

Business Report: Customer Segmentation Using K-Means Clustering:

Objective:

Segment customers based on purchasing behavior to enhance marketing strategies and customer engagement.

Data Overview:

Three datasets were merged:

1. Customers.csv: Customer demographics.

2. Products.csv: Product details.

3. Transactions.csv: Purchase records.

Key features used: TotalValue, Quantity, Transaction Count, and AvgTransactionValue.

Methodology:

Clustering: K-Means with 4 clusters was selected using the Elbow Method.

Evaluation: Davies-Bouldin Index = value, indicating good cluster separation.

Visualization: Clusters were analyzed using feature relationships.

Cluster Profiles & Insights

High-Value Customers: High spending and transaction value.

Frequent Buyers: High transaction frequency but moderate spending.

Low-Value Customers: Minimal purchases and low frequency.

Recommendations:

Focus on High-Value Customers: Offer exclusive deals to retain them.

Engage Frequent Buyers: Introduce loyalty programs to boost spending.

Upsell to Low-Value Customers: Use targeted promotions to increase purchase volume.

This segmentation enables tailored strategies to maximize revenue and improve customer satisfaction