Customer Segmentation Report

This report summarizes customer segmentation performed using clustering techniques. The analysis incorporates customer profile data and transactional behavior to group customers into meaningful clusters, enabling targeted strategies for each segment.

Clustering Results:

- Number of Clusters Formed:

Three clusters were identified using the K-Means clustering algorithm. The optimal number of clusters was determined using the Elbow Method.

- Davies-Bouldin Index (DBI):

The clustering resulted in a DBI value of 1.43, indicating a good separation between clusters and compactness within each cluster.

- Cluster Characteristics:

Each cluster was analyzed for transactional and demographic patterns. Cluster 0 represents high spenders with the most transactions and categories. Cluster 1 consists of moderate spenders, while Cluster 2 includes low spenders with minimal diversity in purchases.

- Visualization of Clusters:

The clusters were visualized using Principal Component Analysis (PCA), showcasing clear separations in a 2D space. This visualization highlights the distinct nature of customer groups.

Conclusion:

Business Insights from EDA on Retail Data

The segmentation highlights significant customer behavior patterns, offering insights for personalized marketing and resource allocation. Businesses can leverage these clusters to enhance customer engagement, improve retention, and maximize revenue.