E-commerce Customer Segmentation with RFM Analysis

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Introduction:

In the realm of data-driven marketing and customer segmentation, RFM Analysis stands out as a powerful tool. RFM, short for Recency, Frequency, and Monetary, offers a unique perspective on understanding customer behaviour. This project delves into the world of RFM Analysis using Python, exploring how these metrics can be harnessed to gain insights into customer engagement, loyalty, and value.

Project Goal:

My primary goal in this project is to perform RFM Analysis to segment customers effectively. Through this analysis, we aim to:

- Gain a deeper understanding of customer buying behaviour.

- Identify and categorize customers into meaningful segments.

- Extract actionable insights that can inform marketing and business strategies.

Data Discription:

To embark on this RFM journey, I started with a dataset containing crucial information, including customer IDs, purchase dates, and transaction amounts. As a critical initial step, I converted the purchase dates into DateTime objects.

Calculating RFM Values:

- **Recency:** I calculated the recency value by measuring the number of days since each customer's last purchase.

- **Frequency:** Frequency was determined by counting the number of unique orders made by each customer.

- **Monetary:** The monetary value represents the total amount spent by each customer.

RFM Scoring:

To make RFM values more meaningful, I assigned scores to them:

- **Recency Score:** Higher scores indicate more recent purchases.

- **Frequency Score:** Higher scores correspond to higher purchase frequencies.

- **Monetary Score:** Higher scores reflect greater monetary contributions.

RFM Value Segmentation:

I segmented customers based on their RFM scores into three distinct categories: "Low-Value," "Mid-Value," and "High-Value." This segmentation provides an initial glimpse into customer segments, setting the stage for more in-depth analysis.

RFM Value Segment Distribution

Analysis:

A significant portion of our customer base falls into the "Low-Value" and "Mid-Value" segments (435 and 386 customers, respectively).

- While the "High-Value" segment is smaller (179 customers), they likely contribute substantially to our revenue. To maximize returns,implement **retention strategies** such as loyalty programs, personalized offers, and exceptional customer service for this group to keep them engaged.
- While the "Low-Value" segment is the largest, there's untapped potential within it. I want them to optimize **marketing resource allocation** by tailoring campaigns to meet the unique needs of each segment, ensuring efficient resource usage.
- **Fine-tuning** our product portfolio/service offerings based on each segment's characteristics and preferences can enhance customer satisfaction and loyalty.

RFM Customer Segmentation:

Beyond RFM values, I introduced RFM Customer Segments, which offer broader classifications:

We dug deeper into specific segments, on the further classification of customer segments into "Champions," "Potential Loyalists," "At Risk Customers," "Can't Lose," and "Lost," and the subsequent breakdown under "Low," "Mid," and "High" value segments, we can derive additional insights about your ecommerce platform:

- **Champions:** Customers with the highest RFM scores, indicating they are the most valuable and engaged.

- **Potential Loyalists:** Customers with promising RFM scores, showing potential for loyalty.

- **At-Risk Customers:** Customers who fall in the middle range and require attention.

- **Can't Lose:** Customers with good recency scores but low frequency and monetary scores.

- **Lost:** Customers with the lowest RFM scores.

Comparison of RFM Segments

Comparison of RFM Segments based on Recency, Frequency, and Monetary Scores
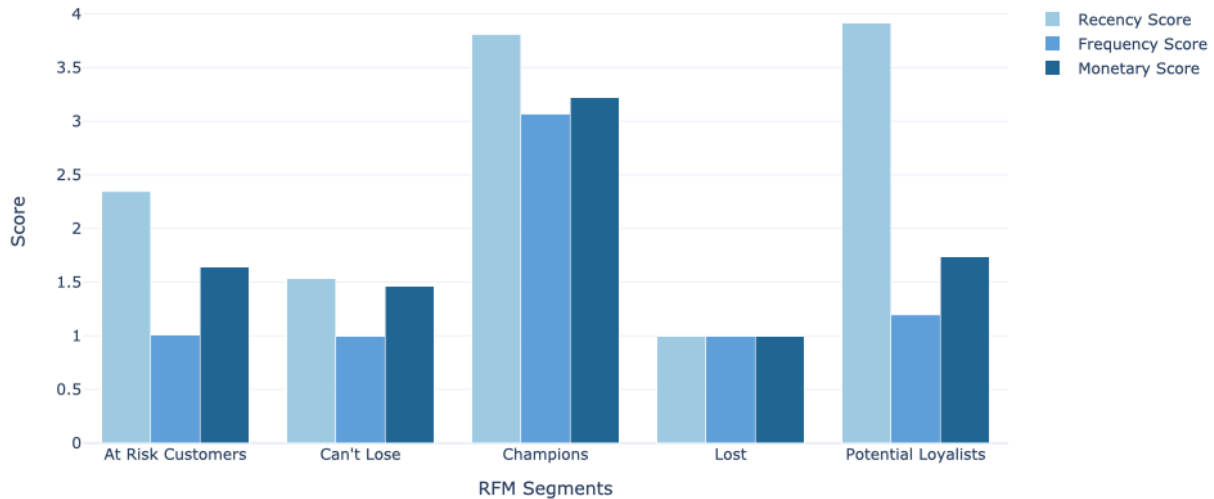
Analysis within Segments:

High-Value Segment:

- This segment comprises a total of 179 customers (Champions - 62, Potential Loyalists - 117).These customers are highly engaged, loyal, and contribute significantly to your platform's revenue.

- To further nurture this segment, consider **personalized loyalty programs** and **exclusive offers** to maintain their loyalty.

Mid-Value Segment:

- The mid-value segment primarily consists of "Potential Loyalists," totaling 386 customers.These customers show good potential for further engagement and can be encouraged to move up to the high-value segment.

- **Targeted marketing efforts** and **incentives** can help solidify their loyalty and increase their spending.

Low-Value Segment:

- The low-value segment encompasses "At Risk Customers," "Can't Lose," and "Lost" customers, totaling 363 customers.

- "At Risk Customers" may need **special attention** to prevent them from moving to the "Lost" category.

- "Can't Lose" customers are spending a moderate amount and should be **encouraged** to increase their spending and engagement.

Overall Platform Health:

- The distribution across segments indicates room for growth and optimization, particularly in moving customers from lower-value segments to higher ones.

- **Tailoring marketing** and **engagement strategies** for each segment can enhance overall platform performance.

Future Strategies:

- Continue to focus on the high-value segment by providing exceptional service and exclusive offers.

- Implement marketing strategies and attractive offers to transition mid-value customers into high-value ones.

- Develop targeted campaigns to retain and reactivate customers in the low-value segments.

- Regularly analyze and adjust segmentation strategies to adapt to changing customer behaviors.

Summary and Conclusions:

In conclusion, RFM Analysis has unveiled invaluable insights into our customer base. We have identified distinct customer segments, each with its unique characteristics. This knowledge can be harnessed for targeted marketing strategies, data driven decision making and resource allocation.