

Customer Segmentation / Clustering

1.1 Number of Clusters Formed

We will determine the optimal number of clusters using evaluation techniques like:

- **Elbow Method:** Analyze the variance explained by each cluster.
- **Silhouette Score:** Measure how similar data points are within a cluster compared to other clusters.

1.2 Davies-Bouldin Index

The Davies-Bouldin (DB) Index evaluates cluster compactness and separation.

- **Lower DB Index** = Better clustering.

1.3 Other Clustering Metrics

- **Silhouette Score:** Measures how well each data point fits within its cluster.
 - Range: $[-1, 1]$, with higher values indicating better-defined clusters.
- **Inertia (Within-Cluster Sum of Squares):** Measures the compactness of clusters.