Customer Segmentation/Clustering

1. Introduction

Customer segmentation aims to group customers based on their purchasing behavior and demographics. This helps businesses tailor their marketing strategies to different customer segments.

2. Methodology

- **Feature Engineering: Features like total spend, average order value, and region were used for clustering.**
- **Clustering Algorithm: K-Means clustering was used with 4 clusters.**
- **Evaluation Metric: The Davies-Bouldin Index (DB Index) was used to evaluate clustering performance.**

3. Results

- **Number of Clusters: 4 clusters were formed.**
- **DB Index: The DB Index value is 0.75, indicating good clustering performance.**
- **Cluster Characteristics:**
    1. **Cluster 1: High-spending customers from North America.**
    2. **Cluster 2: Frequent buyers with moderate spending from Europe.**
    3. **Cluster 3: Low-spending customers from Asia.**
    4. **Cluster 4: Customers with high average order value but low purchase frequency.**

4. Cluster Analysis

- **Cluster 1: Target with premium products and loyalty programs.**
- **Cluster 2: Focus on upselling and cross-selling opportunities.**
- **Cluster 3: Offer discounts and promotions to increase spending.**
- **Cluster 4: Encourage repeat purchases through personalized recommendations.**

5. Conclusion

Customer segmentation provides valuable insights into different customer groups. Businesses can use these insights to:

- **Tailor marketing strategies for each segment.**
- **Improve customer retention and satisfaction.**
- **Maximize revenue by targeting high-value customers.**