



### 1. Number of Clusters Formed

- The clustering technique used is the **Gaussian Mixture Model (GMM)** with `n_components=4` (4 clusters).
- Based on the results, we can see that the customers have been divided into 4 clusters, although only a few customer records have been shown here.

### 2. Davies-Bouldin Index (DB Index)

- The **Davies-Bouldin Index (DB Index)** value is **0.5236**.
  - The **DB Index** measures the average similarity ratio of each cluster with the cluster that is most similar to it.
  - A **lower DB Index** indicates better clustering, as the clusters are more distinct and well-separated.
  - Since the DB Index is relatively low (below 1), it indicates that the clusters are well-separated, which is a good sign for the clustering quality.

### 3. Other Clustering Metrics

In addition to the DB Index, other clustering metrics that can help in evaluating the quality of the clustering include:

- **Silhouette Score:** Measures how similar a point is to its own cluster compared to other clusters. The silhouette score ranges from -1 (incorrect clustering) to +1 (well-clustered). A higher silhouette score indicates better-defined clusters.
- **Cluster Distribution:** It can be helpful to check the number of data points in each cluster. If one cluster contains most of the data, it might indicate that the clustering result is not meaningful.
- **Cluster Centers (means of the Gaussian components):** GMM provides cluster centers (means) that represent the center of each cluster. These are useful to understand the general characteristics of each cluster.