Report on clustering results

1 Number of Clusters Formed:

In this analysis, we applied KMeans clustering and formed 3 clusters. The clusters represent different customer segments based on their spending and order behavior.

2 Davies-Bouldin (DB) Index:

The Davies-Bouldin (DB) Index value for this clustering solution is 0.99. The DB Index is a measure of the separation between clusters, where a lower value indicates better separation. A DB Index value of 0.99 suggests that the clusters are relatively well-separated, but there is still some room for improvement in defining the boundaries between them.
A value of the DB index closer to 0 suggests that the clusters are well-separated and distinct from one another.

3 Other Relevant Clustering Metrics:

3.1 Cluster Characteristics:

- **Cluster 0:** High spenders with high average order values. These customers are likely loyal or premium customers who make frequent and large purchases.
- **Cluster 1:** Moderate spenders with average transaction sizes. These are likely regular customers who purchase reasonably but don't show high spending or transaction volume.

- **Cluster 2:** Low spenders with low transaction volumes. These may represent new customers or inactive users with limited interaction with the business.

3.2 Cluster Summary:

The average values for each cluster in terms of spending and transaction metrics are as follows:

Cluster	Total Spending	Average Order Value	Total Quantity
0	High	High	High
1	Moderate	Moderate	Moderate
2	Low	Low	Low

Table 1: Cluster Characteristics Summary

4 Conclusion:

The clustering analysis reveals three distinct customer segments with varying spending behaviors. The DB Index value of 0.99 indicates that the clusters are reasonably well-separated, but there could be potential for refining the clustering approach. This segmentation can be used for targeted marketing strategies, identifying high-value customers, and re-engaging inactive customers. Further experimentation with the number of clusters or other algorithms may be useful to improve the separation and cohesion of these segments.