Customer Segmentation Clustering Report

1.Overview

This report presents the results of customer segmentation using clustering techniques on an eCommerce transactions dataset. The analysis combines customer profile information and transaction history to identify distinct customer groups.

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2. Clustering Results

- **Number of Clusters Formed:** 7

- **Davies-Bouldin Index (DB Index):** 1.17 (Lower values indicate better-defined clusters)

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3. Cluster Characteristics & Key Insights

Cluster	Avg. Spending (USD)	Avg. Transaction Count	Avg. Recency (Days)	Avg. Signup Days
0	$2,485	4.2	120	820
1	$5,866	8.3	49	950
2	$5,209	6.6	85	753
3	$937	1.5	270	640
4	$1,482	2.8	200	580
5	$3,710	5.2	98	890
6	$2,353	3.9	40	720

- **Cluster 1** represents the highest spenders with frequent transactions and relatively recent activity, making them high-value customers.

- **Cluster 3** has the lowest spending, lowest transaction frequency, and the longest recency, indicating potentially inactive customers.

- **Cluster 6** has fairly recent transactions but moderate spending, suggesting emerging or mid-tier customers.

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4. Clustering Metrics & Evaluation

- **Davies-Bouldin Index (DB Index):** 1.17, indicating a reasonable separation between clusters.

- **Silhouette Score (optional future enhancement):** Could be computed for further validation.

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5. Visual Representations

- **Bar Plots:** Used to compare spending, transaction count, and recency across clusters.

- **Potential Enhancements:** PCA or t-SNE scatter plots for better cluster visualization.

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6. Business Implications

- **Cluster 1 & 2:** High-value customers; targeted promotions or loyalty programs recommended.

- **Cluster 3 & 4:** Low-engagement customers; reactivation strategies such as discounts or special offers.

- **Cluster 6:** Potential high-growth customers; personalized recommendations to increase retention.

Next Steps:

- Implement marketing strategies based on cluster insights.

- Continuously update clustering models with new data for improved segmentation.

End of Report