

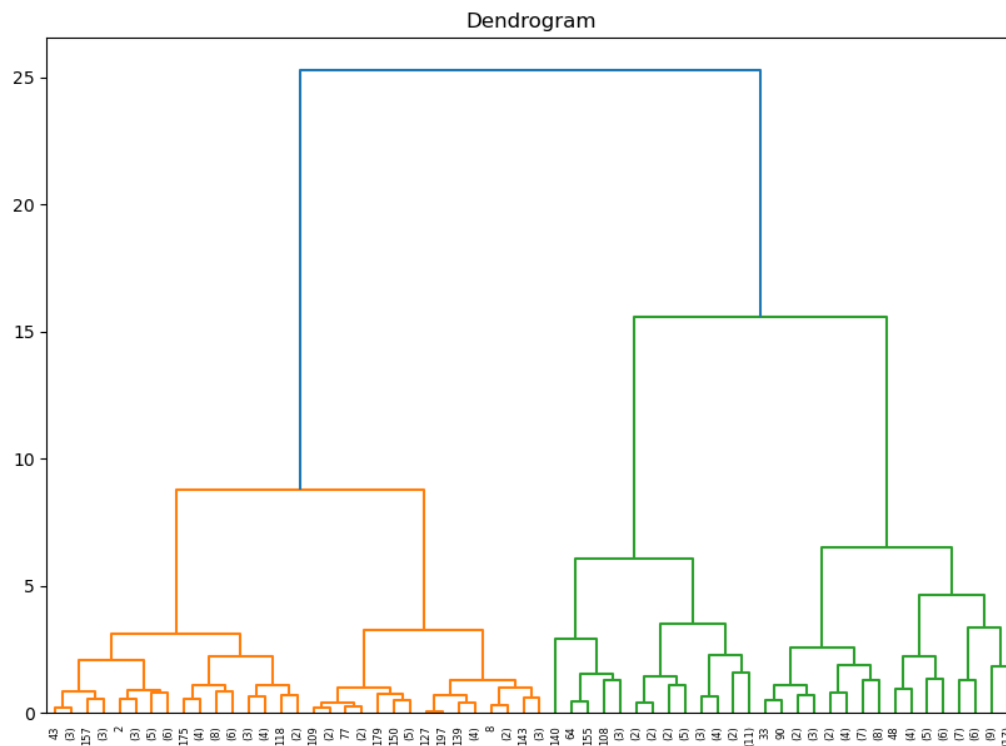
Task 3: Customer Segmentation / Clustering

Results

1. **Number of Clusters:** The optimal number of clusters was determined to be **5**.
2. **Clustering Metrics:**
 - **Davies-Bouldin Index:** 0.93
 - **Silhouette Score:** 0.33
3. **Cluster Characteristics:** Each cluster was analyzed based on average values of aggregated features:

Cluster	Avg. Total Transactions	Avg. Total Quantity	Avg. Total Value
0	8.157895	21.815789	6083.723158
1	1.703704	3.592593	816.316296
2	5.527273	12.290909	3251.331273
3	3.500000	9.000000	2414.148846
4	5.642857	16.678571	4729.092143

4. **Visualization:**
 - **Dendrogram:** Demonstrates hierarchical grouping of customers and reveals the cluster formation process.



- **PCA-based Scatter Plot:** Shows clear separation between clusters, indicating the success of segmentation.

