

Sales Data analysis and Customer Segmentation using RFM

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Objectives

- Segmentation using RFM model and provide some meaningful insights from each segment.
- Find out the customers who are 'champions', 'Potential customers' and 'need attention' .

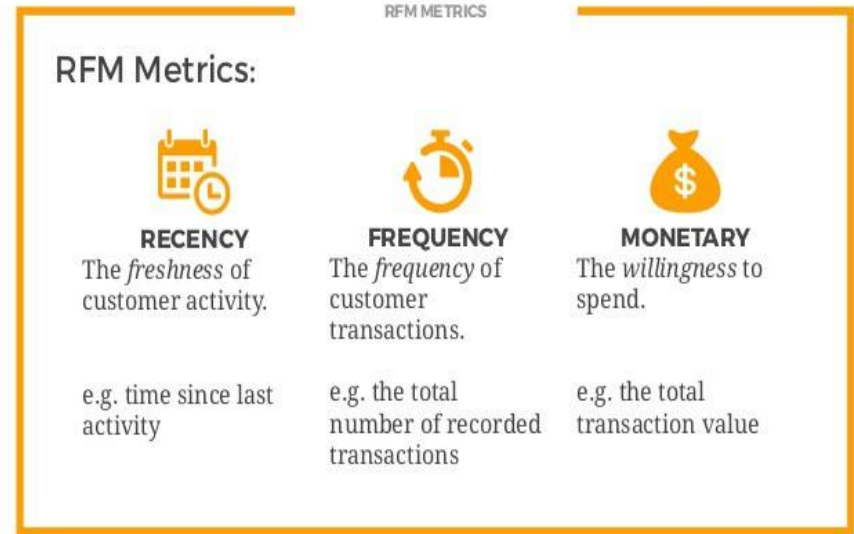
Data Exploration

- This sales Data Consist of 5000 rows and 40 columns.
- No missing values present in data and this is a clean dataset.
- According to the data Thursday, Friday, and Sunday have higher daily average customer orders than other days. Additionally, the average revenue generated on these days is higher than on other days.
- According to the data, average revenue and orders increase from week 1 to week 4, and most customers prefer to buy products in the last week of the month.



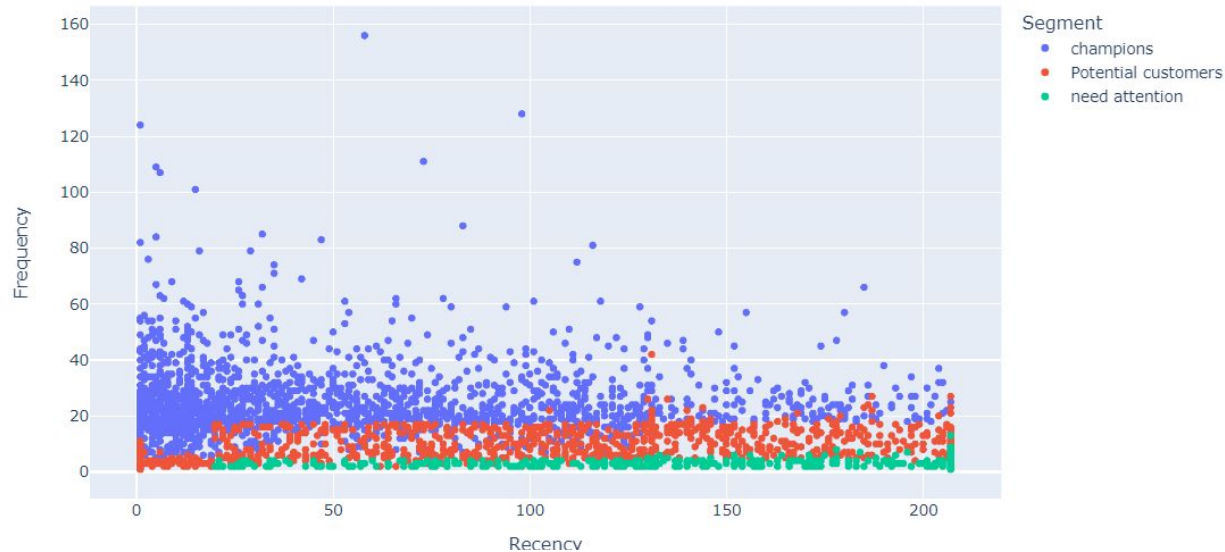
About RFM Analysis

- RFM (Recency, Frequency, Monetary) analysis is a proven marketing model for behavior based customer segmentation. It groups customers based on their transaction history – how recently, how often and how much did they buy.
- RFM helps divide customers into various categories or clusters to identify customers who are more likely to respond to promotions and also for future personalization services.



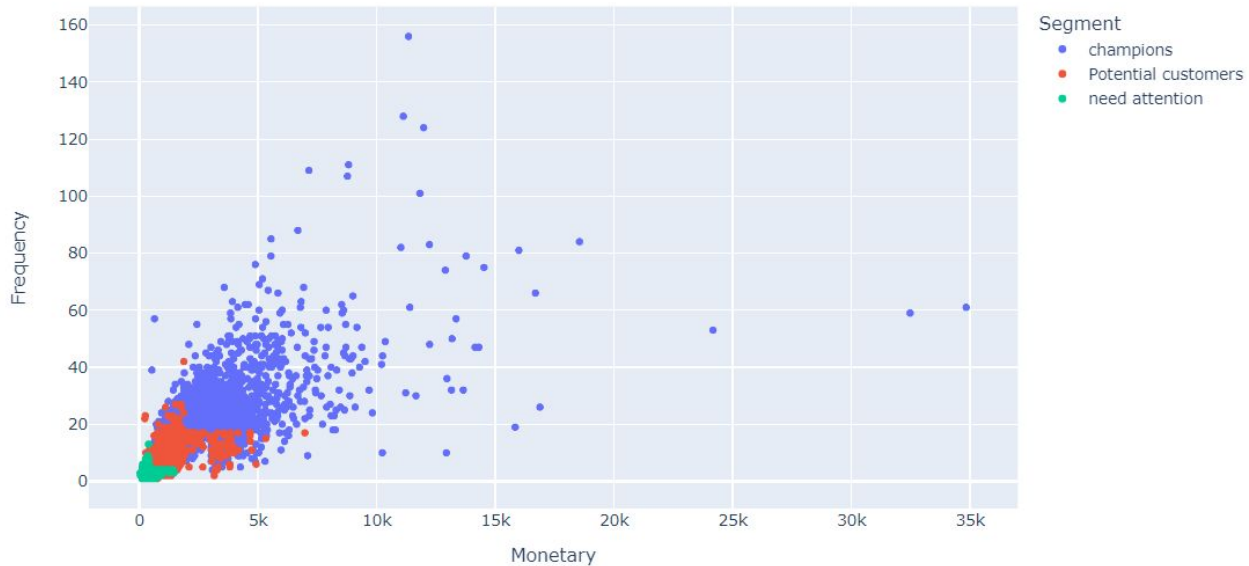
Data Visualisation using RFM

1. Recency Vs Frequency



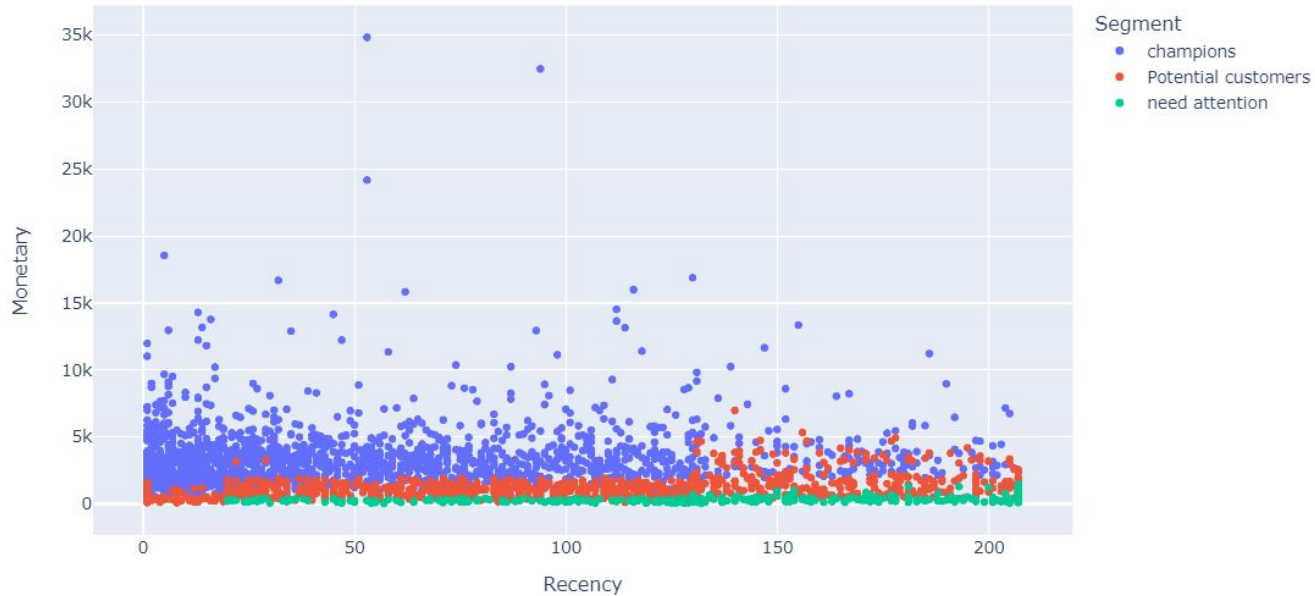
We can see the customers whose Recency is less than two month have high Frequency i.e the customers buying more when their recency is less.

2. Frequency Vs Monetary



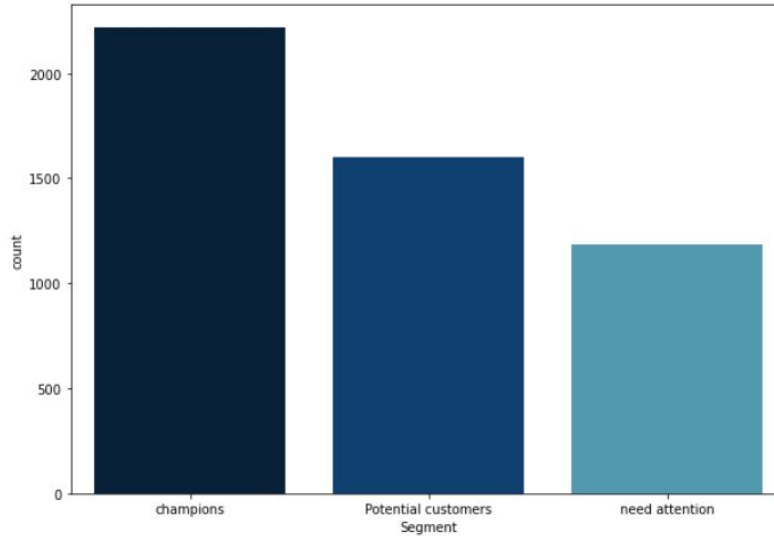
We can see, customers buying frequently are spending more amount.

3. Recency Vs Monetary



We can see the customers whose Recency is less than two month have high Monetary i.e the customers spending more when their recency is less.

Customer Segmentation Using RFM Analysis



From Above chart It is clear that almost 50% customers are spend time and buy products and around 25-30% customers are potential customers and 20-25% customers need attention.



K-Means Clustering Technique :

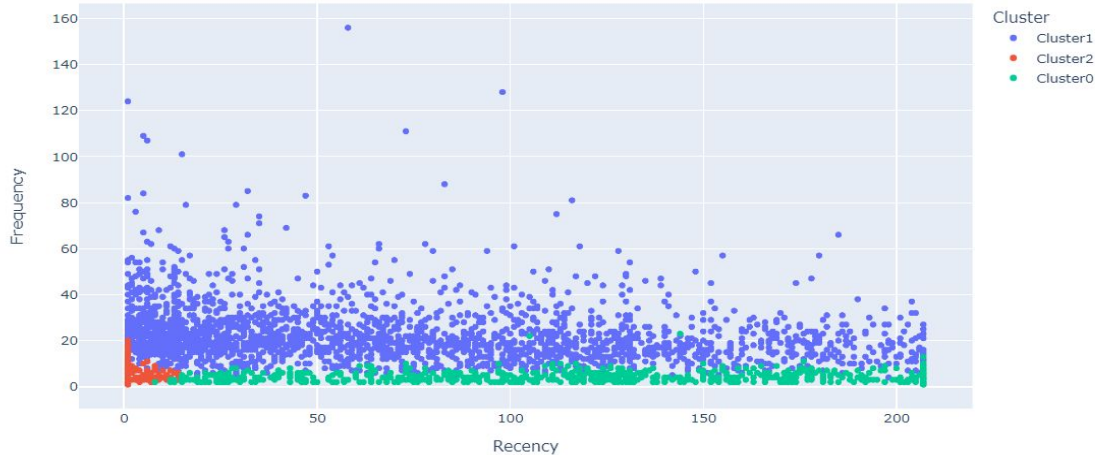
For our data we are going to use K-means Clustering to segment data because data has smaller no. of dimension and is numeric.

Working :

- Clustering is the process of dividing the entire data into groups (also known as clusters) based on the patterns in the data.
- To process the learning data, the K-means algorithm in data mining starts with a first group of randomly selected centroids, which are used as the beginning points for every cluster, and then performs iterative (repetitive) calculations to optimize the positions of the centroids.
- To create the customer segmentation based on the K-Means Clustering we are using R, F, and M Scores.

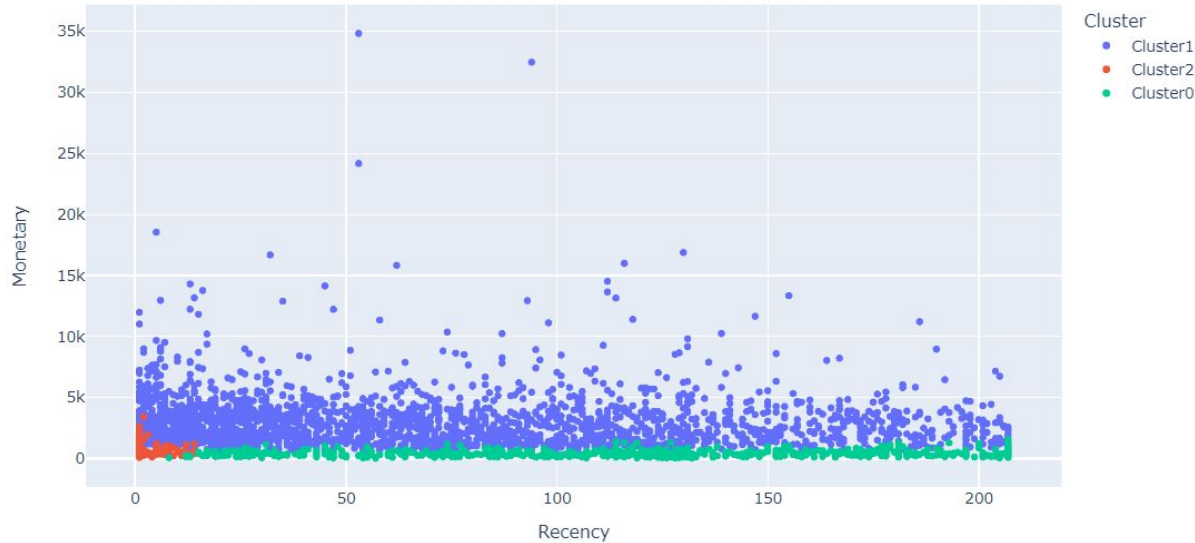
Visualization for Recency, Frequency and Monetary : Cluster Groups

1. Recency Vs Frequency



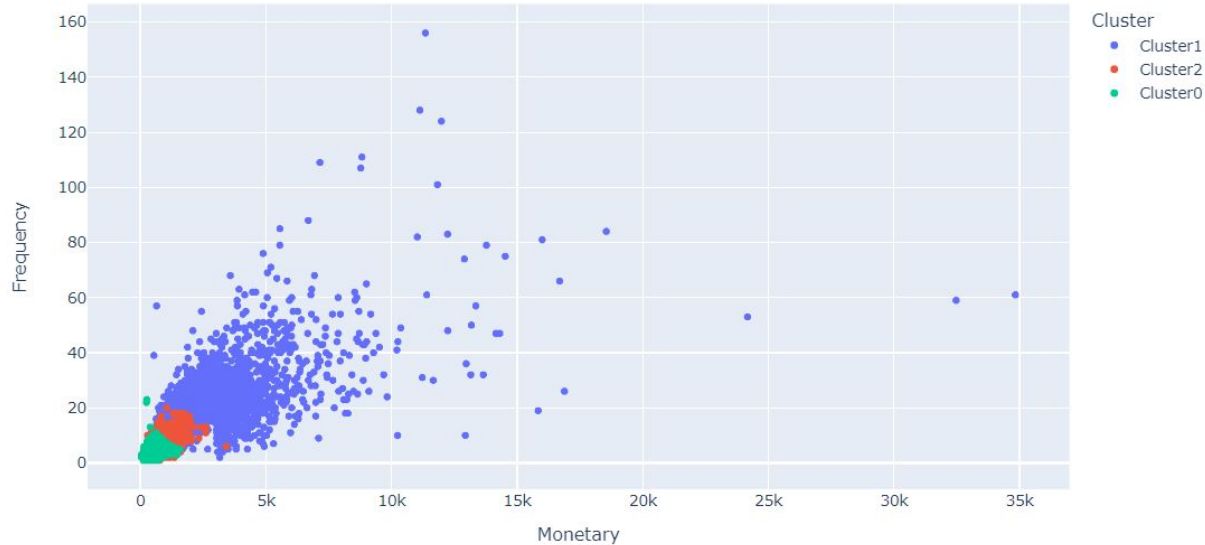
Plotting Frequency and Recency: here, the blue group frequently purchases products and they are the most recency one. The green ones tried to purchase recently but they are not frequent buyers which we can determine that they are the new customers.

2. Recency Vs Monetary



Plotting Recency and monetary: from the graph we can say that the blue group the ones who like to spend more and they are the recent customers.

3. Monetary Vs Frequency



Plotting Frequency and Monetary: even here the blue group of customers tried to purchase more and frequently whereas the green group is very little frequency and spends very little.



Findings

1. Most of the customer orders placed during last week of the month
2. Thursday, Friday, and Sunday are the most prominent days for customers to purchase products.
3. average recency of the customers are 87 days (approx), an average customer are purchasing the product 13 times and spending an average 1681.52 unit price
4. The customers whose Recency is less than two month have high Frequency i.e the customers buying more when their recency is less
5. customers buying frequently are spending less amount.
6. the customers whose Recency is less than two month have high Monetary i.e the customers spending more when their recency is less.
7. almost 50% customers are spend time and buy products and around 25-30% customers are potential customers and 20-25% customers need attention.



Suggestions

1. Based on the above R-F-M score, we can give some Recommendations.
 - a. Champions: We can Reward them for their multiples purchases. They can be early adopters to very new products. Suggest them “Refer a friend”. Also, they can be the most loyal customers that have the habit to order.
 - b. Potential customers: Create loyalty cards in which they can gain points each time of purchasing and these points could transfer into a discount
 - c. Need attention: Send them personalized emails/messages/notifications to encourage them to order. Also Notify them about the discounts to keep them spending more and more money on your products.
2. Based On the visualization of data :
 - a. Allow discounts on products at the beginning of the month so that customers can start spending from week one..
 - b. Take survey from need attention customers about service, offers and what they required from us.



THANK YOU