

Report on clustering results

1.Number of Clusters Formed

Using the Elbow Method, the optimal number of clusters was determined to be 4. This segmentation groups customers based on their spending patterns, transaction frequency, and average transaction values.

2. Davies-Bouldin Index (DB Index) :

Davies-Bouldin Index (DB Index): 1.0783820558335244

3. Silhouette Score:

Silhouette Score: 0.3010023182093583

Cluster Summary

Cluster Summary:

	AvgSpend	AvgTransactions	AvgTransactionValue	NumCustomers
Cluster				
0	5562.007826	8.065217	694.063079	46
1	2129.560143	4.271429	467.173226	70
2	4606.899767	5.069767	929.707278	43
3	2121.397561	2.731707	785.902825	41

4.Key Observations

Cluster 0: Represents low spenders with a low number of transactions and low average transaction value. This segment might include infrequent or low-value customers.

Cluster 1: Indicates high spenders with moderate transaction frequency but higher average transaction values, making them valuable customers.

Cluster 2: Comprises customers with high transaction frequency but moderate spending, potentially reflecting frequent buyers of lower-cost items.

Cluster 3: Represents medium spenders with balanced transaction frequency and average transaction value.

5.Business Recommendations

Focus marketing efforts on Cluster 1 to retain high-value customers.

Upsell opportunities can be targeted at Cluster 2 to increase their average transaction value.

Engage Cluster 0 with promotions or incentives to boost their spending and frequency.

Monitor Cluster 3 for potential growth opportunities by offering personal