Customer Segmentation Report: Insights from Clustering Analysis

Project Overview:

A Comprehensive Analysis of Customer Behavior Using KMeans Clustering. This report provides an in-depth examination of customer segmentation patterns based on their transaction history, spending behavior, and frequency of interactions. By leveraging the power of KMeans clustering, we group customers into distinct segments, each with unique characteristics. These insights allow businesses to personalize their offerings, target specific customer needs, and ultimately improve engagement, retention, and profitability. The analysis uncovers key trends in customer behavior, offering valuable recommendations for data-driven decision-making.

Prepared By: Kavitha L

Email: kavithaofficial0301@gmail.com

Phone: +91 8531973226

Purpose:

This report aims to provide actionable insights by segmenting customers based on their purchasing patterns, transaction frequency, and spending behavior. The clustering analysis helps businesses understand their customers better and tailor strategies for improved engagement and profitability.

Key Highlights:

- Number of Clusters Formed: 5

- DB Index Value: 0.8525

- Silhouette Score: 0.3535

- Visualization Included: Comprehensive plots for cluster evaluation and segmentation insights.

Clustering Overview

Number of Clusters: 5

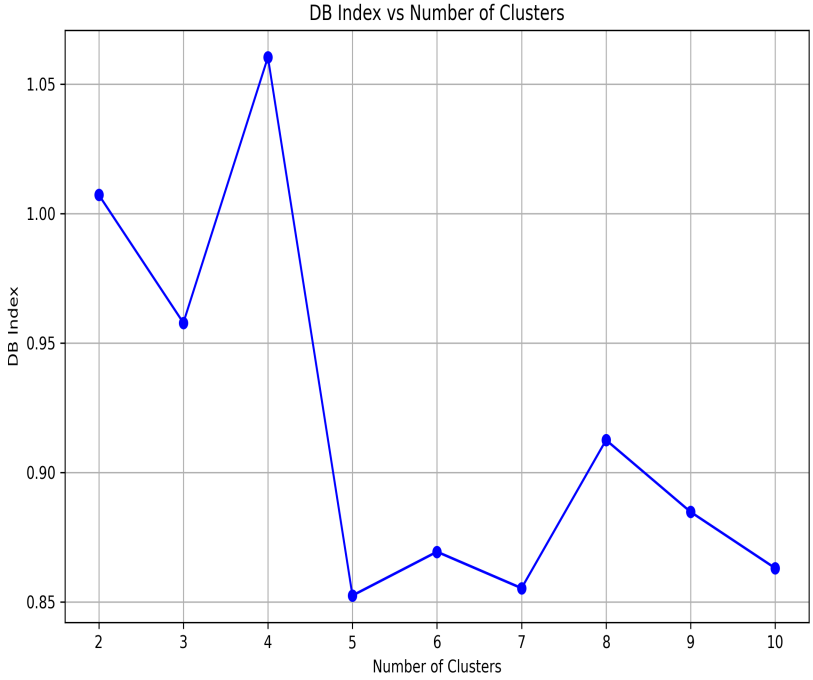
DB Index Value: 0.8525

Silhouette Score: 0.3535

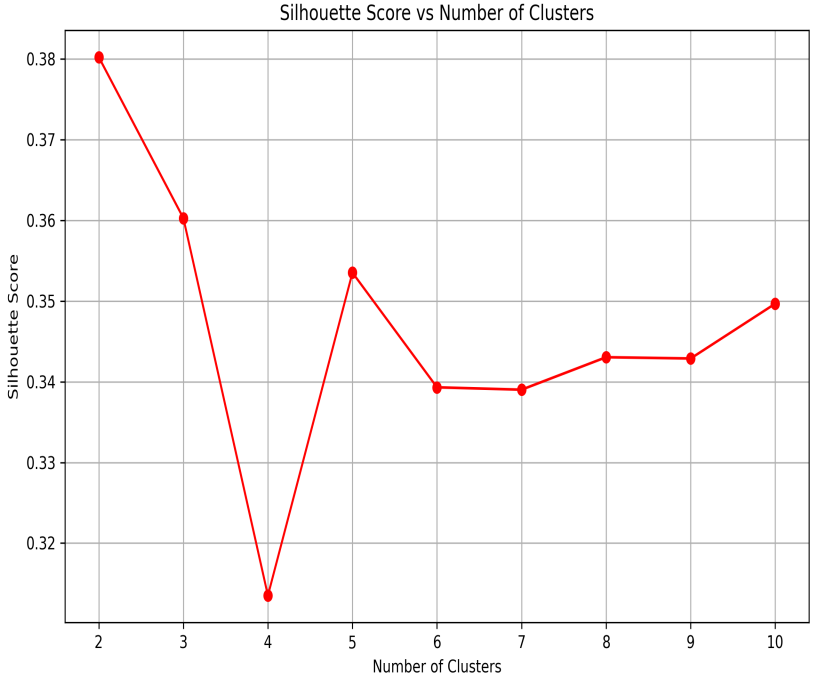
Customer Cluster Profiles

Cluster	Average Total Spent	Average Number of Transactions	Average Spend per Transaction
Cluster 0.0	$6236.28	7.89	$800.22
Cluster 1.0	$1125.42	2.94	$372.11
Cluster 2.0	$4327.40	4.11	$1066.05
Cluster 3.0	$2163.80	3.05	$730.43
Cluster 4.0	$3516.34	6.08	$589.91

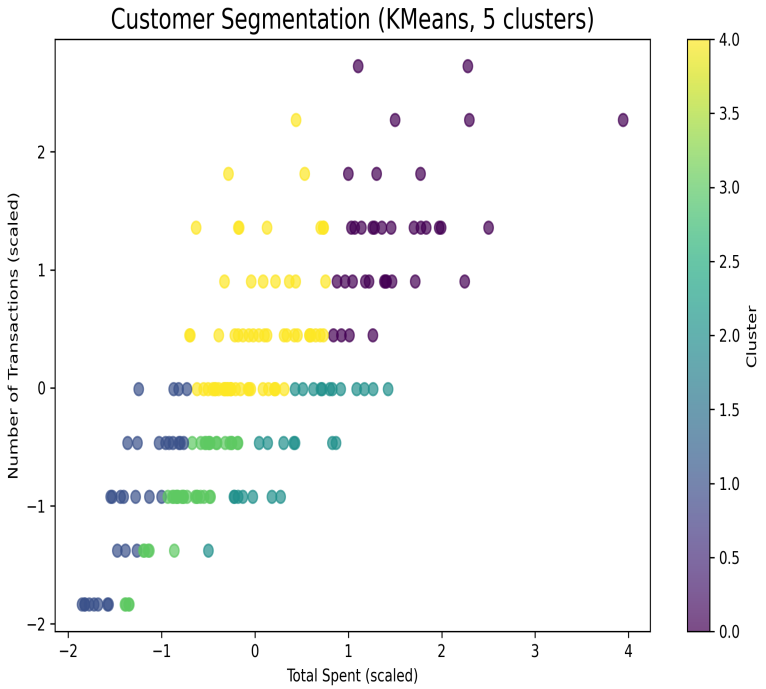
DB Index Plot



Silhouette Score Plot



Clustering Result Plot



Conclusion

This report has provided an insightful analysis of customer behavior through segmentation using KMeans clustering. By grouping customers based on their spending patterns and transaction frequency, we were able to uncover distinct customer profiles. The clustering analysis, accompanied by metrics such as the DB index and Silhouette score, ensures that the model chosen is appropriate. These insights can be used to develop more personalized marketing strategies, optimize resource allocation, and improve customer engagement strategies. Moving forward, the clusters identified can also serve as the foundation for further analysis and prediction tasks, leading to more data-driven business decisions.