

A STUDY ON CUSTOMER SEGMENTATION BY USING RFM ANALYSIS AND K-MEANS CLUSTERING AT MORE SUPERMARKET, KADIRI, A.P.

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ABSTRACT

Customer segmentation is an essential practice for businesses to understand and target their customer base effectively. This study aims to investigate customer segmentation techniques, specifically utilizing RFM (Recency, Frequency, Monetary) analysis and K-means clustering, in the context of More Supermarket located in Kadiri, Andhra Pradesh, India. The study aims to provide valuable insights into customer behaviour and preferences to support marketing strategies and enhance customer satisfaction. Accurate identification, attracting and keeping the customers, particular loyal customer relationship management (CRM) with goal of optimum allotment of resource and achievement to higher profit is not a competitive profit, but it is a life persistence necessity of companies in virtual space. One of the challenges of companies in this part of how to identify the customer's traits and the separation of different segments of them. The main goal of this research is to identify customers with different buying behaviour using the RFM model. In this part of determining the amount of recency, frequency, monetary, average purchasing and average purchasing value (RFM) in, registered transaction of more supermarket in kadiri at a time of about two years from 1 April 2020 to 31 March 2022, the normalization weight of each variable was determined. At the next stage customers using the K-means were clustered and K-means the method according to the silhouette index was the better algorithm of this letter. According to the results, customers were segmented into 14 clusters. After segmentation each cluster was profiled by based on the RFM scores. This research identified the customer different behaviour for the Mart, and it gives them a chance to choose clusters and invest in them.

INTRODUCTION

Customer segmentation is the process of dividing lots of clients into different segments or groups according to common characteristics or features. The goal of customer segmentation is to identify and understand the unique needs, preferences, and behaviours of different groups of customers. By doing so, businesses can tailor their marketing efforts, product offerings, and customer experiences to better meet the specific requirements of each segment, ultimately driving customer satisfaction, loyalty, and profitability.

Segmentation of customers describes the procedure of grouping an organization's consumers according to particular characteristics and actions. By segmenting customers, businesses can better understand their diverse customer base and tailor their marketing strategies, product offerings, and customer experiences to meet the unique needs and preferences of each segment.

The goal of customer segmentation is to identify meaningful differences among customers that can help drive more effective marketing efforts and improve overall customer satisfaction and loyalty. By grouping customers with similar attributes together, businesses can develop targeted marketing campaigns, personalized messaging, and customized products or services that are more likely to resonate with each segment. This approach allows companies to allocate their resources more efficiently and effectively by focusing on the most profitable and promising segments.

Segmenting customers is a marketing technique involving classifying and divide a business's customers according to specific characteristics & attitude. It is a fundamental concept in marketing that helps businesses understand & respond for the different requirements & preferences of various customer groups.

The purpose of customer segmentation is to identify meaningful differences among customers, enabling businesses to develop targeted marketing strategies and deliver personalized experiences.

By dividing customers into segments, companies can focus their resources more effectively, optimize their marketing efforts, and enhance customer satisfaction and loyalty

NEED OF THE STUDY

This study helps to increase competitive advantage and customer satisfaction through customized marketing.

SCOPE OF THE STUDY

- The study covers existing customers of More Supermarket, Kadiri, A.P.
- The study covers transactional data of customers of More Supermarket, Kadiri, A.P

OBJECTIVES OF THE STUDY

- To study the customer segments based on their transactions of More Supermarket, kadiri.
- To evaluate the profiling of customer segments using RFM-scores of More Supermarket, kadiri.
- To implement k-mean clustering to analyzing customer purchase pattern using RFM-model of more supermarket, kadiri.

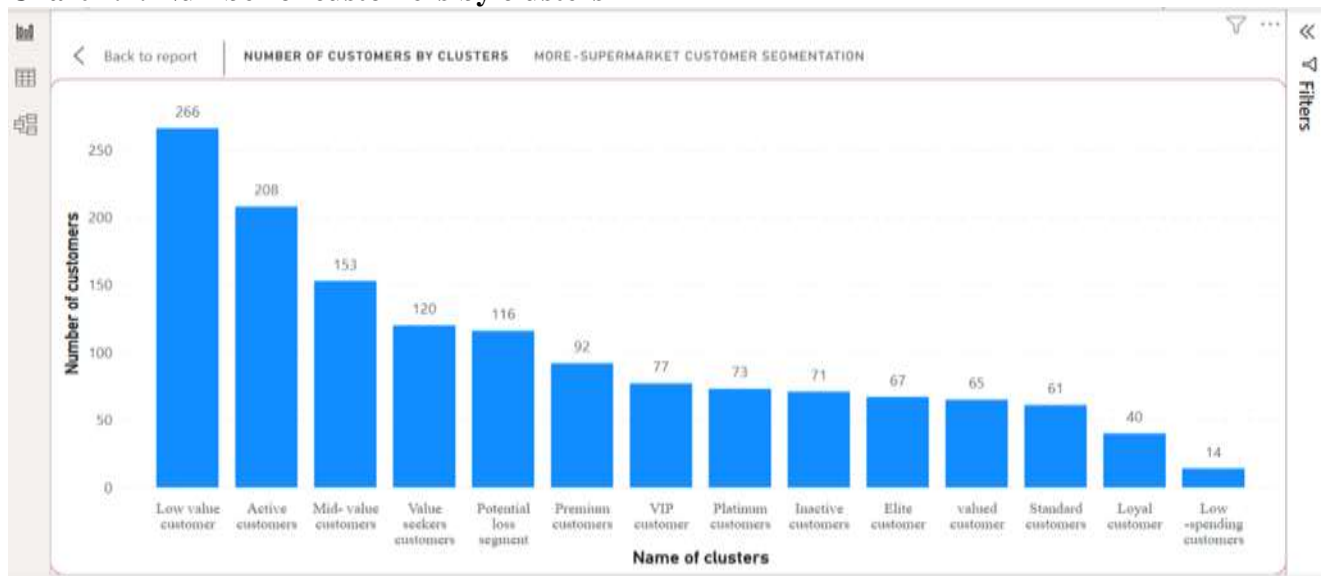
RESEARCH AND METHODOLOGY

The research design includes four major phases. The first phase which is data pre-processing consist of loading input data and data cleaning. The second phase, Data analysis consist of RFM analysis, data normalization and applying K-Means. The third phase, quality assessment which explains about validation of clusters. The final phase is about profiling of clusters based on their RFM Scores. The full step methodology process is presented in the Figure

Interpretation :

From the evolution of inertia and evolution of silhouette scores, it is observed that number of clusters 14 have high silhouette score and with less within cluster distance. Therefore, the optimal number of clusters are 14.

Chart 4.1: Number of customers by clusters



Interpretation :

From the above dashboard, it is observed that the low value customers cluster having high number of customers(266) and low spending customers cluster having less number of customers(14)

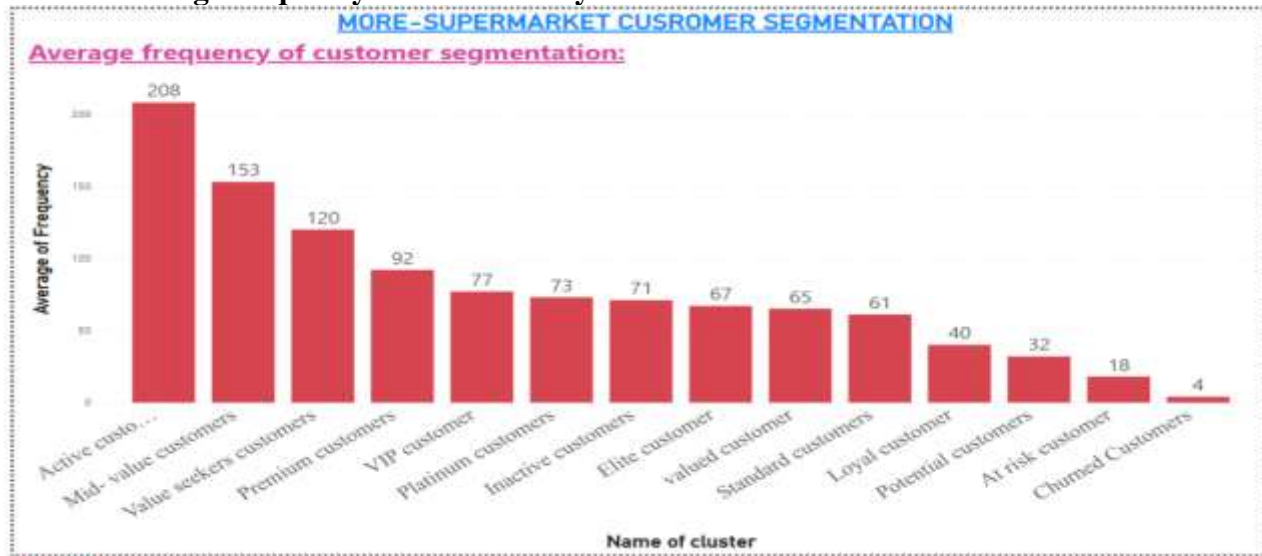
Chart 4.2: Average recency of customers by clusters



Interpretation :

From the above dashboard, it is observed that the at risk customers cluster having very less Recency per customer (36 days) and mid value customers cluster having very high recency per customer(765 days).

Chart 4.3:Average frequency of customers by clusters



Interpretation :

From the above dashboard, it is observed that the active customers cluster having very high Frequency per customer (208 times) and churned customers cluster having very less Frequency per customer(4 times)

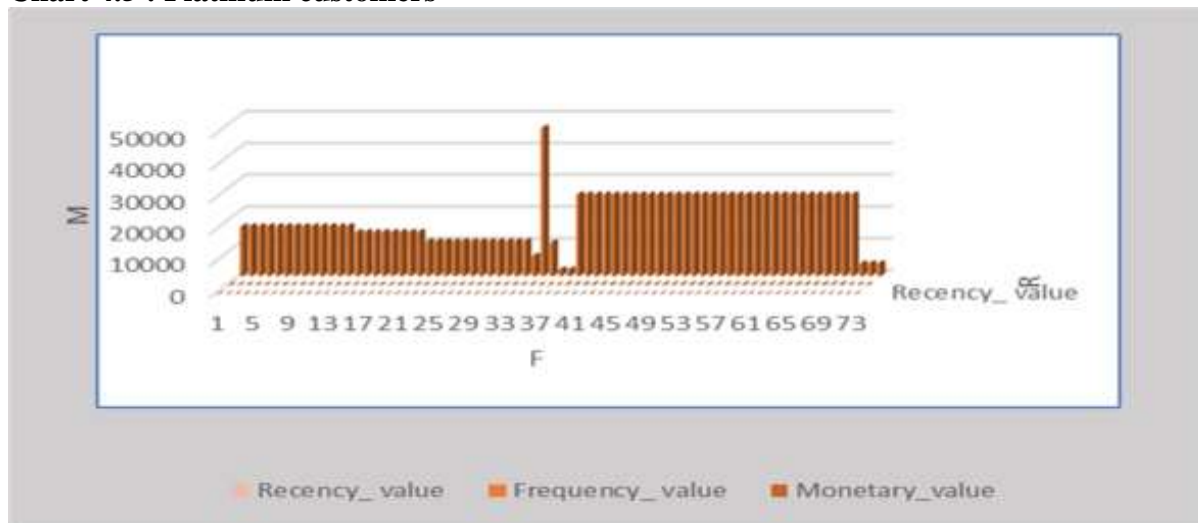
Chart 4.4: Average monetary of customers by clusters



Interpretation :

From the above dashboard, it is observed that the active customers cluster having very high Monetary per customer (INR 832K) and low value customers cluster having very less Monetary per customer (INR 1 K).

Chart 4.5 : Platinum customers



Interpretation :

From the above dashboard, it is observed that the customers in above cluster have decent recency, frequency, monetary scores. They are maintaining long relationship with our organisation. Therefore, this cluster is named as “Platinum Customers”

FINDINGS

- It is found that INR 2.13 million sales are generated by Loyal customers only.
- It is found that only 77 customers are present in VIP customers cluster.
- It is found that VIP customers cluster having highest Recency per customer with 75.90 days.
- It is found that VIP customers cluster having highest Frequency per customer with 52.25 times.
- It is found that VIP customers cluster having highest Monetary per customer with INR34.20K.
- It is found that valued customers clusters having the lowest per Recency customer with 25.36 days.
- It is found that valued customers cluster having highest Frequency per customer with 51.28 days.
- It is found that valued customers cluster having highest Monetary per customer with INR 20.96 K.

- It is found that valued customers cluster having highest Monetary per customer with INR 20.96 K.
- It is found that MORE-Supermarket have 267 low customers in past two years.
- It is found that 177 customers became inactive.
- It is found that 180 customers are at risk which means becoming inactive.
- It is found that MORE-Supermarket got 547 new customers in past two years.

SUGGESTIONS

- It is to suggested that run retention campaigns to retain inactive customers.
- It is to suggested that run personalised campaigns for loyal customers.
- It is to suggested that increase the number of VIP customers.
- It is to suggested that more concentrate on valued customers.
- It is to suggested that take more attention on customers at risk.

CONCLUSION

It is concluded that if the organisation focus more on maintaining the loyalty of Loyal and VIP customers, the organisation will remain able to survive in the market long a long time. To expand their consumer the base, they have to concentrate on inactive, a low-value customers. Identifying the characteristics of the consumer and dividing them into distinct categories is one of the issues facing businesses in this area. The major objective of this study is to use the RFM model to identify clients with various buying habits. The normalization weight of each variable was established in this section of calculating the amount of recentness, frequency, monetary, average purchasing, and average purchasing value (RFM) in, registered transactions of more supermarket in Kadiri over a period of approximately two years, from 1 April 2020 to 31 March 2022. Customers were grouped at a later stage using K-means, which was the most effective algorithm for this letter based on the silhouette index. Customers were divided into 14 clusters, per the results. Each cluster was profiled based on the RFM ratings after segmentation. This study revealed distinct consumer behaviors for the Mart, giving customers the opportunity to select clusters and make investments in them.

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