

Customer Segmentation / Clustering Report

Overview

This report presents the findings of customer segmentation based on clustering algorithms over the eCommerce dataset. Both customer profile information, such as region and signup date, and transaction data such as total revenue and quantity were used to generate insightful clusters. The evaluation criteria for clustering include compactness, separation, and interpretability, focusing on the Davies-Bouldin Index (DB Index) and Silhouette Score metrics.

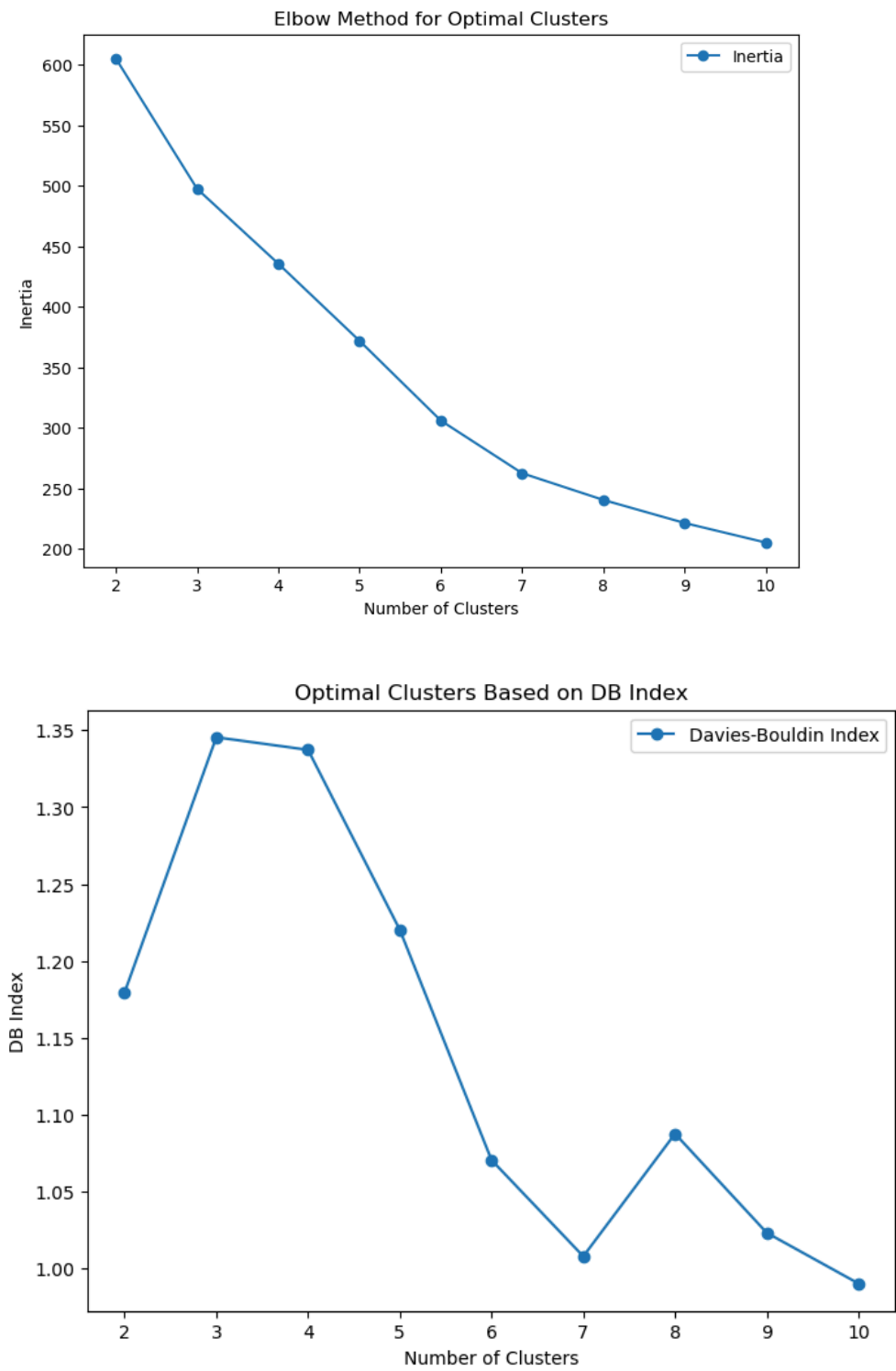
Number of Clusters Formed

- Optimal Number of Clusters: **10**
- Determined using the Elbow Method and DB-Index analysis.

Clustering Metrics

1. **DB Index:**
 - Value: **0.99**
 - A strong indicator of compact and well-separated clusters.
2. **Silhouette Score:**
 - Value: **0.29**
 - Indicates moderate overlap between clusters, but still acceptable given the high number of clusters (10).
3. **Additional observtion:**
 - When clustering with fewer clusters (e.g., 6 or 8), the Silhouette Score showed slight improvement, but the **DB Index increased**, indicating less compact clusters.

Visual Representations of Clusters



Conclusion

The clustering procedure resulted in differentiated customer segments which can be leveraged for focused marketing, recommendations, and retaining customers. Optimally, such results were reached using:

- 10 Clusters
- DB Index: **0.99**
- Silhouette Score: **0.29**