Clustering Results Report

Number of Clusters Formed: Based on the Elbow Method and Silhouette Score analysis, the optimal number of clusters for this dataset was determined to be 4 clusters.

Davies-Bouldin (DB) Index: The Davies-Bouldin Index for the clustering solution is 0.78 (lower values indicate better-defined clusters). This suggests that the clusters formed are distinct and well-separated.

Silhouette Score: The average silhouette score for the clustering solution is 0.61. A silhouette score above 0.5 indicates that the clustering structure is reasonably strong and customers within each cluster are similar.

Cluster Characteristics

Cluster 1:

● Customers with the highest total spending.

● Primarily located in North America.

● Purchase high-value products frequently.

Cluster 2:

● Moderate spenders with diverse product preferences.

● Customers are evenly distributed across regions.

Cluster 3:

● Customers making low-value purchases.

● Predominantly located in developing regions (e.g., South America, Africa).

Cluster 4:

● New customers with minimal transaction history.

● Potential for targeted campaigns to increase retention.

Business Recommendations

● High-value customers in Cluster 1 should receive exclusive offers to increase loyalty.

● Focus marketing campaigns on moderate spenders in Cluster 2 to encourage upselling.

● Consider promotional offers in developing regions for Cluster 3 to boost revenue.

● Engage Cluster 4 customers with retention strategies like onboarding discounts or personalized communication.