

Clustering Results Report

- 1. Number of Clusters Formed:  
The optimal number of clusters is 2, as determined by the minimum Davies-Bouldin Index (DBI).
- 2. Davies-Bouldin Index (DBI):  
The DBI for the optimal configuration is 0.72, indicating well-separated and compact clusters.
- 3. Silhouette Score:  
The Silhouette Score is 0.49, which shows moderate cluster separation and cohesion.
- 4. Cluster Sizes:
  - Cluster 0: 79 customers
  - Cluster 1: 120 customersThis distribution shows that Cluster 1 represents a larger segment of the customer base.
- 5. Cluster Metrics Across All Configurations:  
Metrics for different cluster configurations are summarized below:

Number of Clusters | DBI | Silhouette Score

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2	0.72	0.49
3	0.77	0.41
4	0.87	0.37
5	0.90	0.36
6	0.93	0.35
7	0.93	0.36
8	0.92	0.33
9	1.08	0.30
10	1.03	0.29

The optimal configuration (2 clusters) achieves the lowest DBI and the highest Silhouette Score, making it the most suitable choice.

## 6. Key Insights:

- Customers can be segmented into two distinct clusters.
- Cluster 1 represents the majority group and may reflect either frequent or high-value customers, while Cluster 0 could indicate lower activity or less profitable customers.
- Future marketing strategies can be tailored to the specific characteristics of each cluster.