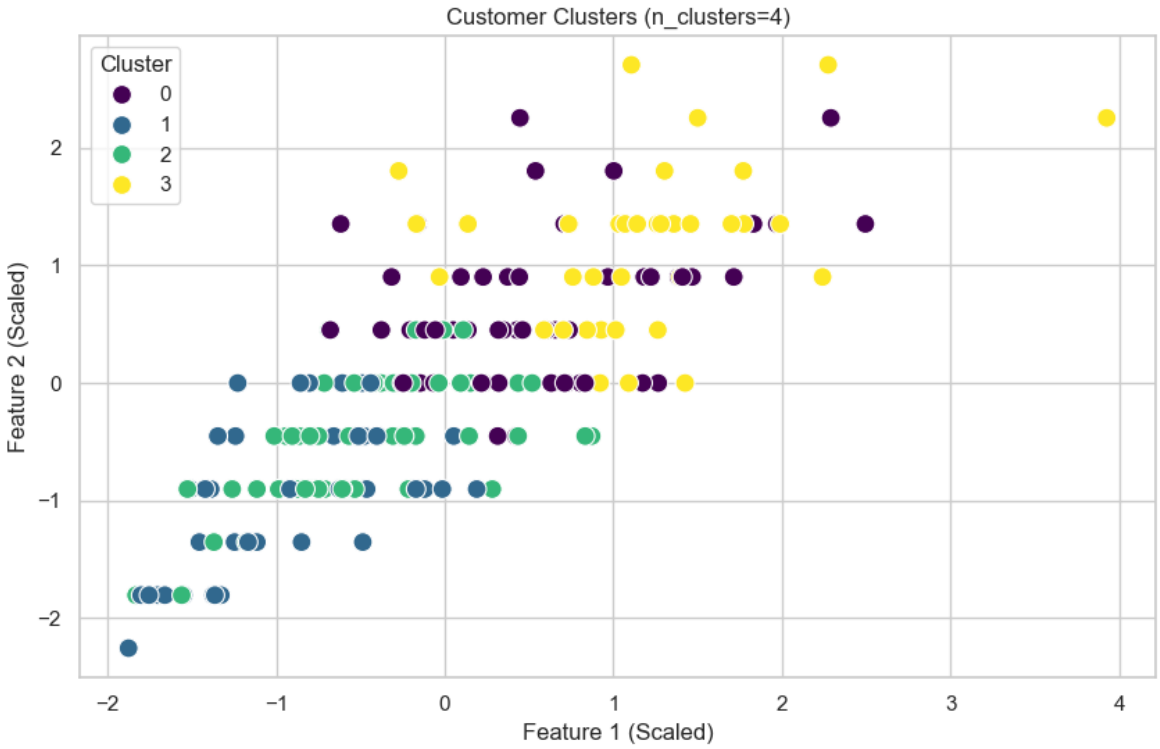
Clustering Results Report



1. **Number of Clusters Formed:**
   - After applying the KMeans clustering algorithm, we identified 4 distinct customer groups.
   - These groups were formed based on customer spending behavior and transaction patterns.
   - Each group represents a set of customers with similar characteristics in how they interact with the products and services.
   - The segmentation allows for targeted strategies to enhance engagement with different customer groups.

2. **Davies-Bouldin Index:**
   - The Davies-Bouldin Index (DB Index) for the clustering model is 0.9616.
   - This index measures how well-separated the clusters are.
   - A lower DB Index indicates better separation between clusters.
   - The current value suggests that while the clusters are reasonably distinct, there is still room for improvement in achieving better separation.

3. **Silhouette Score:**
   - The Silhouette Score is 0.3444.
   - This score indicates how similar each customer is to its own cluster compared to other clusters.
   - A higher score signifies that the clusters are well-defined and well-separated.

- A score of 0.3444 suggests that the clusters are somewhat separated, but not highly distinct.
- This indicates that the model has potential, but could benefit from further optimization or fine-tuning.

4. **Other relevant clustering metrics**
    - **Inertia (Within-Cluster Sum of Squares):** The inertia measures the compactness of the clusters, indicating how close the data points are to their cluster centres. A lower inertia value indicates tighter, more compact clusters, which is a desirable characteristic.
    - **Cluster Size Distribution**: It's important to check if the clusters are of reasonable sizes. Ideally, clusters should not be too small (underrepresented) or too large, ensuring balanced segmentation.