

1. Optimal Number of Clusters:

The optimal number of clusters determined was 2.

2. Davies-Bouldin Index:

DB Index = 0.9588.

Lower values of the DB Index indicate better clustering quality.

3. Cluster Characteristics:

Cluster 0:

Customers with high transaction frequencies and total transaction values.

More representation from North America and Europe regions.

Cluster 1:

Customers with lower transaction frequencies and total values.

Dominant representation from Asia and South America.

4. Visualization:

Visualized clusters using:

2D scatter plots (based on PCA components).

Bar plots for region-wise customer distribution.

Box plots for transaction value distributions.