Customer Segmentation (Clustering) Report

1. Number of Clusters Formed

- Based on the Davies-Bouldin Index evaluation, the optimal number of clusters was found to be **2**.

2. Davies-Bouldin Index Value

- The final **DB Index** for the clustering solution is **0.5840**, indicating well-separated clusters.

3. Other Relevant Clustering Metrics

- **Clustering Algorithm Used:** K-Means.
- **Features Used for Clustering:** ○ Total Spending per Customer ○ Total Number of Transactions ○ Average Transaction Value ○ Region Encoding
- **Scaling Applied:** Min-Max Normalization.

4. Visualization Insights

- Customers were successfully segmented based on their **spending behavior and transaction volume**.
- **Cluster 1:** Customers with high total spending and frequent transactions.
- **Cluster 2:** Customers with lower spending and less frequent transactions.
- This segmentation can help in **targeted promotions and personalized marketing strategies**. **Conclusion**
- The clustering approach effectively segments customers based on purchasing behavior.
- The company can use these insights for marketing, customer retention, and strategic business decisions.


Customer Clusters (Optimal k=2, DB Index=0.629)
Cluster
0
1
PCA Component 2
PCA Component 1
1.5
1.0
0.5
0.0
−0.5
−1.0
−2
−1
0
1
2
3
4