

Customer Segmentation Report

Number of Clusters

Grouped the customers into **4 clusters**. Each cluster represents a group of people with similar shopping habits and profiles.

Clustering Quality (DB Index):

The **Davies-Bouldin Index (DB Index)** for the clustering is **1.171558499733183**. A lower DB Index means the clusters are well-separated and more compact, so lower is better.

What Do the Clusters Tell Us?

1. **Cluster 0:** (Example) Customers who spend a lot and shop frequently, mostly from a specific region.
2. **Cluster 1:** (Example) People who spend very little and make occasional purchases.
3. **Cluster 2:** (Example) Shoppers with average spending who prefer specific types of products.
4. **Cluster 3:** (Example) Irregular buyers with unpredictable shopping habits.

Each cluster helps us understand different kinds of shoppers, so we can create better marketing plans for each group.

Visualization:

Used a scatter plot to show the clusters visually. This plot helps us see how well the clusters are separated and identify patterns in customer behavior.

For Further analysis:

- Could try different ways to group customers, like using more or fewer clusters, to see if we get better results.
- Testing other algorithms, like DBSCAN or Hierarchical Clustering, might also improve the clusters.

This analysis helps us divide customers into groups based on their behavior. We can use this to:

- Offer personalized discounts or recommendations.
- Focus on high-spending customers.
- Improve sales in regions with less activity.