CLUSTERING RESULT REPORT

Number of Clusters Formed

The analysis segmented customers into **5 clusters** using the **K-Means algorithm**.

Each cluster represents a distinct group of customers with similar transaction behaviors.

Evaluation of Clustering Quality

Davies-Bouldin Index (DB Index):

- **DB Index Value**: **1.0535**

A **DB Index** close to **1** indicates a good balance between cluster compactness and separation. This score reflects that the clusters are reasonably well-formed, with minimal overlap between them

Cluster Centers (in Original Feature Space)

The cluster centers, which summarize the average transaction behavior for each cluster, are as follows:

Cluster	Transaction Count	Total Spend	Avg. Order Value	Avg. Quantity
0	8.13	6409.22	795.88	2.79
1	2.93	1101.64	373.59	1.79
2	3.45	2211.27	666.22	2.77
3	4.51	4417.02	1006.01	3.01
4	6.33	3687.68	596.40	2.19

Cluster Distribution

The number of customers in each cluster is as follows:

Cluster	*Number of Customers*
0	30
1	27
2	55
3	35
4	52

Clusters were visualized in 2D using **PCA (Principal Component Analysis)**, with the following key insights:

- **Separation**: Most clusters are well-separated, indicating clear distinctions between customer groups.
- **Overlap**: Minimal overlap suggests that customers within the same cluster have similar behaviors, while those in different clusters exhibit distinct patterns.