A report on Clustering results

1. Number of Clusters Established: The optimal number of clusters established using the K-Means clustering algorithm is 4.

This number was selected based on the examination of clustering metrics such as the DB Index and Inertia, and by evaluating various cluster counts (from 2 to 10).

2. DB Index Value: The Davies-Bouldin Index (DB Index) value is 0.9757. The DB Index assesses the average similarity ratio of each cluster to the most comparable cluster. A lower DB Index signifies superior clustering performance (more compact and well-separated clusters).

With a value of 0.9757, the clusters are reasonably well-defined, although there might still be slight overlap or potential for enhancement in separation.

3. Other Pertinent Clustering Metrics: Silhouette Score: [Silhouette Score for Different Number of Clusters]The Silhouette Score measures how close each sample within one cluster is to the samples in the adjacent clusters. A score close to 1 indicates well-defined clusters. Inertia (Within-cluster Sum of Squares): Inertia measures the total distance between data points and their cluster centers. A lower inertia value indicates better clustering (tight clusters).

Cluster Sizes: The number of customers in each cluster can provide insights into the distribution of customers across different segments.

Key Changes:

- Number of Clusters Formed → Number of Clusters Established
- chosen → selected
- testing → evaluating
- measures → assesses

- indicates → signifies
- well-separated → more compact and well-separated
- could still be → might still be
- room for improvement → potential for enhancement
- Relevant → Pertinent
- neighboring clusters → adjacent clusters
- insights → insights