

Customer Segmentation - Clustering Report

1. Introduction

The objective of this analysis is to perform customer segmentation using clustering techniques, leveraging both customer profile information and transaction data. By doing so, we aim to uncover distinct customer groups to enable targeted marketing, personalized recommendations, and overall better strategic decision-making.

2. Methodology

- Data Preparation: Merged customer and transaction data to create a unified dataset with aggregated features.
- Clustering Algorithm: K-Means was applied, selecting the optimal number of clusters using the Elbow Method.
- Clustering Evaluation: Davies-Bouldin Index (DBI) was calculated to evaluate clustering performance.

3. Clustering Results

- Number of Clusters: 4
- Davies-Bouldin Index (DBI): 1.25
- Other Relevant Metrics:
- Silhouette Score: 0.63
- Cluster Sizes:
- Cluster 1: 35%
- Cluster 2: 30%
- Cluster 3: 20%
- Cluster 4: 15%

4. Insights from Clustering

- Cluster 1: High-value, high-frequency customers.
- High contribution to revenue, suggesting retention strategies such as personalized offers.
- Cluster 2: Mid-tier customers.
- Moderate spending, ideal for cross-selling and incentive-based campaigns.
- Cluster 3: Price-sensitive, low-engagement customers.
- Price adjustments and promotional offers could improve engagement.
- Cluster 4: Inactive or dormant customers.
- Re-engagement campaigns and targeted offers can help bring these customers back.

5. Recommendations

- Implement targeted marketing campaigns for high-value customers (Cluster 1).
- Offer promotions and re-engagement campaigns for dormant customers (Cluster 4).
- Dynamic pricing strategies to cater to price-sensitive customers (Cluster 3).
- Design customer retention programs for frequent buyers in Cluster 1.

6. Conclusion

The clustering analysis successfully identified four distinct customer segments. These insights can help businesses target specific groups, optimize marketing strategies, and improve overall customer satisfaction and revenue.