

CUSTOMER SEGMENTATION IN BANKING SECTOR

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Abstract - The banking area has become progressively cutthroat, and client division is fundamental for banks to grasp their clients' necessities and inclinations. To stay cutthroat, banks need to comprehend their clients better, which is where client division comes in. Client division is the most common way of partitioning a client base into gatherings of people with comparative requirements and qualities. This paper will examine the significance of client division in the financial area, the different division models that banks can utilize, and the advantages and difficulties related with client division. Right off the bat, the paper will feature the significance of client division, which empowers banks to recognize their most beneficial client gatherings and foster items and administrations that meet their interesting necessities. Furthermore, client division permits banks to make designated advertising efforts that resound with explicit client gatherings, working on the adequacy of their showcasing endeavours. Furthermore, the paper will investigate the different division rules that banks can utilize, including segment, geographic, conduct, and psychographic division. The paper will give instances of how banks can utilize every one of these rules to fit their Items and administrations to meet the interesting requirements of various client gatherings. Generally, client division is a critical cycle for banks in the present serious climate. By understanding their clients better and fitting their items and administrations to meet their extraordinary requirements, banks can further develop consumer loyalty and steadfastness, increment benefit, and stay serious.

1. INTRODUCTION

Customer segmentation allows companies to visualize what actually the customers are behaving which will prompt the banks to better serve their customers resulting in customer satisfaction it, also allows the banks to find who their target customers are and improvise their marketing tactics to generate more revenues from them. Over the years, the competition amongst businesses is increased and the large historical data that is available has resulted in the widespread use of data mining techniques in extracting the meaningful and strategic information from the database of the organization. Profitable business development strategies always begin with good customer segmentation.

2. PROPOSED SYSTEM

This project titled: **CUSTOMER SEGMENTATION IN BANKING SECTOR**, is a web-based application that can be accessed by the banks. This work was designed to aid the framework for an existing system which is manually based having demerit of inaccuracy, insecurity, and poor performance. The obvious merit of this portal system prompted this project to see ways of integrating our appeal process to the internet for speed, efficiency, security, accuracy, and reliability for student satisfaction. K-Means clustering is an unsupervised machine learning algorithm that divides the given data into the given number of clusters. It is a centroid based algorithm in which each cluster is associated with a centroid. The main idea is to reduce the distance between the data points and their respective cluster centroid. The algorithm takes raw unlabelled data as an input and divides the dataset into clusters and the process is repeated until the best clusters are found. K-Means is very easy and simple to implement. It is highly scalable, can be applied to both small and large datasets. Also, with the increase in dimensions, stability decreases. But overall K Means is a simple and robust algorithm that makes clustering very easy. The system was implemented using machine learning algorithms, MySQL database management for data keeping and JAVA programming language for server-side program.

3. EXPERIMENT AND RESULT

Customer segmentation is a crucial aspect of marketing strategy in the banking industry. It involves dividing customers into groups based on their common characteristics and behaviours to create tailored marketing and product offerings. In this discussion, we will examine the results and implications of customer segmentation in banking.

Firstly, customer segmentation allows banks to identify their most profitable customers and develop targeted marketing campaigns to retain and expand their business. By analysing customer data such as transaction history, income, age, and lifestyle, banks can identify high-value customers who are more likely to use additional banking services and recommend their bank to others. The results of customer segmentation can help banks to develop targeted marketing campaigns, customized products, and loyalty programs that resonate with these high-value customers, increasing their retention and satisfaction.

Secondly, customer segmentation helps banks identify and prioritize potential customers who have similar profiles to their most profitable customers. This enables them to allocate resources efficiently and focus on acquiring customers who are likely to bring in the highest returns. Banks can use a range of data-driven techniques, such as machine learning algorithms, to identify patterns and predict customer behaviours, enabling them to optimize their marketing strategies and product offerings.

Thirdly, customer segmentation allows banks to develop customized products and services that meet the unique needs of different customer segments. For instance, a bank may develop special savings accounts, loans, and credit cards with tailored features and benefits that are most relevant to specific customer segments. This approach can improve customer engagement and satisfaction, leading to higher retention rates and increased revenue.

In conclusion, customer segmentation is an essential tool for banks to develop targeted marketing campaigns, customized products, and risk mitigation strategies. By analysing customer data and identifying common characteristics and behaviours, banks can allocate resources effectively and develop tailored offerings that meet the unique needs of different customer segments. Ultimately, this approach can lead to increased customer engagement, loyalty, and revenue for banks. The aim of the project is to design and implement project application. To achieve this, we shall be guided by the following specific objectives.

PROPOSED SYSTEM ADVANTGES :

1. To provide an opportunity for the banks to categorise the customer of their bank.
2. To set up a mechanism for speedy and efficient differentiation.
3. To provide an opportunity to implement their marketing strategies.

The screenshot shows the 'Login Status' section of the application. It features a navigation bar with 'Home' and 'Registration' links. Below the navigation bar, there is a form with two input fields: 'User Name' and 'Password'. A 'Login' button is positioned below the password field. The background of the page has a dark grey pattern of overlapping circles.

Fig 3.1 Login Page

The screenshot shows the 'Upload Dataset' section of the application. It features a navigation bar with 'Upload Dataset', 'Download Clusters', and 'Logout' links. Below the navigation bar, there is a form with a 'Select Data Set:' label, a 'Choose File' button, and a text box displaying 'No file chosen'. An 'Upload' button is positioned below the text box. The background of the page has a dark grey pattern of overlapping circles.

Fig 3.2 Uploading the data

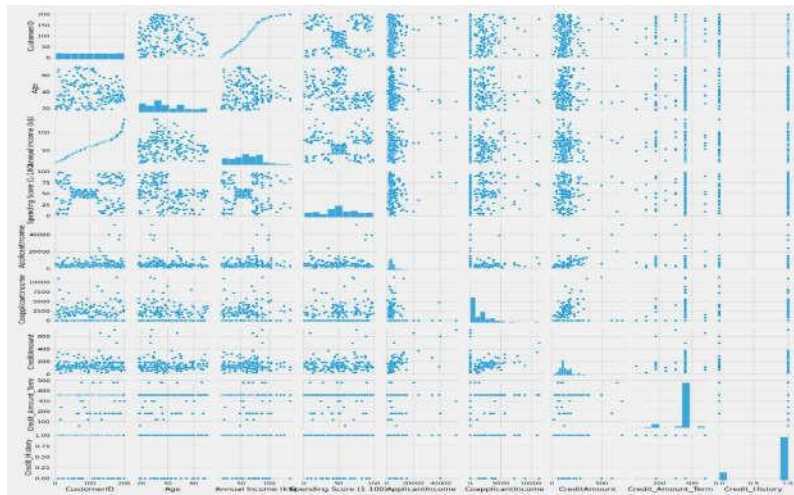


Fig 3.3 Overall Analysis

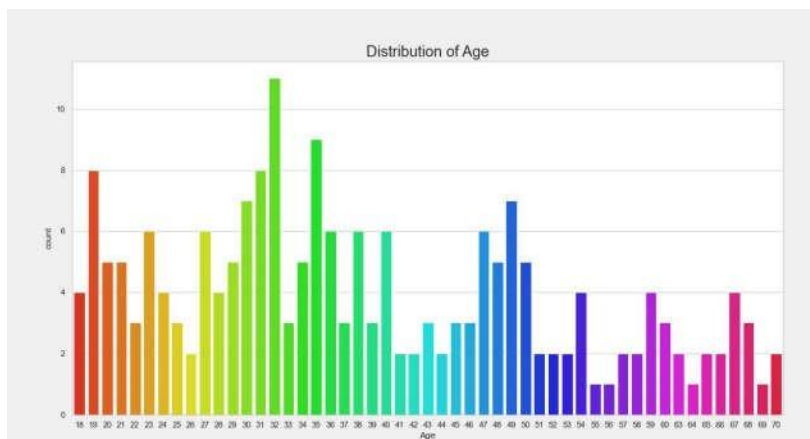


Fig 3.4 Distrubution of Age

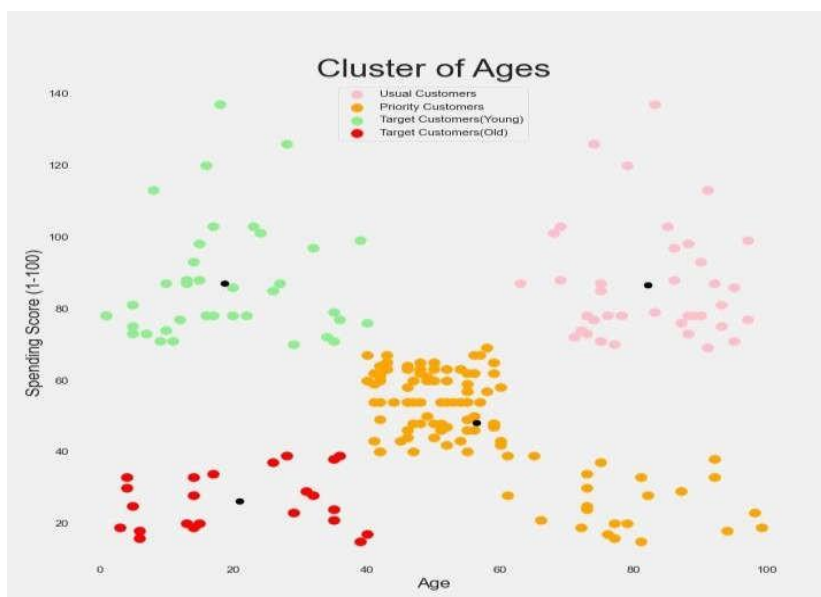


Fig 3.5 Spending score vs Age

4. CONCLUSION

The outcome of this study is based on a data-driven analytical approach that will empower the bank to devise an effective marketing strategy to increase its profitability by targeting potential customers from its existing customer base, thus ensuring optimization of resources. This will enable the bank to target and sell to those customers competitively and economically that are most likely to buy their products or services as the bank now understands its customer's requirements very well. With the help of scorecard and clustering output, the bank can identify the most profitable and potential customers along with their characteristics and devise various strategies to move them up to the higher profitability bands. To further enhance the customer segmentation process, banks can incorporate more data sources, use machine learning techniques, personalize the customer experience, continuously update the model, and focus on customer lifetime value.

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