Customer Segmentation

Content

Abstract

Customer segmentation is important in both customer relationship management literature and software. This project focuses on the significance of customer segmentation in businesses, highlighting its use in k-means algorithm. It emphasizes the role of customer segmentation in marketing strategy, helping businesses understand their customers better and tailor products or services to meet their needs. The segmented data is analyzed to differentiate between premium and standard customers.

Introduction

In today's business world, understanding your customers is more important than ever. That's where customer segmentation comes in. By dividing your customers into distinct groups based on their characteristics and behavior, you can tailor your marketing efforts . But how do you go about doing this? That's where k-means comes in picture K-means is a powerful algorithm that helps businesses cluster customer data into meaningful groups, providing valuable insights into their needs and preferences. However, identifying the right criteria for segmentation can be challenging, and businesses must balance meaningful, actionable, and easy-to-understand segments with accurate and up-to-date data to accurately reflect the customer base.

What is Customer Segmentation?

Customer segmentation is the process of dividing a customer base into groups of individuals that share similar characteristics or behaviors. It's a powerful tool that helps businesses better understand their customers and develop more effective marketing strategies.

Benefits of customer segmentation

Market Expansion: Optimize marketing resources by focusing on high-potential customer segments.

Behavior Insights: Understand customer behavior patterns and preferences.

Enhanced Targeting: Identify and categorize customers based on shared characteristics.

Literature survey

SR NO.	Year	Author	Journal	Title of the paper	Result reported
1	2018	Tushar Kansal, Suraj Bahuguna, Vishal Singh, Tanupriya Choudhury	IEEE Explore	Customer Segmentation using K-means Clustering	In that paper different clustering algorithms (k-Means, Agglomerative, and Meanshift) are been implemented to segment the customers and finally compare the results of clusters obtained from the algorithms.
2	2020	EYL Nandapala, K.PN Jayasena	IEEE Explore	The practical approach in Customers segmentation by using the K-Means Algorithm	In this study they have mentioned about customer relationship management (CRM). With the help of K-means clustering they have identified the customer clearly so that, the organisation can make accurate decisions and do the changes in service
3	2018	Şükrü Ozan	IEEE Explore	A Case Study on Customer Segmentation by using Machine Learning Methods	This study proposes to solve a customer segmentation problem of a company by using customers' information. The methods are inherited from machine learning algorithm .

Existing System

The current customer segmentation system is manual, time-consuming, and error-prone. Businesses use demographic data like age, gender, and spending habits, but this approach lacks insights into customer behavior. Traditional methods don't consider the dynamic nature of customer behavior, making it difficult for businesses to keep up. K-means clustering offers a powerful solution for customer segmentation.

Problem Statement

The issue lies in conducting a customer analysis for grocery stores, which can be time-consuming and challenging due to manual processes. So the goal is to conduct a detailed customer analysis for grocery stores, focusing on understanding and categorizing customer preferences and behaviors. The aim is to identify trends, patterns, and insights that can guide business strategies for improving the shopping experience and customer satisfaction.

Objectives

01

To tailor their marketing efforts and product offerings.

02

To locate or identify the tastes, buying motives, needs, priorities and preferences of the customers.

03

To find the most attractive segment for a particular product or service.

04

To determine marketing strategies, targets, and goals.

Proposed system

- The system will be able to identify new customer segments and track changes in customer behavior over time using k-means clustering to segment customers based on their purchasing habits, demographics, and other relevant factors.
- This will allow businesses to identify patterns and trends among their customers that may not be immediately apparent. By doing so, they can develop targeted marketing campaigns, improve customer retention, and ultimately increase profitability

Methodology

1
Data Selection

2
Data cleaning & transfromation

3
Data Visualization

4
RFM Analysis & apply k -means

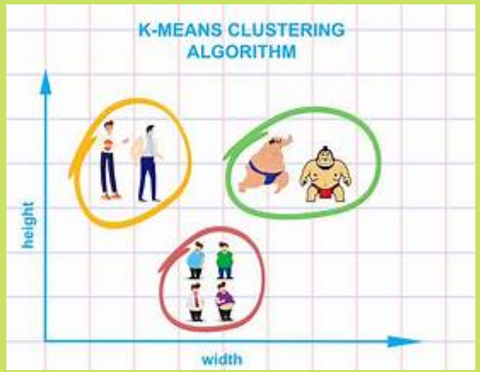
5
Classifying Customers and Analyzing Patterns Using Apriori

6
Add model to website using Streamlit

7
Launch the website & display the dashboard

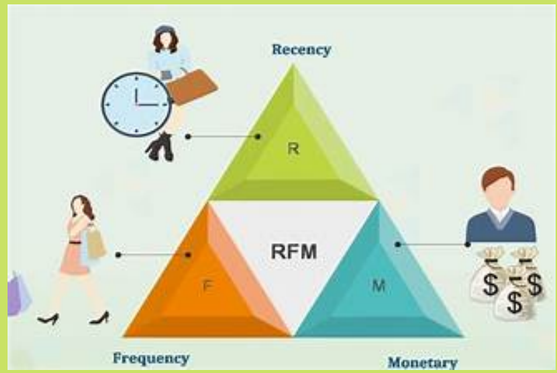
Algorithms

K-means



K-means is a powerful tool for businesses looking to segment their customer. This allows businesses to tailor their marketing strategies to specific customer segments and improve customer satisfaction and loyalty.

RFM (Recency Frequency Monetary)



- **The freshness of the customer activity, be it purchases or visits**
- **The frequency of the customer transactions or visits**
- **The intention of customer to spend or purchasing power of customer**

Apriori Algorithm

Apriori Algorithm is a widely-used and well-known Association Rule algorithm and is a popular algorithm used in market basket analysis.. It helps to f ind frequent itemsets in transactions and identif ies association rules between these items.

Advantages of Projects

DASHBOARD AND VISULZATIONS

Use intercative charts to communicate info more effectively.

CUSTOMER LOYALTY PROGRAMS

based on data insights, encouraging repeat business and fostering long-term relationships with your customers.

PROFITABILITY ANALYSIS

Use for make informed decisions about pricing, promotions, and product selection

LOCALIZED MARKETING STRATEGIES

The grocery store should cater to the unique needs of its community by focusing on its customer base.

Scope

- Targeted Marketing
- Customer Retention
- Product Development
- Risk Management
- Geographic Expansion
- Pricing Strategies
- Customer Experience
- Inventory Management

Conclusion

This project demonstrates the power of customer segmentation in businesses. Through data analysis and techniques, it categorized customers into distinct groups with unique characteristics. This enables tailoring marketing strategies and product recommendations, enhancing customer engagement, satisfaction, and business success. It also optimizes resource allocation, inventory management, and operations, fostering efficiency and customer-centricity. Future research and enhancements will improve the model.

References

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Thank You