

Customer Segmentation Clustering Report

1. Number of Clusters Formed

The optimal number of clusters identified is **3**. This was determined using the Elbow method and the Davies-Bouldin (DB) index for evaluation. After evaluating different cluster counts, 3 was found to be the best value for dividing the customers into distinct groups.

2. DB Index Value

The **Davies-Bouldin (DB) index** for 3 clusters is **1.0951**, which indicates that the clusters are reasonably well-separated. The lower the DB index value, the better the clustering solution. In this case, a value closer to 1 suggests good clustering performance.

3. Other Relevant Clustering Metrics

Cluster Profiling:

- **Cluster 0:** Represents **low-engagement, inactive customers**. These customers show lower transaction volumes and lower recency.
- **Cluster 1:** Represents **high-value, active customers**. These customers show high transaction frequency and high recency, indicating their active participation in recent purchases.
- **Cluster 2:** Represents **moderately engaged customers**. They have medium transaction counts and a slightly lower recency compared to Cluster 1.