

# Customer Segmentation Report

## Introduction:

This report summarizes the results of customer segmentation performed using K-Means clustering on the provided dataset. The objective was to group customers based on their purchasing behavior to derive actionable business insights.

---

## Results:

### Optimal Number of Clusters: 2

Through testing with different numbers of clusters, the best result was achieved with 2 clusters. This grouping balances simplicity and meaningful segmentation of customer behavior.

### Davies-Bouldin Index: 0.745

A lower DB Index indicates that the clusters are compact and well-separated. The value of 0.745 shows that the clustering performed effectively, with minimal overlap between clusters.

### Silhouette Score: 0.481

The moderate Silhouette Score reflects that most customers are well matched to their clusters, with some potential for improvement. This score validates that the chosen clustering approach captures meaningful groupings.

---

## Conclusion:

The analysis successfully segmented customers into two distinct groups. Cluster 0 represents high-value customers who purchase in bulk, while Cluster 1 includes customers with lower purchasing frequency and value. The low DB Index and moderate Silhouette Score indicate that the clustering approach is effective, providing valuable insights for targeted marketing strategies and customer retention efforts.