

Customer Segmentation and Clustering Analysis

Number of Clusters Formed: 4

The customer segmentation analysis has resulted in the formation of four distinct clusters. Each cluster groups customers with similar purchasing behaviours and profiles, enabling targeted marketing and personalized strategies.

DB Index: 0.785

The Davies-Bouldin Index (DB Index) for this clustering model is 0.785. The DB Index measures the average similarity ratio of each cluster to its most similar cluster, with lower values indicating better clustering quality. A DB Index of 0.785 suggests that the clusters formed have reasonably good separation and cohesion, making them useful for deriving actionable business insights.

Key Metrics and Insights

Cluster Characteristics:

1. Cluster 0:

- **Total Spend:** High
- **Transaction Count:** Low
- **Insight:** This cluster likely consists of high-value customers who make infrequent but large purchases. Personalized loyalty programs and exclusive offers could increase their purchase frequency.

2. Cluster 1:

- **Total Spend:** Low
- **Transaction Count:** Low
- **Insight:** These customers are low spenders and make infrequent purchases. Strategies to engage these customers could include

targeted promotions and incentives to increase their spending and shopping frequency.

3. Cluster 2:

- **Total Spend:** Medium
- **Transaction Count:** Medium
- **Insight:** This cluster represents average spenders with moderate purchase frequency. They can be targeted with cross-selling and upselling opportunities to enhance their overall spending.

4. Cluster 3:

- **Total Spend:** High
- **Transaction Count:** High
- **Insight:** High-value customers with frequent transactions fall into this cluster. Tailored rewards programs, premium services, and personalized experiences can help retain and further engage these valuable customers.