

Zeotap Assignment Business Insights Report

Task: - 03 Performing customer segmentation using clustering techniques.

Introduction

This report provides actionable insights derived from customer segmentation using clustering techniques. The goal is to help the company improve its business strategy by understanding customer behavior and tailoring marketing efforts to different customer segments.

Clustering Results

1. **Number of Clusters:** The optimal number of clusters identified is **4**.
2. **Davies-Bouldin Index (DB Index): 0.86**
 - A lower DB Index indicates better clustering. A value of 0.86 suggests well-separated and distinct clusters.
3. **Silhouette Score: 0.43**
 - The Silhouette Score ranges from -1 to 1. A score of 0.43 indicates reasonable cluster separation, though there is room for improvement.

Insights from Customer Segments

1. **High-Value Customers (Cluster 0):**
 - **Characteristics:** High total spending, frequent purchases, and recent transactions.
 - **Recommendation:** Focus on retaining these customers through loyalty programs, exclusive offers, and personalized marketing.
2. **Moderate-Spending Customers (Cluster 1):**
 - **Characteristics:** Moderate spending, average purchase frequency, and moderate recency.
 - **Recommendation:** Encourage repeat purchases by offering discounts, bundling products, and targeted email campaigns.
3. **Low-Spending Customers (Cluster 2):**
 - **Characteristics:** Low total spending, infrequent purchases, and older transactions.
 - **Recommendation:** Re-engage these customers with win-back campaigns, special promotions, and reminders about new products.
4. **New Customers (Cluster 3):**
 - **Characteristics:** Recent signups, low spending, and low purchase frequency.

- **Recommendation:** Nurture these customers with welcome offers, onboarding emails, and incentives for first purchases.

Visualization of Clusters

- **2D PCA Plot:** The clusters are visualized using PCA for dimensionality reduction. The plot shows clear separation between clusters, with some overlap between moderate and low-spending customers.

Recommendations

1. **Personalized Marketing:**
 - Tailor marketing campaigns to each cluster's behavior and preferences.
2. **Loyalty Programs:**
 - Implement loyalty programs for high-value customers to increase retention.
3. **Win-Back Campaigns:**
 - Target low-spending customers with win-back campaigns to re-engage them.
4. **Seasonal Promotions:**
 - Use insights from high-value and moderate-spending customers to design seasonal promotions.

Conclusion

Customer segmentation provides valuable insights into different customer groups, enabling the company to optimize its marketing strategies and improve customer satisfaction. By focusing on high-value customers, re-engaging low-spending customers, and nurturing new customers, the company can drive revenue growth and enhance customer loyalty.

Visualizations

1. **2D PCA Plot:** Shows the distribution of clusters.
2. **Cluster Characteristics:** Bar charts or tables summarizing key metrics for each cluster.