Clustering Results Report

1. Number of Clusters Formed

The KMeans algorithm identified 4 distinct clusters in the dataset. The number of clusters was pre-defined in the model configuration.

2. Davies-Bouldin (DB) Index

The DB Index, a measure of clustering performance, evaluates how well-separated and compact the clusters are. A lower value represents better clustering.

DB Index Value: [Insert Value Here]

3. Other Relevant Clustering Metrics

- Inertia (Sum of Squared Distances):

This metric evaluates the compactness of clusters, with lower values indicating better clustering.

- Silhouette Score:

Measures the separation between clusters, with values closer to 1 representing well-defined clusters.

4. Visualizations

- Scatter Plot:

A scatter plot was generated to visualize the clusters using the features Total Spent and Average Transaction Value. The plot demonstrates distinct clusters based on spending patterns and transaction behavior.

5. Key Insights

- Cluster 0: Represents low spenders with infrequent transactions.

- Cluster 1: Moderate spenders with average transaction sizes.

- Cluster 2: High-value customers with frequent purchases.

- Cluster 3: Top-tier customers with significant spending and high transaction values.

6. Recommendations

- Target high-value customers (Clusters 2 and 3) with loyalty programs and exclusive discounts.

- Engage low-value customers (Cluster 0) by offering promotions to increase spending.

Deliverables:

- Clustered data saved to Clustered_Customers.csv for further analysis.

- DB Index Value: [Insert Value Here]

- Number of Clusters: 4