

Segmenting Customers Based on Income and Feedback

Neural Edge AI

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Introduction

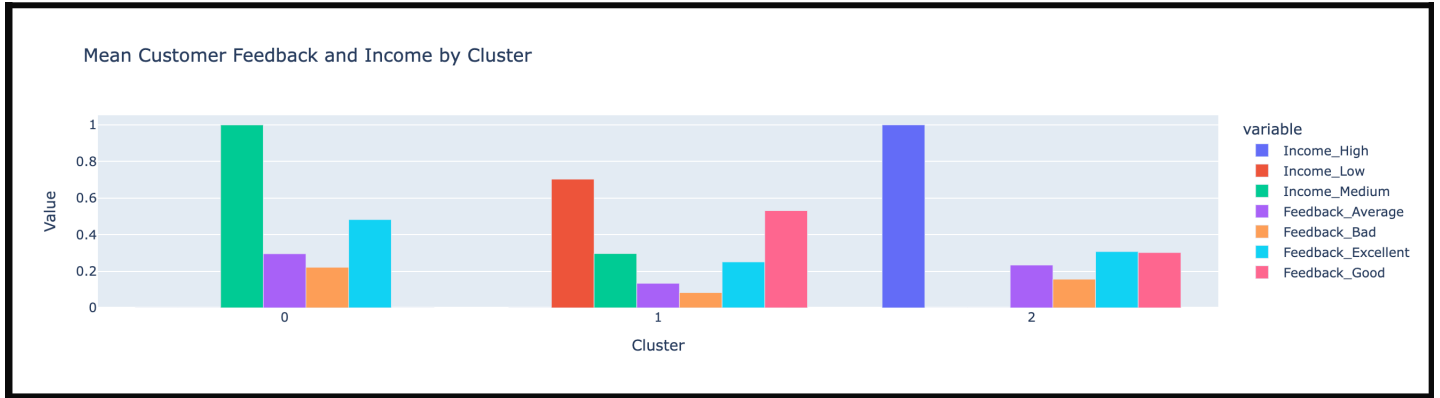
Understanding and responding to diverse customer needs is paramount for businesses to thrive in today's competitive landscape. This analysis aims to identify distinct customer segments based on two key attributes: income and feedback. By employing unsupervised machine learning techniques, specifically K-Means clustering, we seek to uncover hidden patterns within the customer data that can inform targeted marketing, product development, and customer retention strategies.

A comprehensive dataset containing customer income and feedback information was utilized for this analysis (<https://www.kaggle.com/datasets/bhavikjidadara/retail-transactional-dataset/data>).

Initial data exploration involved a thorough examination of data quality, distribution, and relationships among variables. While the complete EDA process included various statistical summaries and visualizations, this report focuses on key preprocessing steps to ensure data integrity. A K-Means clustering model was employed to group customers based on their income and feedback profiles. The optimal number of clusters was determined through rigorous model tuning, considering metrics such as silhouette score and inertia.

By segmenting customers based on income and feedback, this analysis provides valuable insights for businesses to tailor their strategies effectively. The identified customer segments offer opportunities for targeted marketing, product development, and customer retention initiatives.

Summary of Findings



The analysis revealed distinct customer segments based on their income levels and feedback. Three primary groups of customers were identified:

- **High-value customers:** These customers have higher incomes and provide positive feedback. They represent a valuable segment for businesses to focus on and retain.
- **Diverse customer group:** This group exhibits a mix of income levels and varying feedback. Understanding their specific needs and preferences is essential for tailoring products and services.
- **Customers needing attention:** This segment comprises customers with lower incomes and generally negative feedback. Improving their experience should be a priority to enhance customer satisfaction and loyalty.

Further Insights and Actions

To maximize the impact of these findings, businesses should consider implementing targeted marketing campaigns for high-value customers, focusing on product improvement and customization for the diverse group, and implementing customer service enhancements for those with negative feedback.

Target Marketing: Cluster 0 (high-value customers) represents a valuable segment of high-income customers with positive feedback. Targeted marketing campaigns focusing on premium products or services could be effective for this group.

Product/Service Improvement: Understanding the diverse feedback in Cluster 1 (diverse customer group) can provide insights into product/service improvements to cater to a wider customer base.

Customer Satisfaction: Cluster 2 (customers needing attention) , with low income and negative feedback, requires attention. Analyzing the reasons for negative feedback and implementing measures to improve customer satisfaction could be crucial.

The results presented here provide a preliminary understanding of customer segments based on income and feedback. To gain deeper insights and enhance the model's predictive power, incorporating additional customer attributes.