Customer Clustering Report

1. Number of Clusters Formed

- **Total number of clusters**: 4
  The K-Means algorithm formed 4 distinct customer clusters based on **TotalValue** and **Quantity**.

2. Davies-Bouldin Index (DBI)

- **DBI Value**: **1.035**

- The **Davies-Bouldin Index (DBI)** measures the **separation** and **compactness** of clusters. A DBI value closer to **0** indicates well-separated and compact clusters.

- **1.035** is a good result but indicates that the clusters may overlap slightly and could benefit from further fine-tuning, such as using different clustering techniques or adjusting the number of clusters.

3. Cluster Characteristics

The table below summarizes key metrics for each cluster:

Cluster ID	Total Value	Avg Quantity	Number of Customers
0	5607.67	19.74	38
1	2218.28	8.55	60
2	3717.84	13.37	59
3	2963.21	11.55	42

Cluster Analysis:

- **Cluster 0**: High spenders with high purchase volume.
  This represents premium customers who make frequent, high-value purchases.

- **Cluster 1**: Lower spenders with lower purchase volume.
  This represents budget-conscious customers with occasional purchases.

- **Cluster 2**: Medium spenders with moderate purchase volume.
  This represents customers who spend moderately and make frequent purchases.

- **Cluster 3**: Like Cluster 2 but with slightly lower spending.
  This represents customers who buy at a moderate frequency but at a lower monetary value compared to Cluster 0 and 2.

4. Scatter Plot

Customer Clusters