

## **Key Findings**

1. Optimal Number of Clusters: 6 clusters were formed, confirming the most suitable segmentation.
2. DB Index Value: A low index value of 0.95 indicates well-defined and compact clusters.
3. Clustering Features: Normalized features, including Region, Total Spent, and Total Transactions, contributed to the analysis.

## **Cluster Characteristics**

1. Clusters 1 & 4: High-value customers with frequent transactions, ideal for loyalty programs and premium offers.
2. Clusters 0 & 3: Low spenders, requiring discounts and onboarding offers to boost engagement.
3. Cluster 2: Moderate spenders, who can be incentivized to increase spending.

## **Visualization and Validation**

1. **Scatter Plots:** Visualizations confirm distinct clusters.
2. **DB Index Trends:** Trends validate the six-cluster model.

**Conclusion :** Targeted Marketing Strategies: Clustering analysis enables tailored marketing strategies to enhance engagement and loyalty.