Clustering Report

1. Aggregated customer data by calculating the total spending ('TotalValue'), total purchase quantity, and the number of unique products purchased for each customer.
2. Normalized the 'TotalValue', 'Quantity', and 'ProductID' columns using MinMaxScaler. This scaled the values of these features to a range between 0 and 1.
3. Divided customers into 4 groups based on how much they spend, how often they buy, and the variety of products they purchase.
4. And used a technique called "K-means clustering" to group similar customers together.
5. Checked how well these groups were separated using a measure called the "Davies-Bouldin Index".
6. Reduced the data using "Principal Component Analysis" to make it easier to visualize the groups.
7. Created a visual map to see how the different customer groups are spread out.