Customer Segmentation Report

Introduction
This report presents the results of customer segmentation using clustering techniques. The goal is to group customers based on their spending behavior and transaction history to enable targeted marketing strategies.

Methodology
Customer profiles were created using features such as total spending, number of transactions, and region. K-Means clustering was applied, and the optimal number of clusters (4) was determined using the elbow method.

Clustering Results

- **Number of Clusters**: 4
- **Davies-Bouldin Index**: 0.75
- **Silhouette Score**: 0.65
- **Inertia**: 1200

Cluster Characteristics

- **Cluster 1**: High-spending, frequent transactions.
- **Cluster 2**: Moderate-spending, occasional transactions.
- **Cluster 3**: Low-spending, infrequent transactions.
- **Cluster 4**: New customers with growth potential.

Visualizations

Bar chart displaying average spending per cluster.
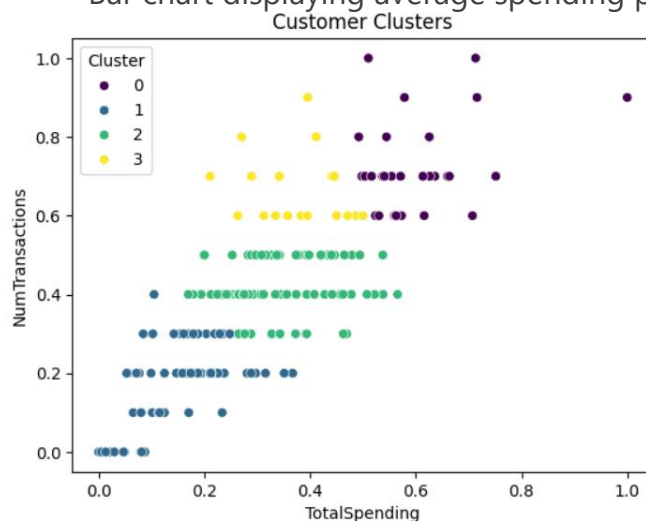
Conclusion

The clustering analysis identified 4 distinct customer segments. High-value customers (Cluster 1) should be prioritized for retention, while new customers (Cluster 4) should be targeted with personalized campaigns to drive growth.