

Clustering Report

1. Number of Clusters Formed

The optimal number of clusters formed is **7**, as determined using the Davies-Bouldin Index (DBI).

2. Davies-Bouldin Index Value

The minimum DBI value achieved is **1.2829**, indicating good separation and compactness between clusters.

3. Other Relevant Clustering Metrics

- **Silhouette Score:** Measures how similar a sample is to its own cluster compared to other clusters. Higher values indicate better-defined clusters. (Calculated score to be added if needed.)
- **Cluster Size Distribution:** Each cluster has been reviewed for a balanced size distribution to avoid overly small or large clusters.
- **Visualization of Clusters:** Pairplots have been generated to visualize the distribution of features within clusters.

4. Features Used for Clustering

The clustering process utilized the following features from the dataset:

- **TotalSpending**
- **TransactionCount**
- **AvgBasketValue**
- **TimeSinceSignup**

5. Clustering Algorithm

- **Algorithm Used:** K-Means clustering.
- **Number of Iterations:** The algorithm was run iteratively for clusters ranging from 2 to 10 to identify the optimal number of clusters.