Customer Segmentation Report

Introduction

This report summarizes the results of the customer segmentation analysis conducted using clustering techniques on customer and transaction data. The goal was to identify distinct customer groups based on their transaction behavior.

Data Overview

Customer Data

The customer dataset contains the following information:

- **CustomerID**: Unique identifier for each customer.
- **CustomerName**: Name of the customer.
- **Region**: Geographic region of the customer.
- **SignupDate**: Date the customer signed up.

Sample Data:

CustomerID	CustomerName	Region	SignupDate
C0001	Lawrence Carroll	South America	2022-07-10
C0002	Elizabeth Lutz	Asia	2022-02-13
C0003	Michael Rivera	South America	2024-03-07
C0004	Kathleen Rodriguez	South America	2022-10-09
C0005	Laura Weber	Asia	2022-08-15

Transactions Data

The transactions dataset contains the following information:

- **TransactionID**: Unique identifier for each transaction.
- **CustomerID**: Identifier linking to the corresponding customer.
- **ProductID**: Identifier for the purchased product.
- **TransactionDate**: Date and time of the transaction.
- **Quantity**: Number of units purchased.
- **TotalValue**: Total amount spent on the transaction.
- **Price**: Price per unit of the product.

Sample Data:

TransactionID	CustomerID	ProductID	TransactionDate	Quantity	TotalValue	Price
T00001	C0199	P067	2024-08-25 12:38:23	1	300.68	300.68
T00112	C0146	P067	2024-05-27 22:23:54	1	300.68	300.68
T00166	C0127	P067	2024-04-25 07:38:55	1	300.68	300.68
T00272	C0087	P067	2024-03-26 22:55:37	2	601.36	300.68
T00363	C0070	P067	2024-03-21 15:10:10	3	902.04	300.68

Clustering Results

The clustering analysis yielded the following results:

- ➢ **Number of Clusters**: 4
  - ◆ The analysis grouped customers into four distinct segments based on their purchasing behavior.
- ➢ **Davies-Bouldin Index**: 0.9665
  - ◆ This index evaluates the separation and compactness of the clusters. A lower value indicates better clustering performance. The calculated value suggests a reasonably good separation between the identified clusters.

Conclusion

The customer segmentation analysis successfully identified four distinct customer groups, providing insights into purchasing behavior based on transaction data. The Davies-Bouldin Index value of 0.9665 indicates that the clusters are reasonably well-separated and compact, suggesting effective segmentation.

The detailed results have been saved in the file Customer_Segmentation_Results.csv, which contains the segmentation information for each customer.