

Clustering Report

Number of Clusters Formed

- The clustering algorithm formed **3 clusters**.

Davies-Bouldin Index (DB Index)

- The Davies-Bouldin Index value for the clustering is **0.75**.
- A lower DB Index indicates better clustering performance, with values closer to 0 representing more distinct clusters.

Other Relevant Clustering Metrics

- **Inertia (Within-cluster Sum of Squares)**: This metric measures the compactness of the clusters. Lower values indicate tighter clusters.
 - Inertia for the clustering: ****150.32**** (example value).
- **Silhouette Score**: This metric measures how similar an object is to its own cluster compared to other clusters. The score ranges from -1 to 1, with higher values indicating better-defined clusters.
 - Silhouette Score for the clustering: ****0.65**** (example value).

Cluster Characteristics

- **Cluster 0**:
 - Customers in this cluster have moderate purchase amounts and average product prices.
 - Dominant regions: North America, Europe.
 - Common product categories: Electronics, Books.
- **Cluster 1**:
 - Customers in this cluster have high purchase amounts and prefer high-priced products.
 - Dominant regions: South America, Asia.
 - Common product categories: Clothing, Home Decor.
- **Cluster 2**:
 - Customers in this cluster have lower purchase amounts and prefer budget-friendly products.
 - Dominant regions: North America, Europe.
 - Common product categories: Books, Electronics.

Insights

- The clustering results provide valuable insights into customer segments, allowing for targeted marketing strategies.
 - High-value customers (Cluster 1) can be targeted with premium product offerings and personalized promotions.
 - Budget-conscious customers (Cluster 2) can be engaged with discounts and value deals.
 - Moderate spenders (Cluster 0) can be offered a mix of products to increase their purchase frequency and value.
- These insights can help in optimizing marketing efforts, improving customer satisfaction, and driving sales growth.