

# Customer Segmentation Clustering Report

## 1. Overview

This report presents the results of customer segmentation using **K-Means clustering**. The clustering process aimed to group customers based on their purchasing behavior, considering factors such as **total money spent, unique products purchased, and total quantity bought**.

## 2. Number of Clusters Formed

After evaluating different values of **K (2 to 10)**, the optimal number of clusters was determined to be:

- ♦ **Optimal Number of Clusters: 2**

## 3. Clustering Performance Metrics

### a. Davies-Bouldin Index (DBI)

- **DB Index: 0.7507**
- The **lower** the DBI, the **better** the clustering quality. The obtained DB Index value suggests **well-separated** clusters.

### b. Silhouette Score

- **Silhouette Score: 0.4739**
- The score ranges from **-1 to 1**, where a higher score indicates **better-defined clusters**. A score of **0.4739** suggests a **moderate** level of cluster separation.

## 4. Conclusion

The clustering process successfully identified **two distinct customer groups**. The obtained DB Index and Silhouette Score indicate that the segmentation is reasonably well-structured. These insights can help in **customer behavior analysis, targeted marketing strategies, and personalized product recommendations**.