Clustering Results Report

Algorithm Used: KMeans

Features Used for Clustering:

- `TotalValue` (total transaction value per customer)
- `Quantity` (total quantity purchased)
- `Price` (average product price)

Key Metrics:

1. **Number of Clusters Formed**: 7

   o The optimal number of clusters was determined using the Davies-Bouldin Index, which was minimized at k=7.

2. **Clustering Metrics**:

   o **Davies-Bouldin Index**: 0.7915 .

   o **Silhouette Score**: 0.3398.

   o **Calinski-Harabasz Index**: 117.5073.

Observations:

- The segmentation divides customers into **7 distinct clusters**, showing diverse customer behaviors based on total spending, quantity, and average product price.

- The **Davies-Bouldin Index** value of 0.7915 indicates a relatively good cluster compactness and separation.

- A **Silhouette Score** of 0.3398 suggests moderate separation between clusters. There might be slight overlaps between some clusters.

- The **Calinski-Harabasz Index** value of 117.5073 confirms the validity of the clustering structure.