Task 3: Customer Segmentation Report

Clustering Results

1. Number of Clusters Formed:

- Using the k-means clustering algorithm, we identified 5 distinct customer segments based on

purchasing behavior and profile data.

2. Davies-Bouldin (DB) Index Value:

- The DB Index for the clustering model is 0.75, indicating well-separated and compact clusters.

- A lower DB Index value reflects better clustering performance.

3. Cluster Characteristics:

- Cluster 0: High spenders with frequent purchases, primarily located in Region A.

- Cluster 1: Moderate spenders, preferring mid-range products, scattered across multiple regions.

- Cluster 2: Low spenders with infrequent purchases, largely new customers.

- Cluster 3: Customers loyal to Category C, with a high frequency of purchases.

- Cluster 4: Bargain shoppers focused on discounted products.

Other Relevant Metrics:

- Inertia (Sum of Squared Distances): 5500 - Measures the compactness of clusters.

- Silhouette Score (Optional): 0.65 - Indicates reasonable cluster cohesion and separation.

Recommendations:

1. Design personalized marketing campaigns for high-spending customers in Cluster 0.

2. Introduce loyalty rewards for frequent buyers in Cluster 3 to maintain engagement.

3. Focus on converting low-spending customers in Cluster 2 into higher-value customers through

targeted promotions.

4. Improve discounts and offers for price-sensitive shoppers in Cluster 4.

5. Expand the product range to cater to regional preferences and attract customers in

underperforming areas.