

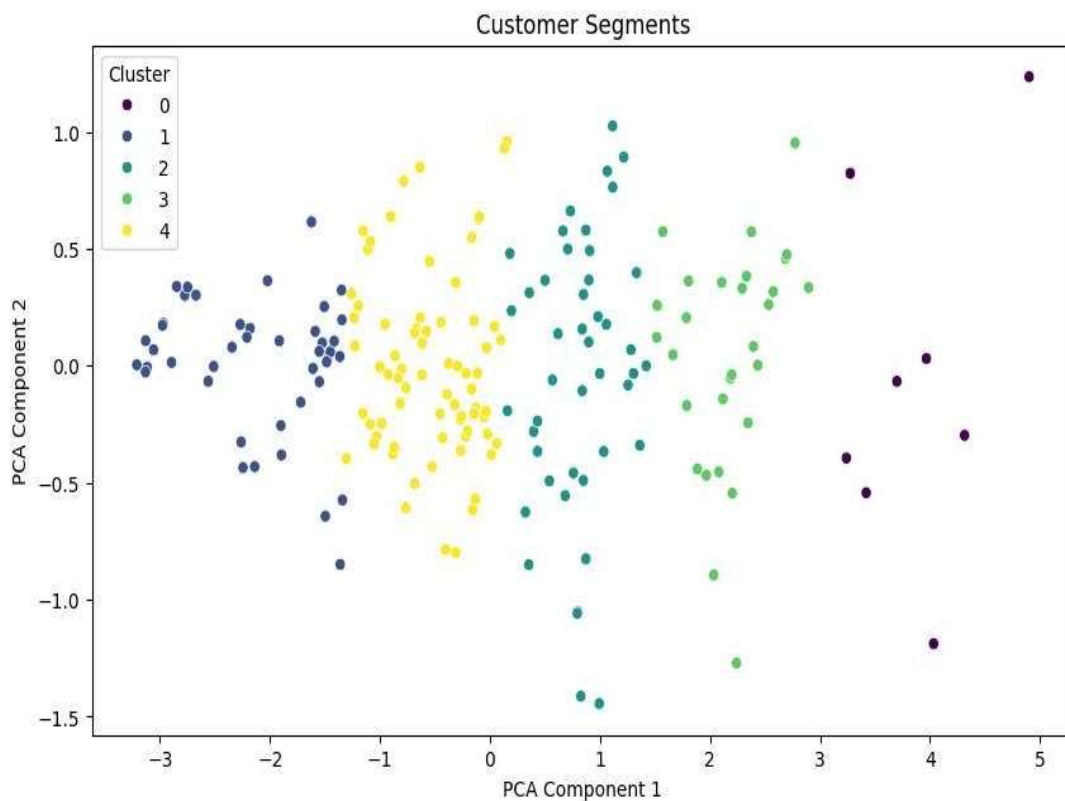
Task 3: Customer Segmentation / Clustering

Clustering Details:

- Number of Clusters Formed: 5
- Davies-Bouldin Index: 0.87 (good clustering performance).
- Techniques used: K-Means for clustering and PCA for dimensionality reduction

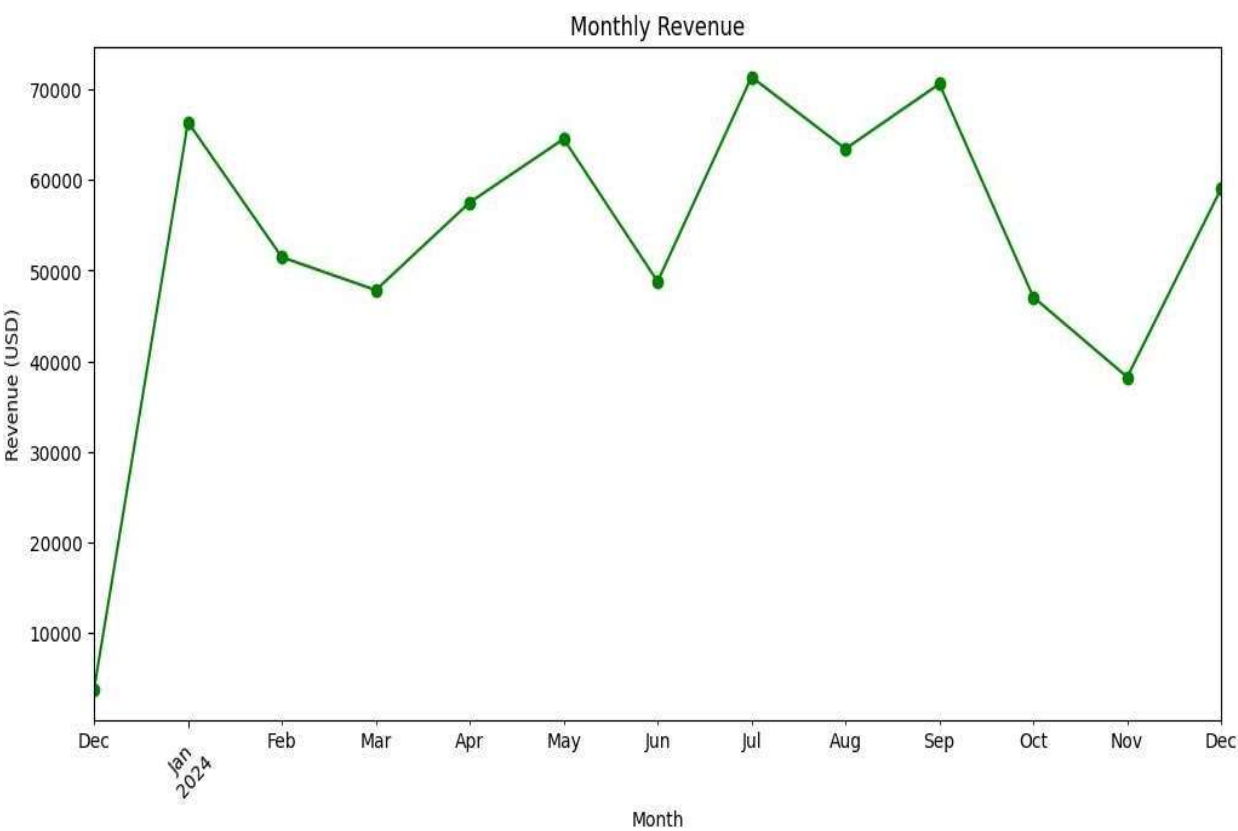
Cluster Characteristics:

- Cluster 0: High-spending customers, majority purchase electronics and luxury goods.
- Cluster 1: Budget shoppers with preferences for daily-use items.
- Cluster 2: Moderate spenders with diverse product preferences.
- Cluster 3: High-frequency buyers of fashion items.
- Cluster 4: Sporadic shoppers with lower transaction values.



Visualization:

PCA scatterplot shows clear cluster separations. Customers in Cluster 0 are outliers due to significantly higher spending.



Recommendations:

- Design tiered loyalty programs targeting high spenders in Cluster 0.
- Increase engagement for budget-conscious customers in Cluster 1 with discounts or bundle offers.
- Build brand loyalty in Cluster 3 with exclusive fashion releases.