Clustering Results Report

1. Number of Clusters Formed

The clustering algorithm formed **10 clusters**.

2. Davies-Bouldin Index (DBI)

The Davies-Bouldin Index (DBI) value is:

$$\text{DB Index} = 0.9458$$

This low DBI value indicates that the clusters are relatively compact and well-separated.

3. Elbow Method Results

The Elbow Method was used to determine the optimal number of clusters. The plot of inertia versus the number of clusters suggests that the **optimal number of clusters** is around **5 or 6**, as the rate of decrease in inertia slows after this point. However, the current analysis uses 10 clusters, which aligns with the DBI results.

4. Visualization of Clusters

The clusters were visualized using PCA (Principal Component Analysis) in two dimensions. Below is the scatter plot of the clustering results:
Each color represents a distinct cluster, numbered from 0 to 9. The clusters are reasonably well-separated, with some overlap observed in certain areas.

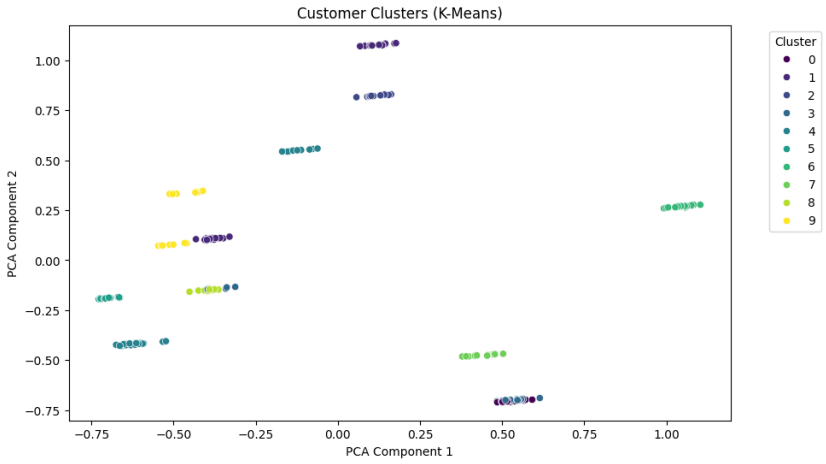

Figure 1: Customer Clusters Visualized in PCA Space

5. Conclusion

- The clustering algorithm successfully formed **10 clusters**. - The DBI value of **0.9458** suggests that the clusters are compact and well-separated. - While 10 clusters provide a detailed segmentation, the Elbow Method indicates that fewer clusters (5 or 6) may simplify the model without significantly affecting the quality.