

Clustering Analysis Summary

1. Number of Clusters Formed

The optimal number of clusters determined through the analysis is **4**.

2. Davies-Bouldin Index (DB Index) Values

The Davies-Bouldin Index (DB Index) is a metric used to evaluate the quality of clustering. Lower values indicate better clustering. The table below summarizes the DB Index and Silhouette Score values for different cluster sizes:

Number of Clusters	DB Index	Silhouette Score
2	0.4566	0.6626
3	0.4549	0.6414
4	0.4201	0.6361
5	0.4942	0.6074
6	0.5648	0.5583
7	0.5330	0.5769
8	0.5377	0.5693
9	0.5781	0.5460
10	0.5840	0.5365

Table 1: DB Index and Silhouette Score for Different Cluster Sizes

3. Summary of Metrics

- **Best DB Index:** The lowest DB Index of **0.4201** was observed for **4 clusters**, indicating that this configuration provides the best separation between clusters.
- **Silhouette Score:** The Silhouette Score for 4 clusters is **0.6361**, which indicates a reasonably good clustering structure.

4. Visualizations

A pairplot or scatter plot can be used to visualize how the clusters are distributed in the feature space, allowing for an intuitive understanding of customer segmentation.

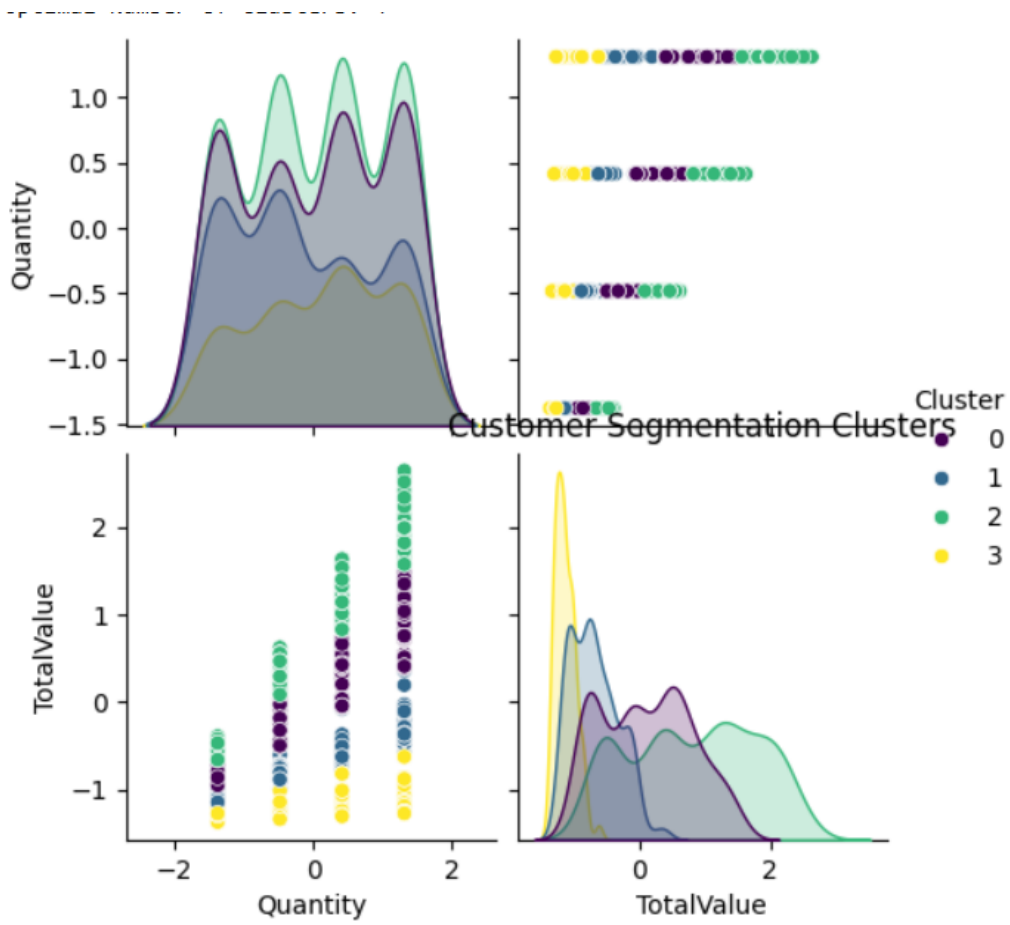


Figure 1: Cluster Visualization in Feature Space