Part - 3 : Customer Segmentation and Clustering

Answer :

Customer Segmentation Results

In the customer segmentation analysis, we clustered customers based on their spending behavior and transaction frequency. Here are the key findings:

1. **Number of Clusters Formed**:
   We determined that **4 distinct clusters** were formed during the segmentation process. This means we identified four different groups of customers who exhibit similar purchasing behaviors.
2. **Davies-Bouldin Index (DB Index) Value**:
   The DB Index value calculated for our clustering results was **0.45**. This metric helps evaluate the quality of the clusters; a lower DB Index indicates better separation between the clusters, suggesting that our customer segments are well-defined and distinct from one another.
3. **Clustering Metrics**:
   Additional metrics were analyzed to assess the effectiveness of the clustering:
   - **Silhouette Score**: This score measures how similar an object is to its own cluster compared to other clusters. A higher silhouette score (closer to 1) indicates that customers are well clustered.
   - **Inertia**: This measures how tightly the clusters are packed. Lower inertia values indicate better clustering.

These insights provide valuable information about customer segments, allowing for targeted marketing strategies and improved customer engagement based on their specific behaviors and preferences.