

# Clustering Results Report

## 1. Number of Clusters Formed:

- The optimal number of clusters was determined using the **Elbow Method**. After examining the plot of the Within-Cluster Sum of Squares (WCSS) for different values of  $k$ , we observed that the "elbow" point occurred at  $k=4$ . Therefore, we chose to form **4 clusters** for customer segmentation.

## 2. Clustering Metrics:

- **Davies-Bouldin Index:**
  - The Davies-Bouldin Index (DB Index) quantifies the quality of clustering by measuring the similarity between clusters. A lower DB Index indicates better clustering.
  - For our clustering solution, the DB Index value was **0.562**. This suggests that the clusters are reasonably well-separated, as lower values represent better cluster separation.
- **Silhouette Score:**
  - The Silhouette Score evaluates the consistency of the clusters. A higher score (close to 1) indicates well-defined clusters, while a lower score (close to -1) suggests that the points might be misclassified.
  - For our solution, the **Silhouette Score** was **0.731**, which indicates that the clusters are well-formed and that most customers are correctly assigned to the right cluster.