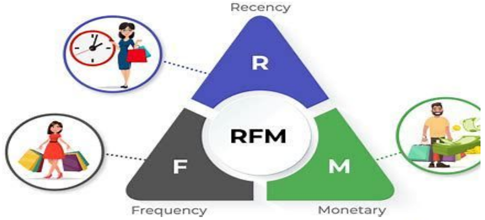


RFM is a technique used in customer segmentation based on their purchasing behavior. RFM stands for Recency, Frequency, and Monetary Value, and it is calculated using the following formulas:

1. Recency: the number of days since the customer's last purchase (relative to a specific date)
2. Frequency: the number of purchases made by the customer in a given time period (e.g., the past year)
3. Monetary Value: the total amount spent by the customer in a given time period (e.g., the past year)

Here's how you can calculate RFM values using these formulas:

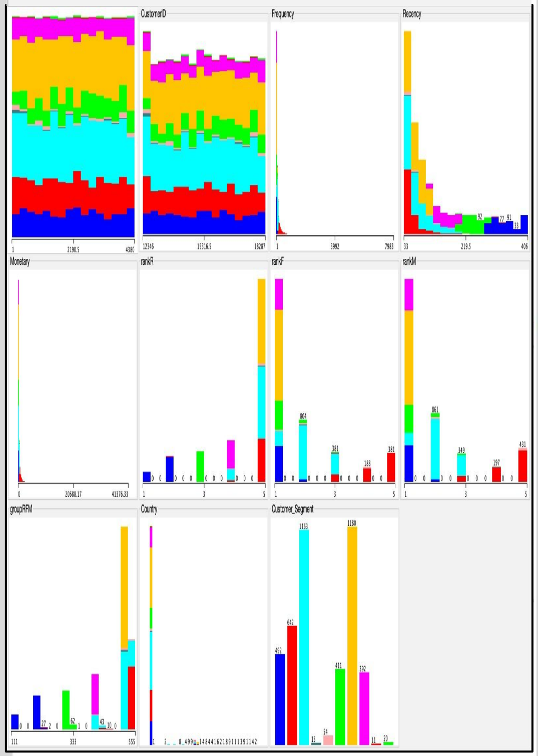
1. Recency: To calculate the recency value for each customer, you need to determine the number of days since their last purchase.
   Recency = (Current date - Last purchase date)
2. Frequency: To calculate the frequency value for each customer, you need to determine the number of purchases they made in a given time period.
   Frequency = (Total number of purchases / Time period)
3. Monetary Value: To calculate the monetary value for each customer, you need to determine the total amount they spent in a given time period.



Clustering Results

```
=== Summary ===

Correctly Classified Instances        4266               97.3973 %
Incorrectly Classified Instances       114                2.6027 %
Kappa statistic                          0.9678
Mean absolute error                      0.006
Root mean squared error                  0.0677
Relative absolute error                  3.7247 %
Root relative squared error             23.8644 %
Total Number of Instances             4380
```



Classification Results

```
=== Re-evaluation on test set ===

User supplied test set
Relation:     ecom_data_rfm
Instances:     unknown (yet). Reading incrementally
Attributes:   11

=== Predictions on user test set ===

    inst#     actual  predicted error prediction
        1        1:? 1:Lost Lowest       1
        2        1:? 2:Loyal Customers       1
        3        1:? 3:Potential Loyalist       0.955
        4        1:? 4:Recent High Spender       0.817
        5        1:? 1:Lost Lowest       1

=== Summary ===

Total Number of Instances                0
Ignored Class Unknown Instances                   5
```

Conclusions

Develop targeted retention strategies for each customer segment based on the insights gained from the analysis. Use A/B testing or other techniques to test the effectiveness of the strategies and optimize them over time. Monitor the results and adjust
Summarize the findings of the analysis and their implications for the business. Provide recommendations for future research or improvements to the analysis or retention strategies.

References

Murphy, C. (2011, February 14). What is recency, frequency, monetary value (RFM) in marketing? Investopedia.