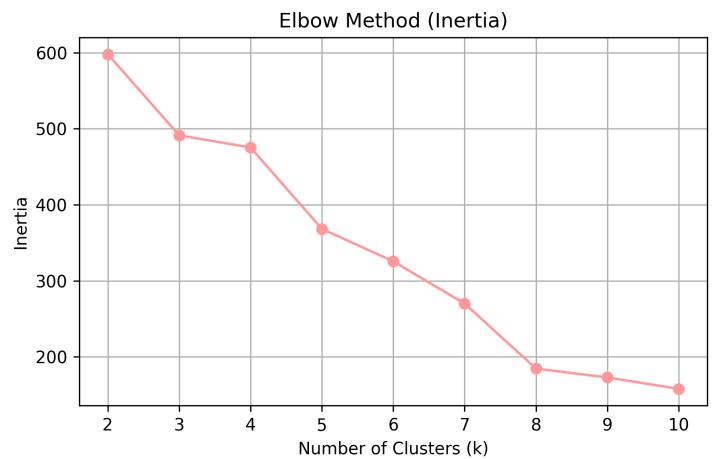
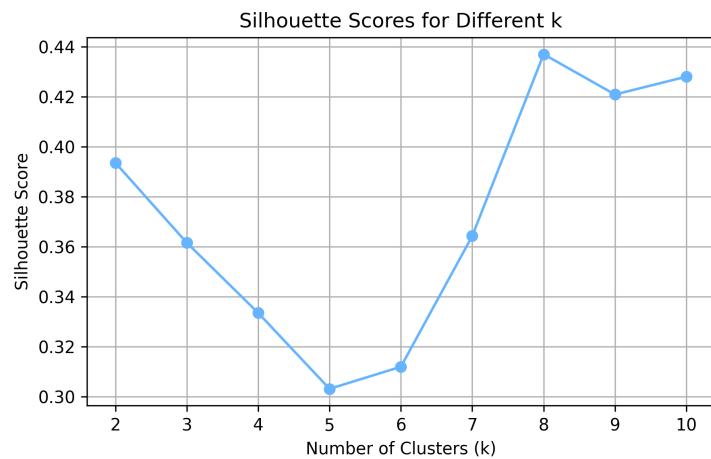


Customer Segmentation Analysis Report

Introduction

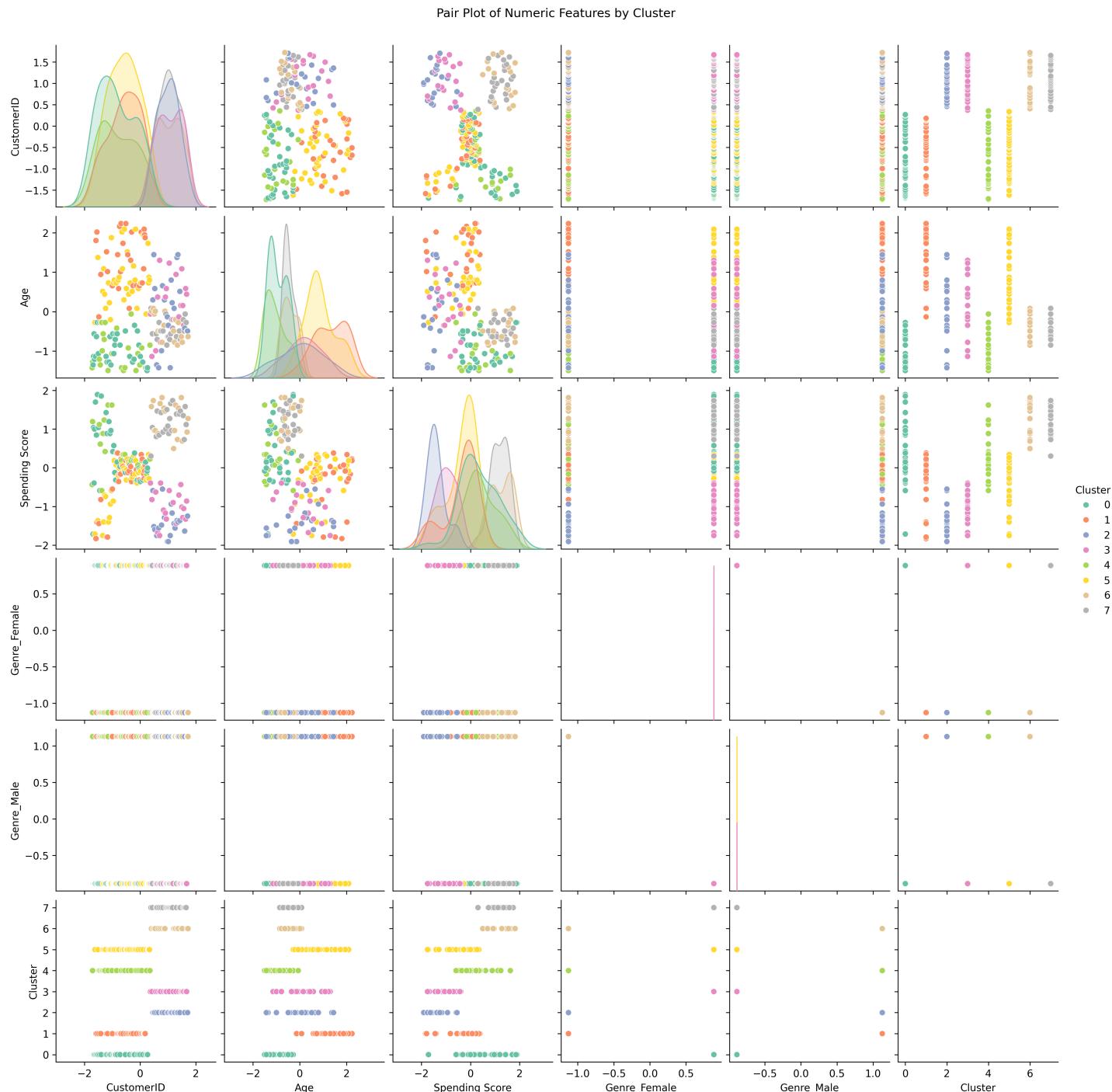
This report presents the results of the customer segmentation analysis...

Cluster Evaluation



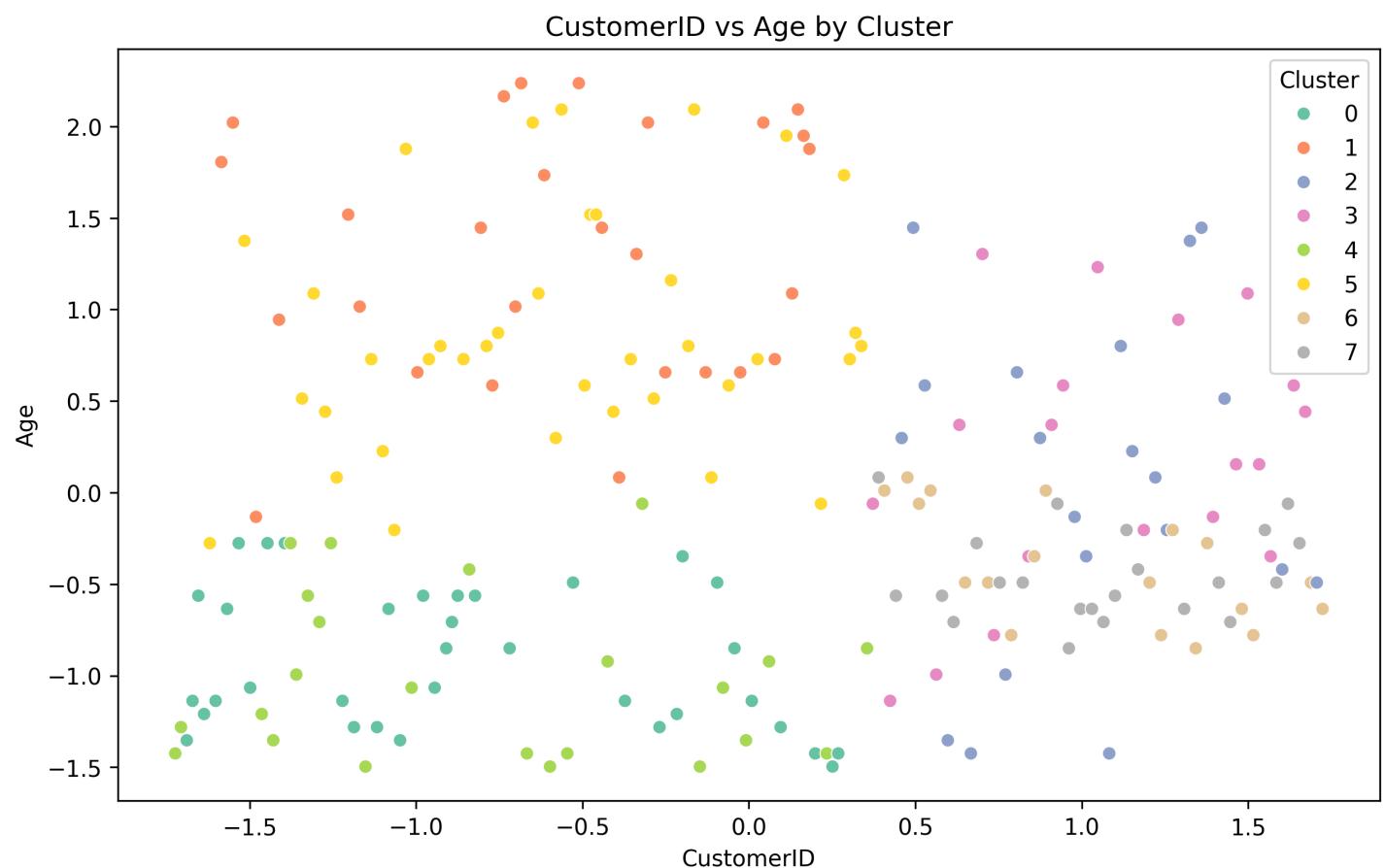
Pair Plot of Numeric Features by Cluster

Customer Segmentation Analysis Report



CustomerID vs Age by Cluster

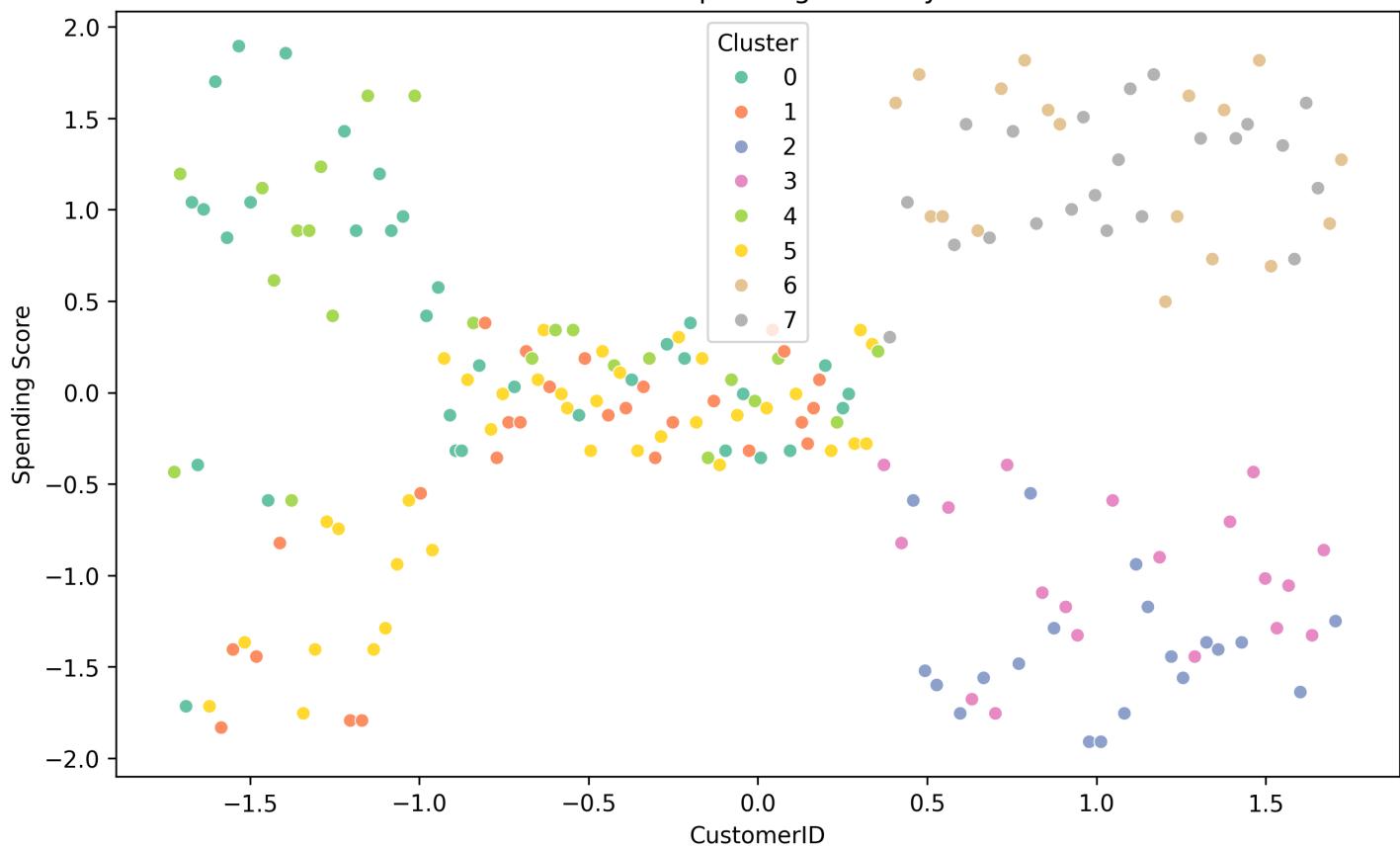
Customer Segmentation Analysis Report



CustomerID vs Spending Score by Cluster

Customer Segmentation Analysis Report

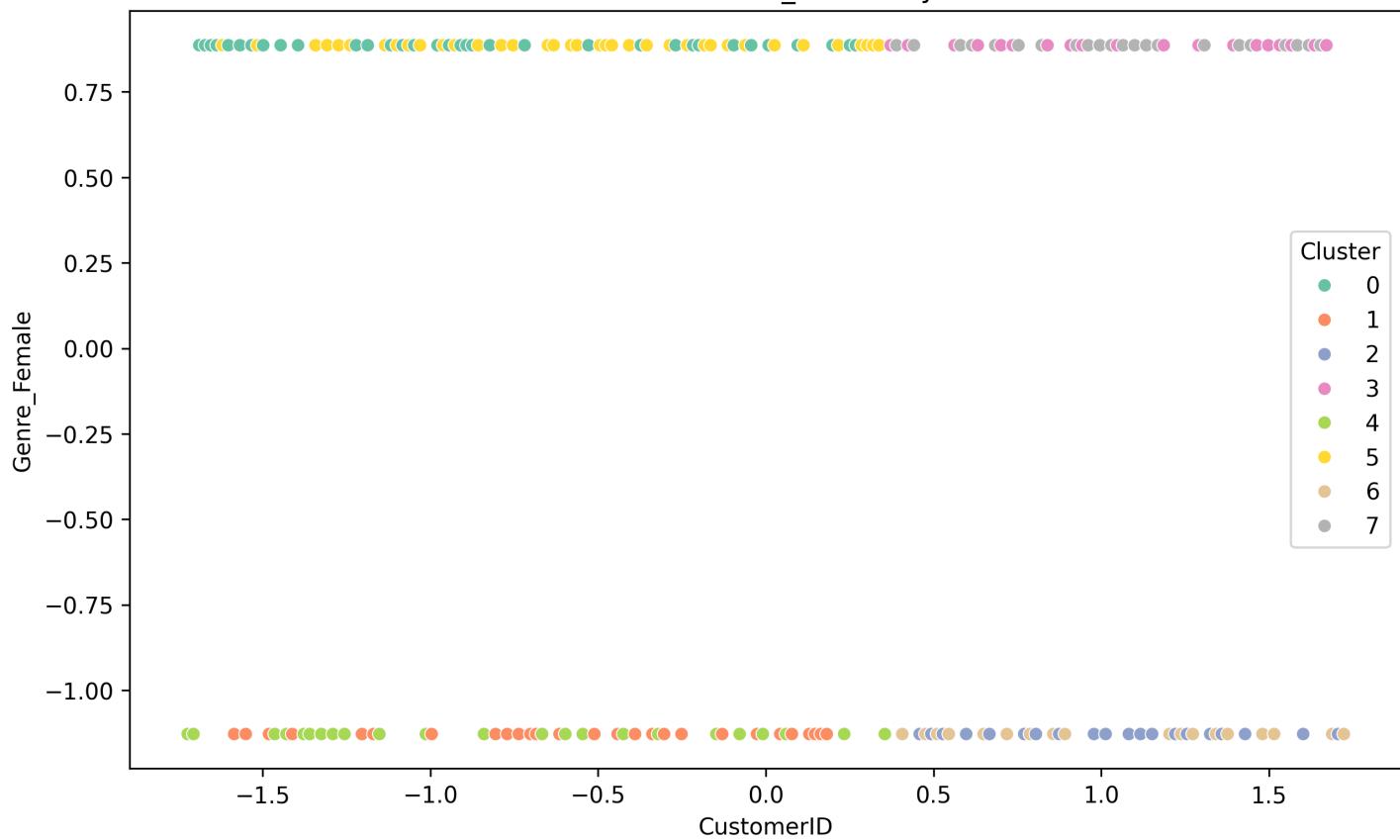
CustomerID vs Spending Score by Cluster



CustomerID vs Genre_Female by Cluster

Customer Segmentation Analysis Report

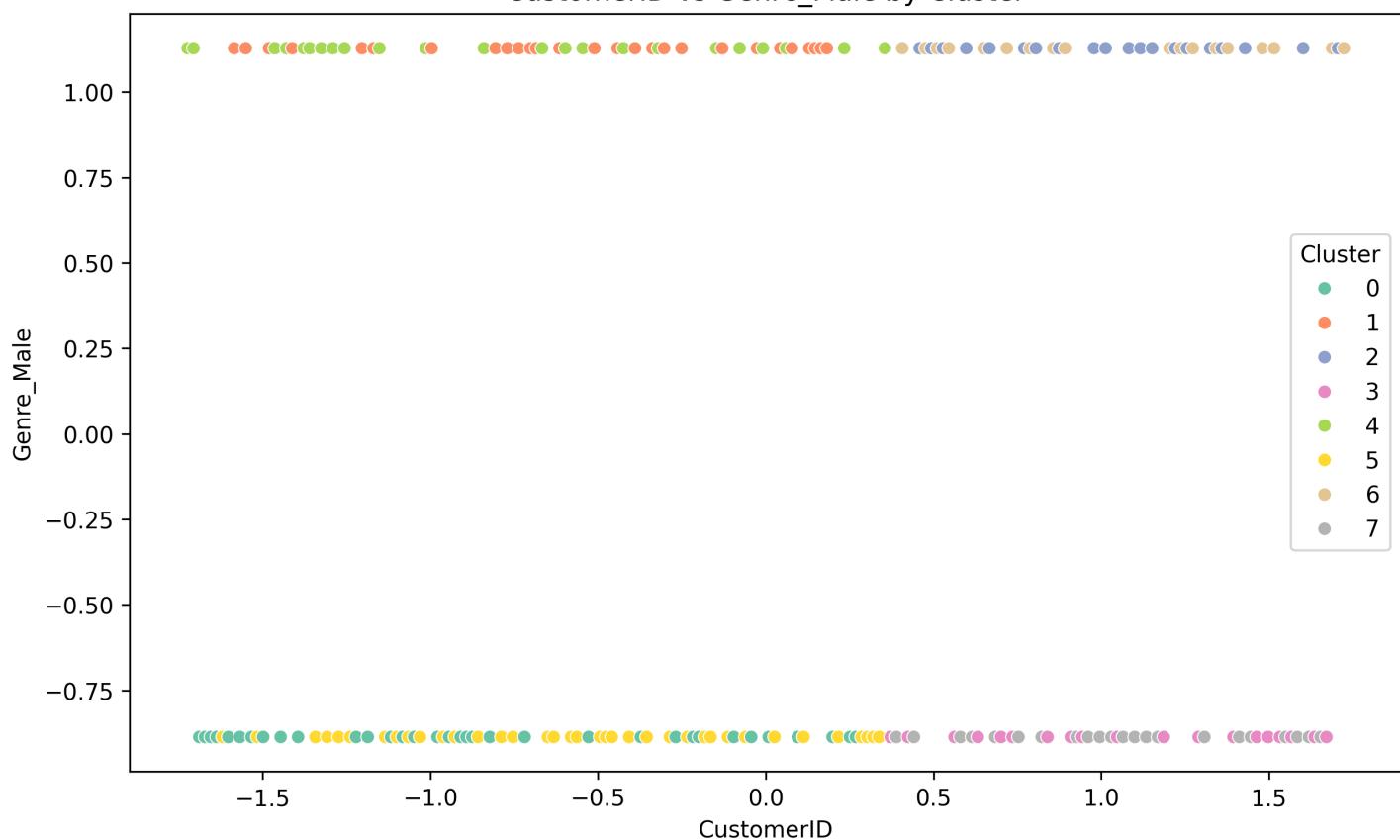
CustomerID vs Genre_Female by Cluster



CustomerID vs Genre_Male by Cluster

Customer Segmentation Analysis Report

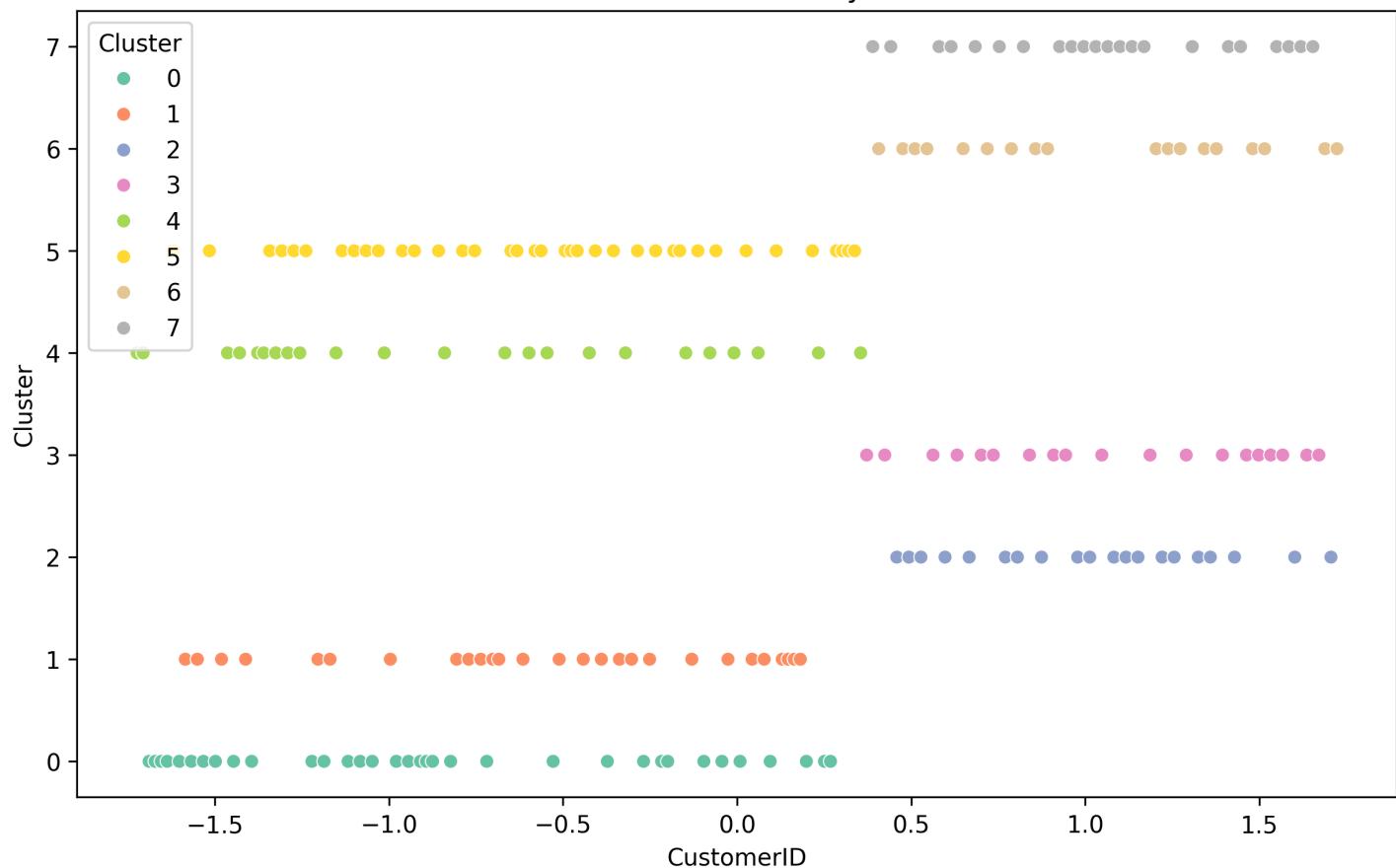
CustomerID vs Genre_Male by Cluster



CustomerID vs Cluster by Cluster

Customer Segmentation Analysis Report

CustomerID vs Cluster by Cluster



Age vs Spending Score by Cluster

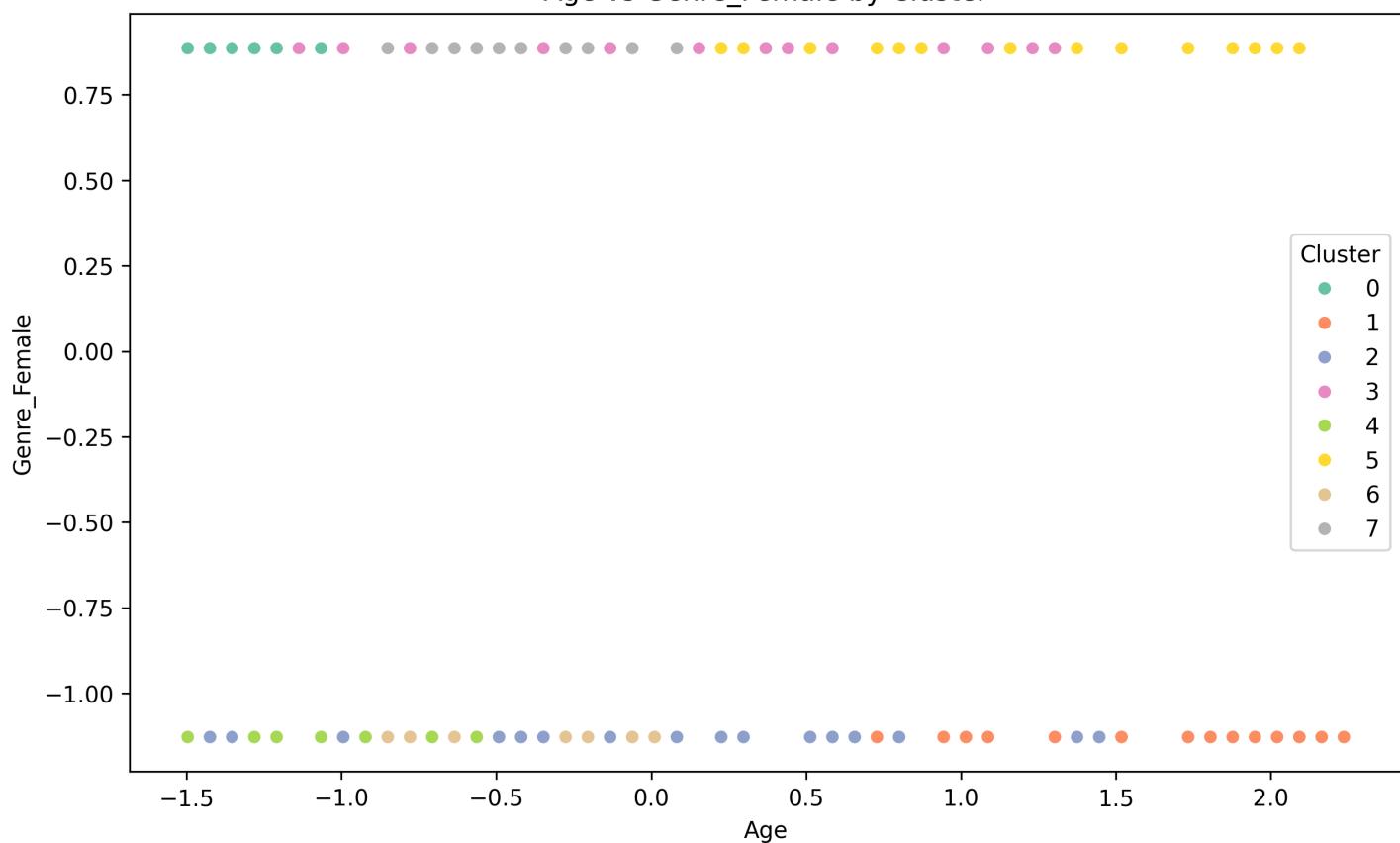
Customer Segmentation Analysis Report



Age vs Genre_Female by Cluster

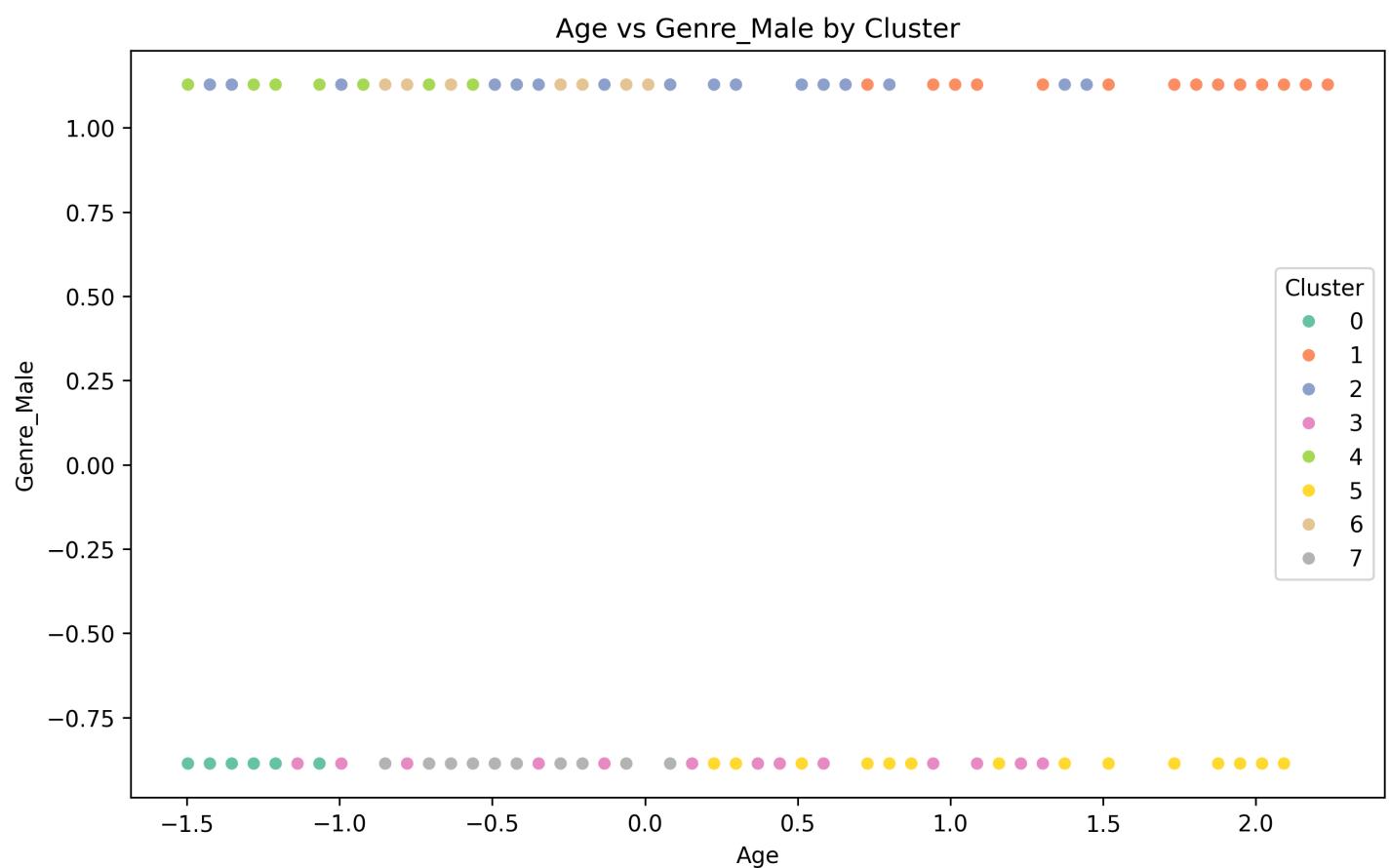
Customer Segmentation Analysis Report

Age vs Genre_Female by Cluster



Age vs Genre_Male by Cluster

Customer Segmentation Analysis Report



Age vs Cluster by Cluster

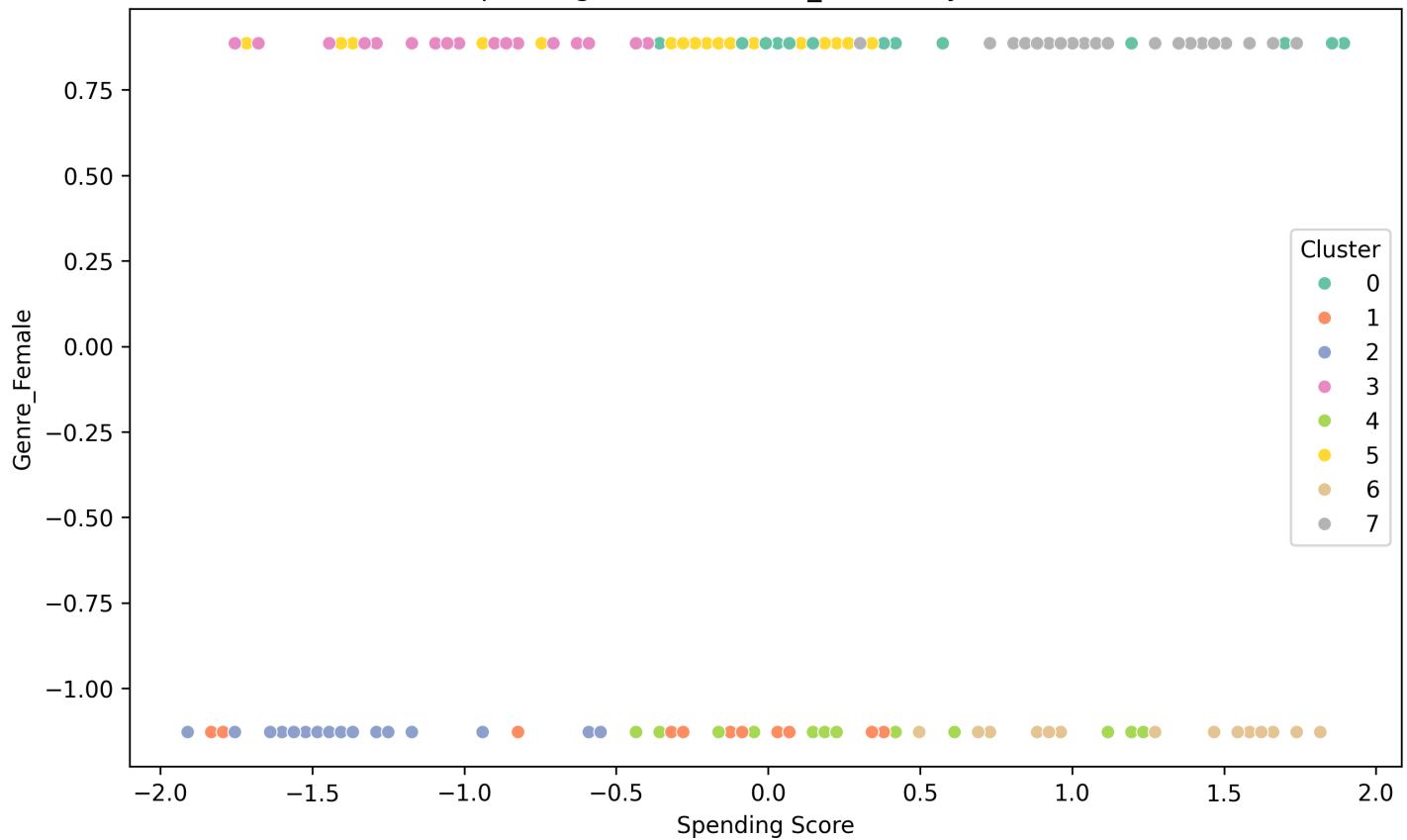
Customer Segmentation Analysis Report



Spending Score vs Genre_Female by Cluster

Customer Segmentation Analysis Report

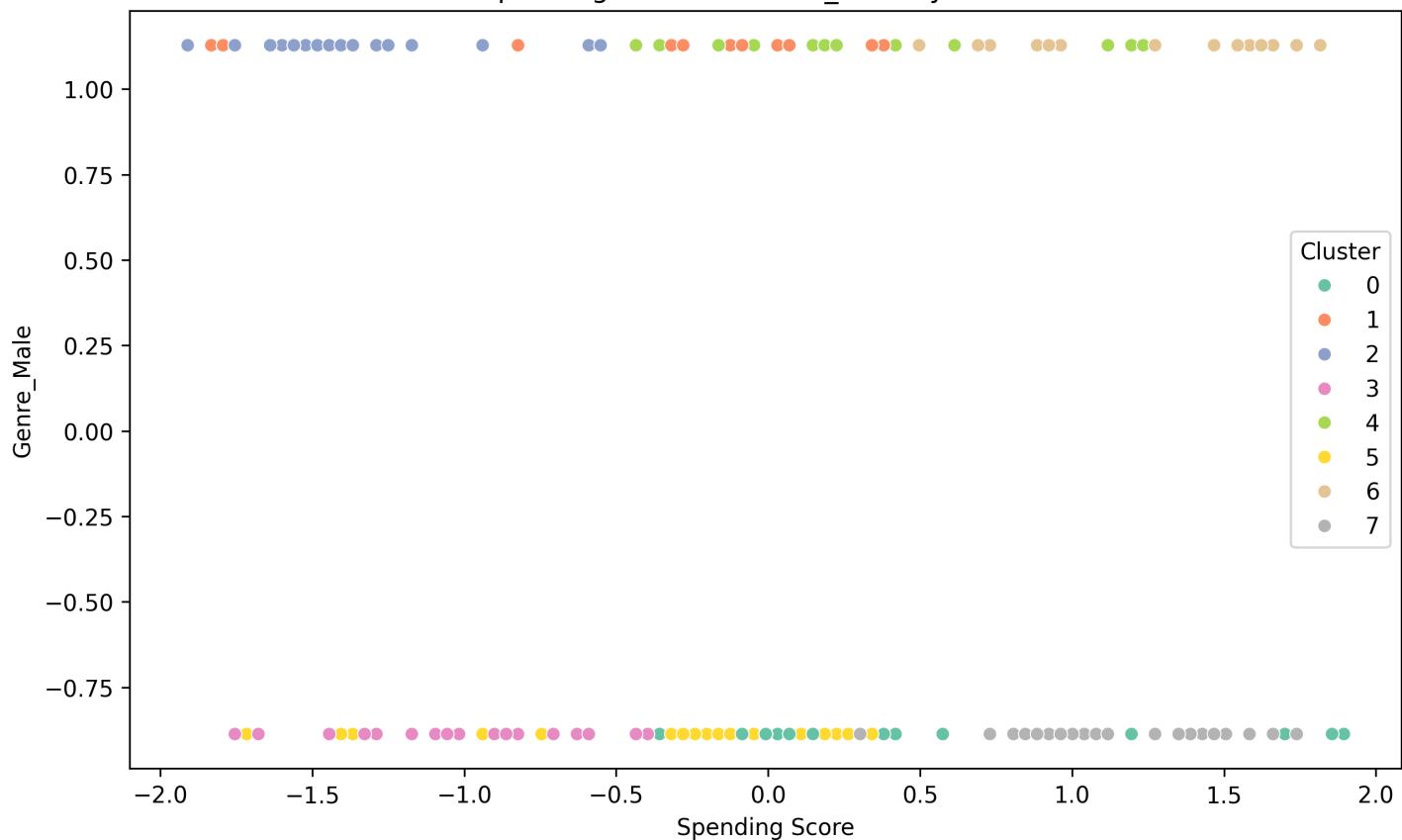
Spending Score vs Genre_Female by Cluster



Spending Score vs Genre_Male by Cluster

Customer Segmentation Analysis Report

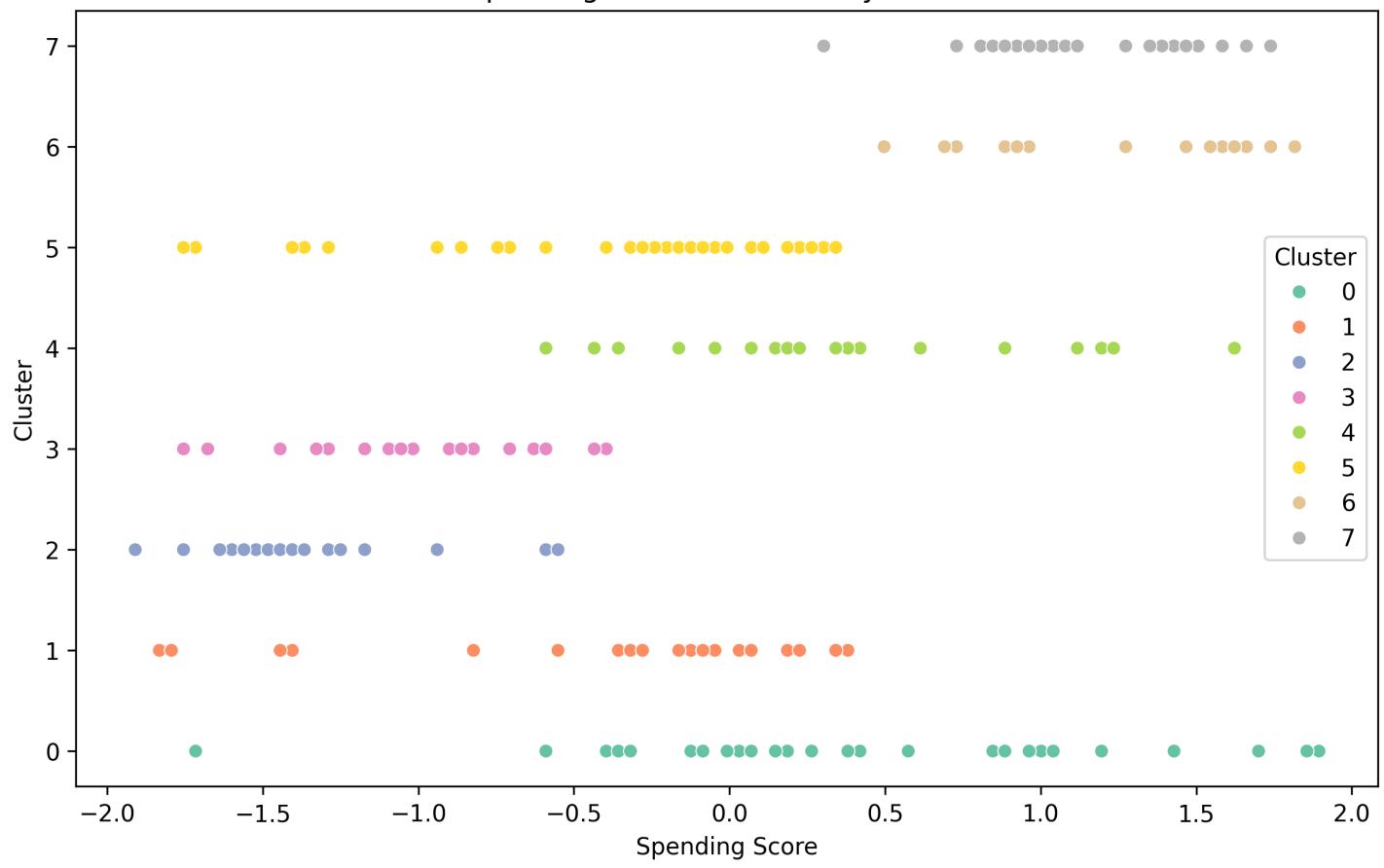
Spending Score vs Genre_Male by Cluster



Spending Score vs Cluster by Cluster

Customer Segmentation Analysis Report

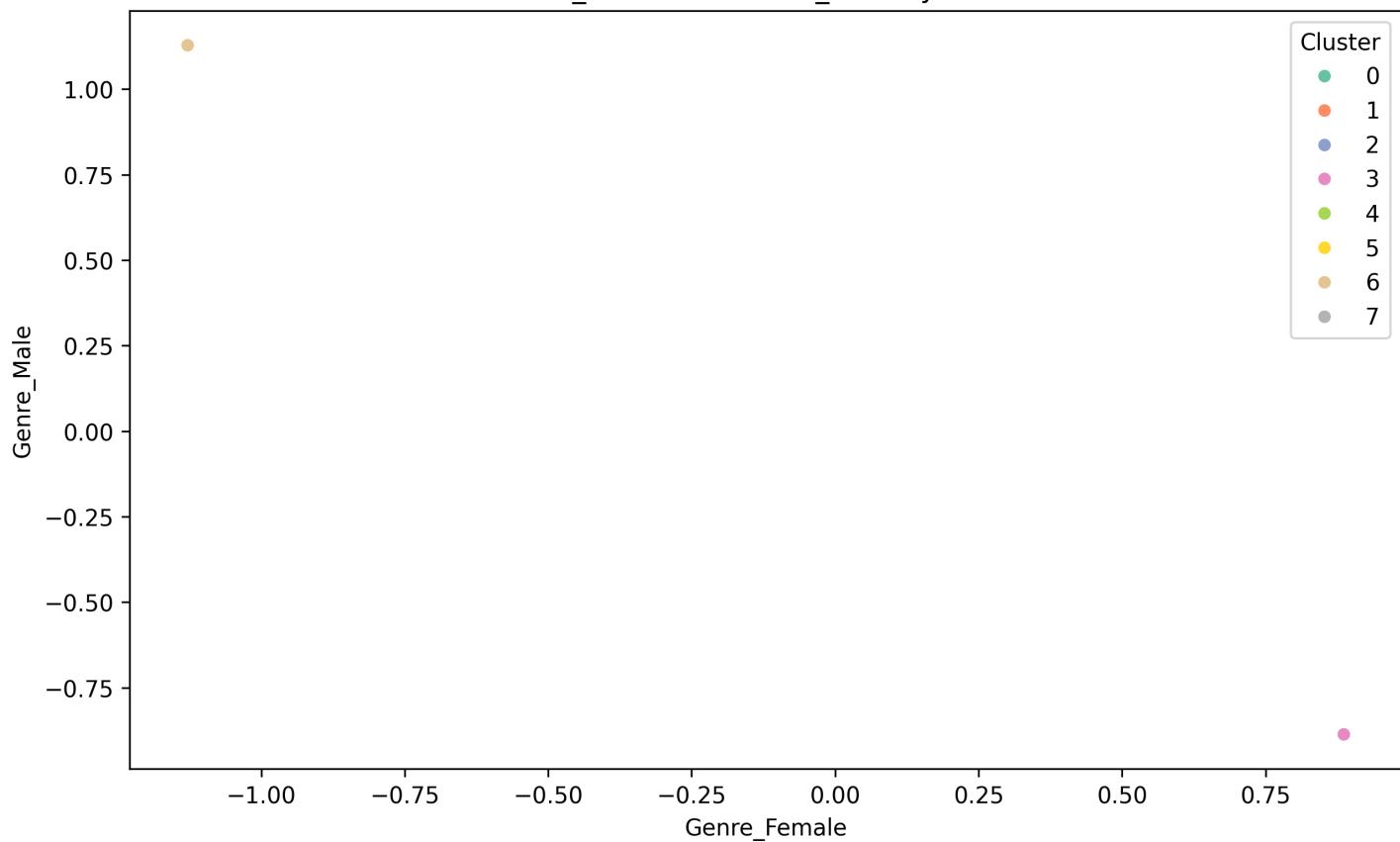
Spending Score vs Cluster by Cluster



Genre_Female vs Genre_Male by Cluster

Customer Segmentation Analysis Report

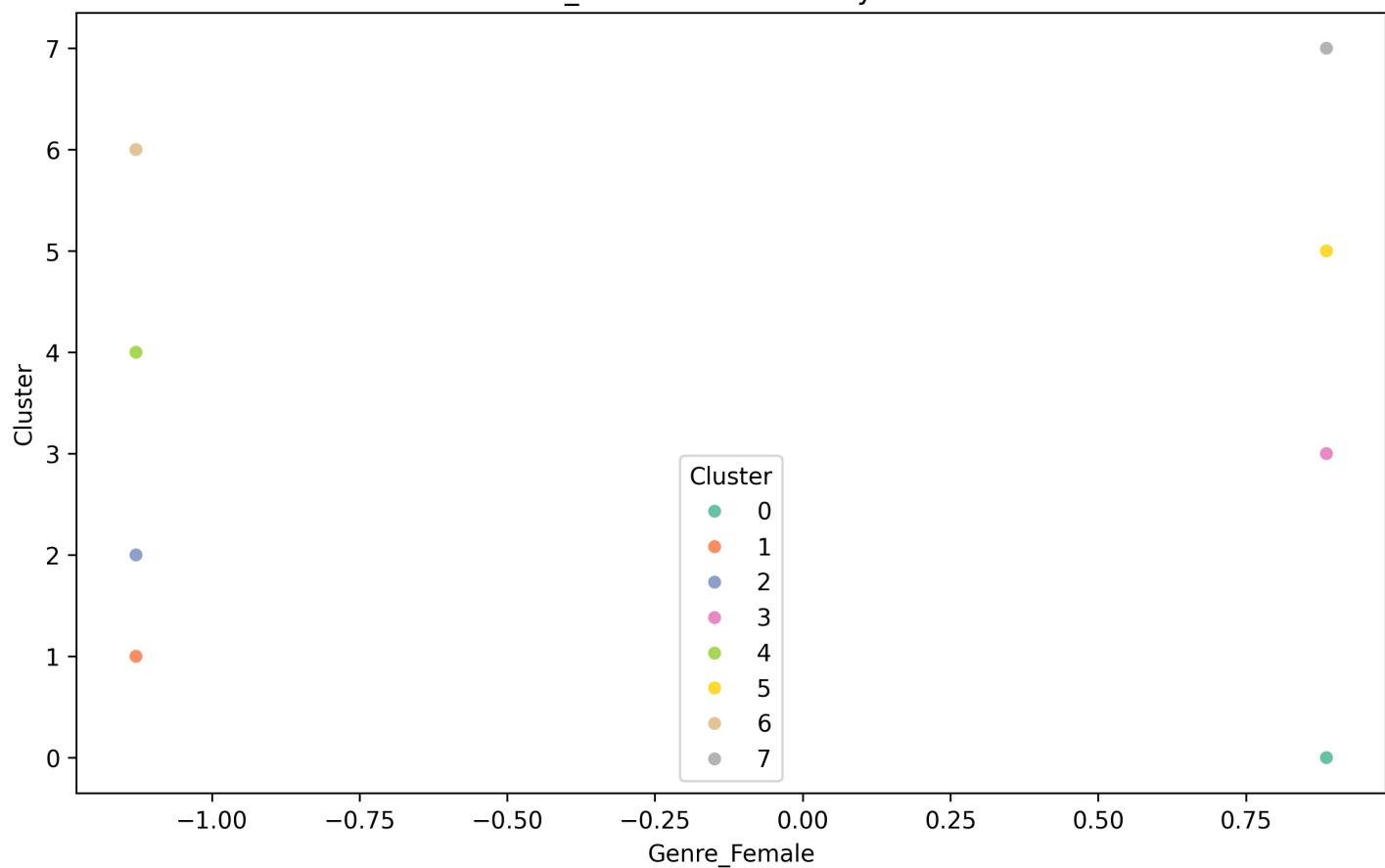
Genre_Female vs Genre_Male by Cluster



Genre_Female vs Cluster by Cluster

Customer Segmentation Analysis Report

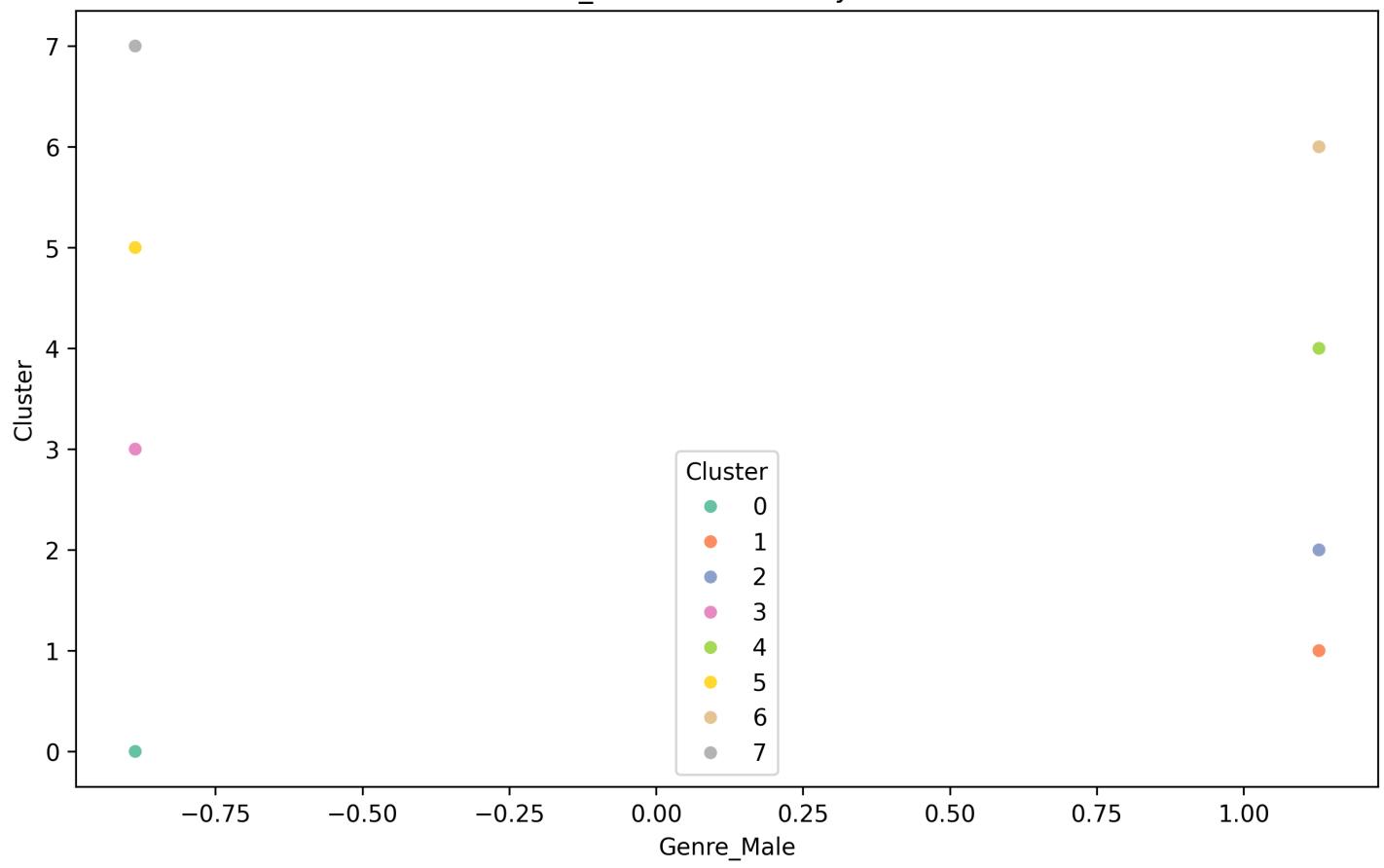
Genre_Female vs Cluster by Cluster



Genre_Male vs Cluster by Cluster

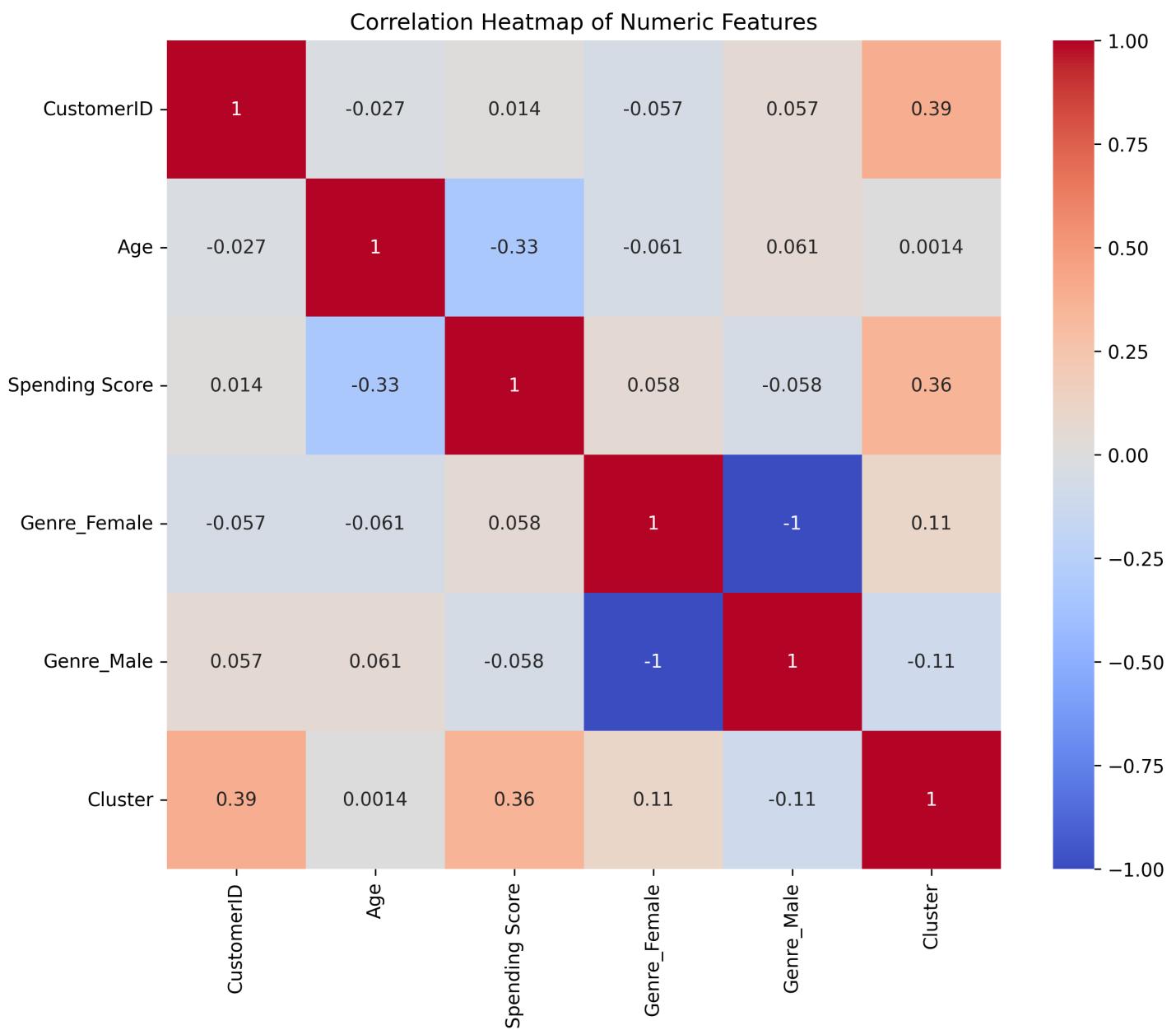
Customer Segmentation Analysis Report

Genre_Male vs Cluster by Cluster



Correlation Heatmap of Numeric Features

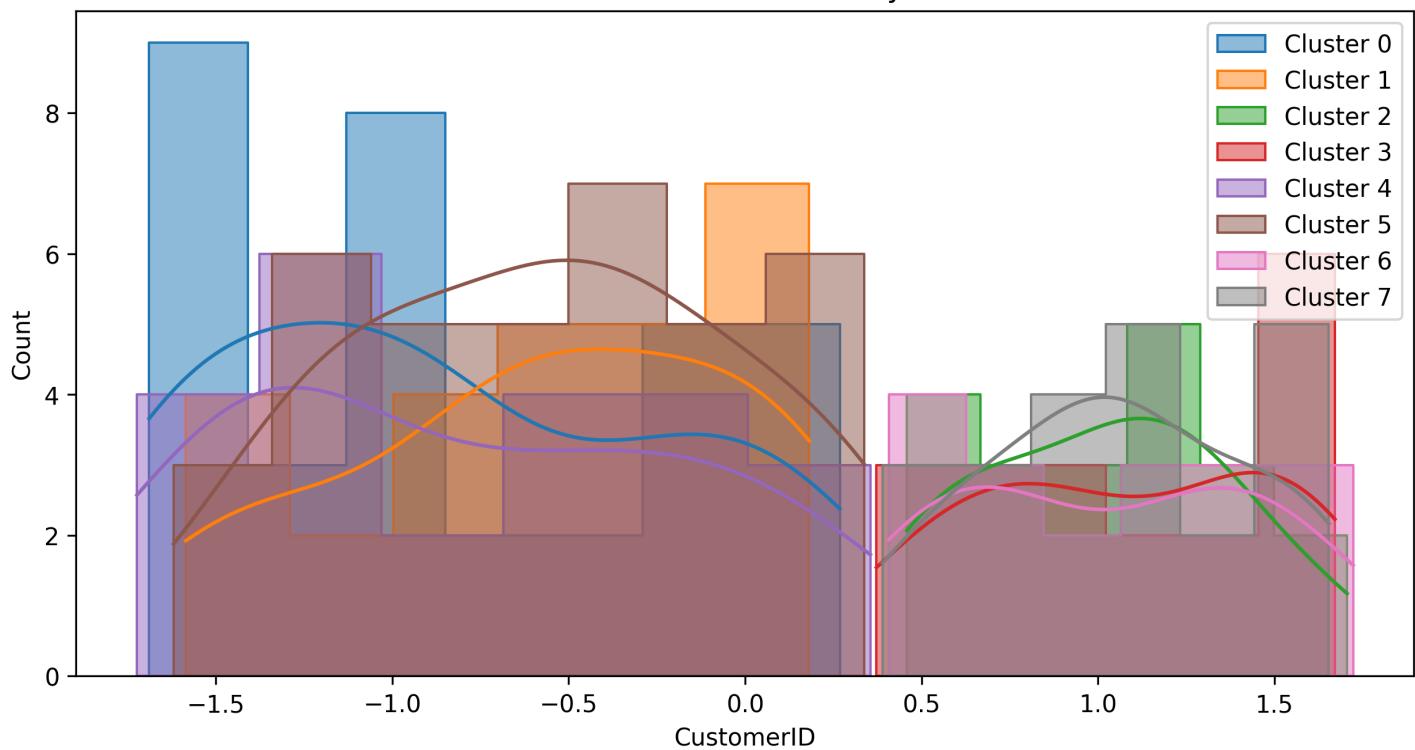
Customer Segmentation Analysis Report



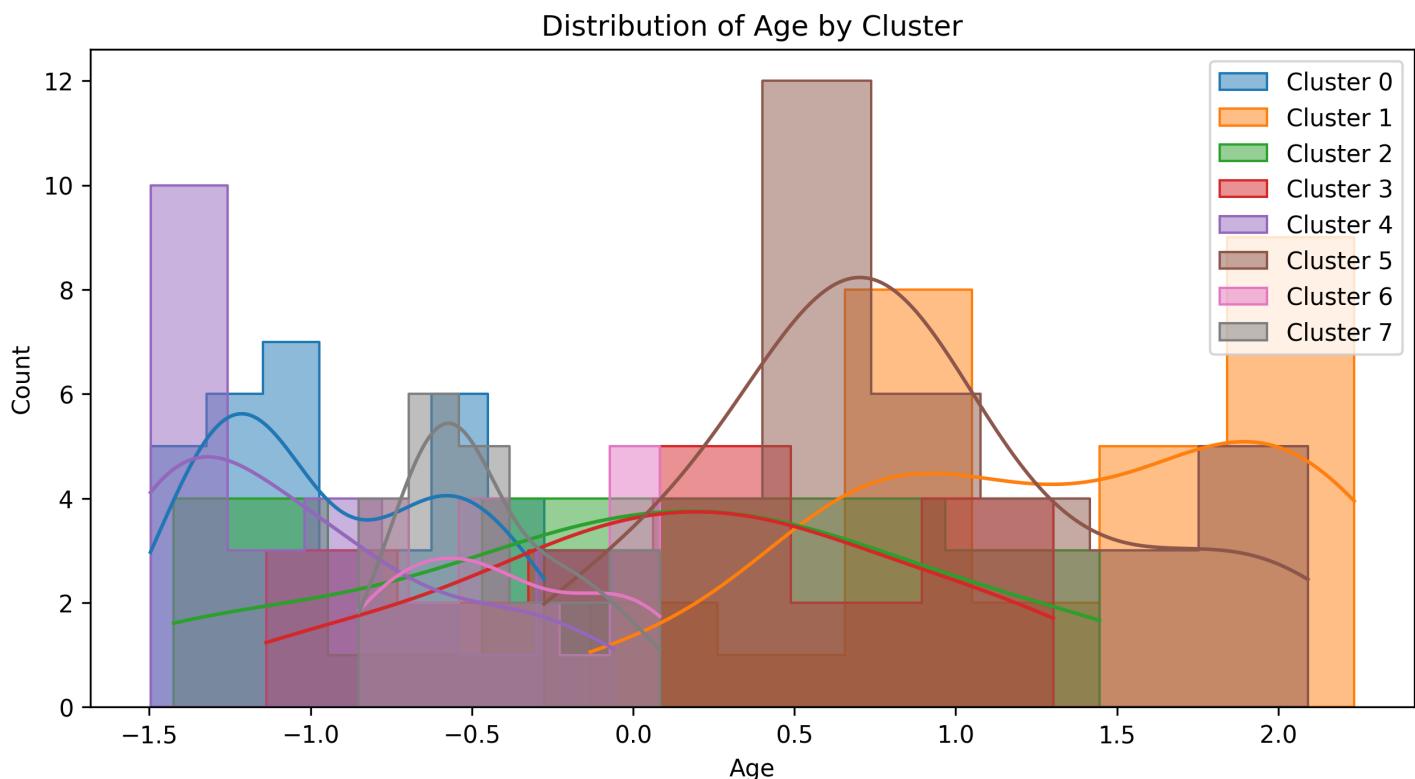
Distribution of CustomerID by Cluster

Customer Segmentation Analysis Report

Distribution of CustomerID by Cluster



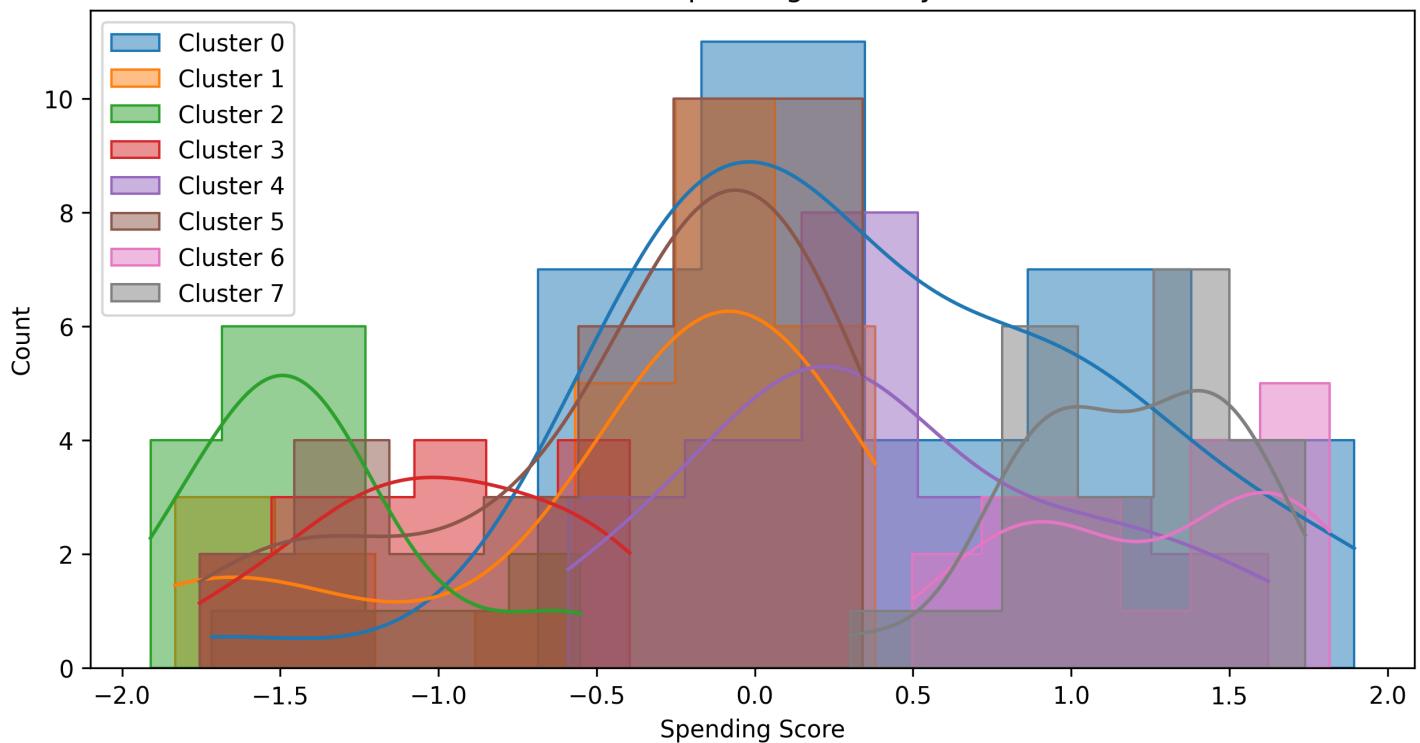
Distribution of Age by Cluster



Distribution of Spending Score by Cluster

Customer Segmentation Analysis Report

Distribution of Spending Score by Cluster

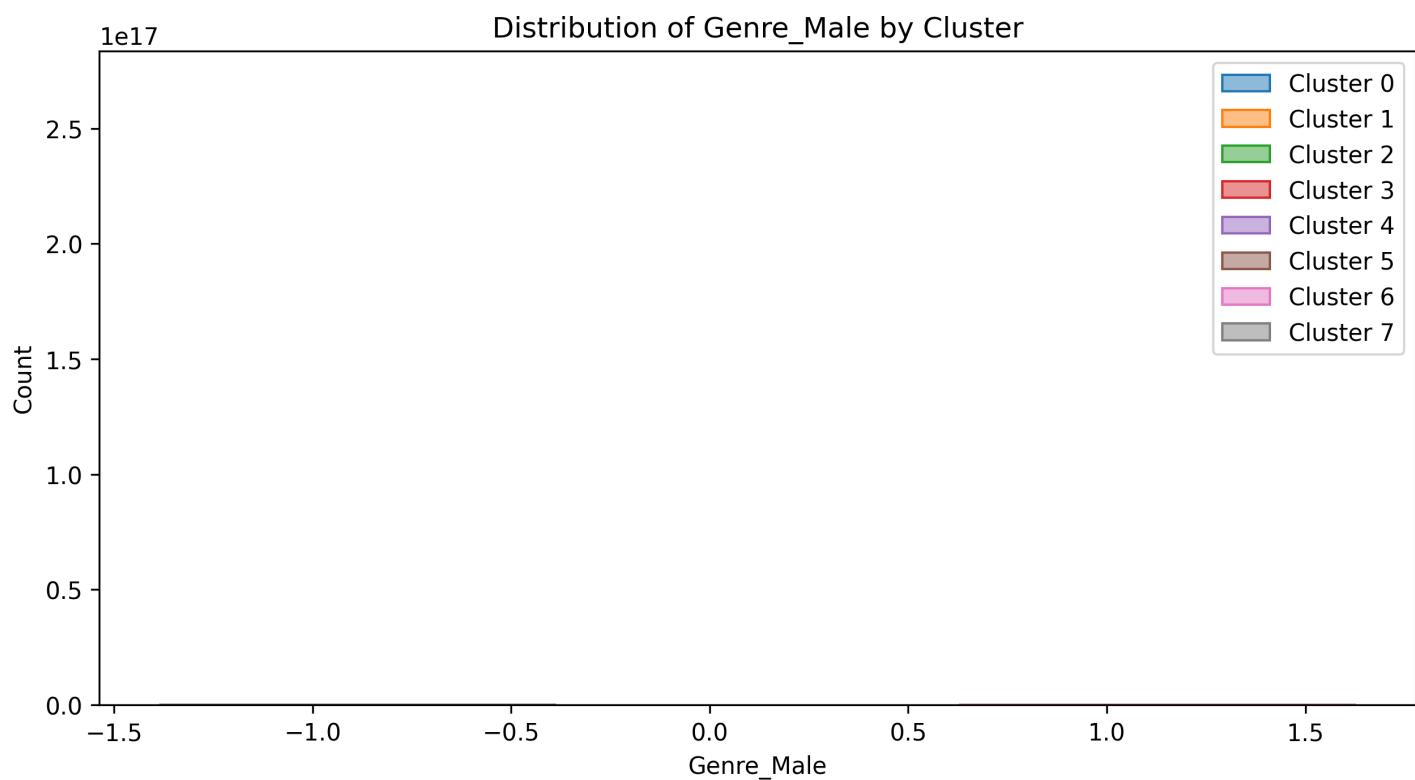


Distribution of Genre_Female by Cluster

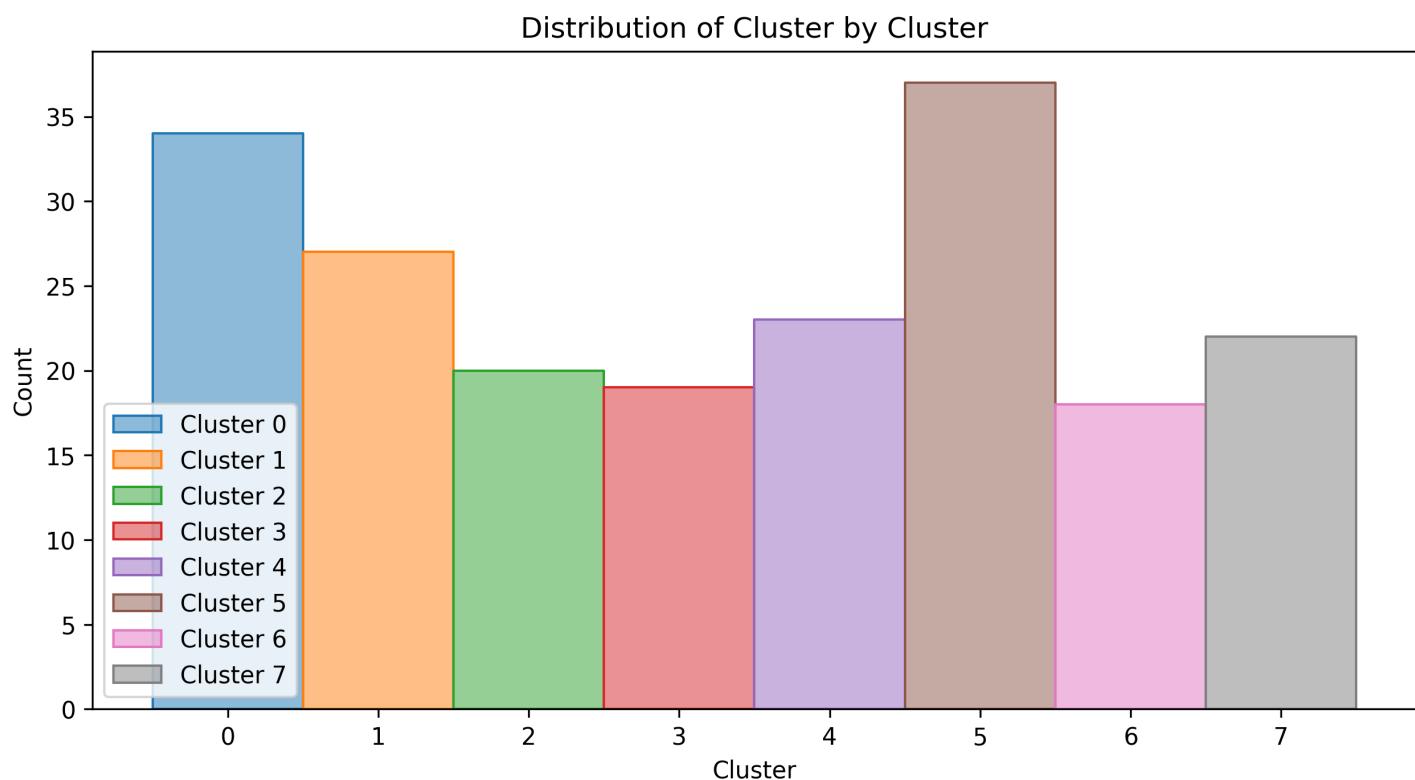


Distribution of Genre_Male by Cluster

Customer Segmentation Analysis Report



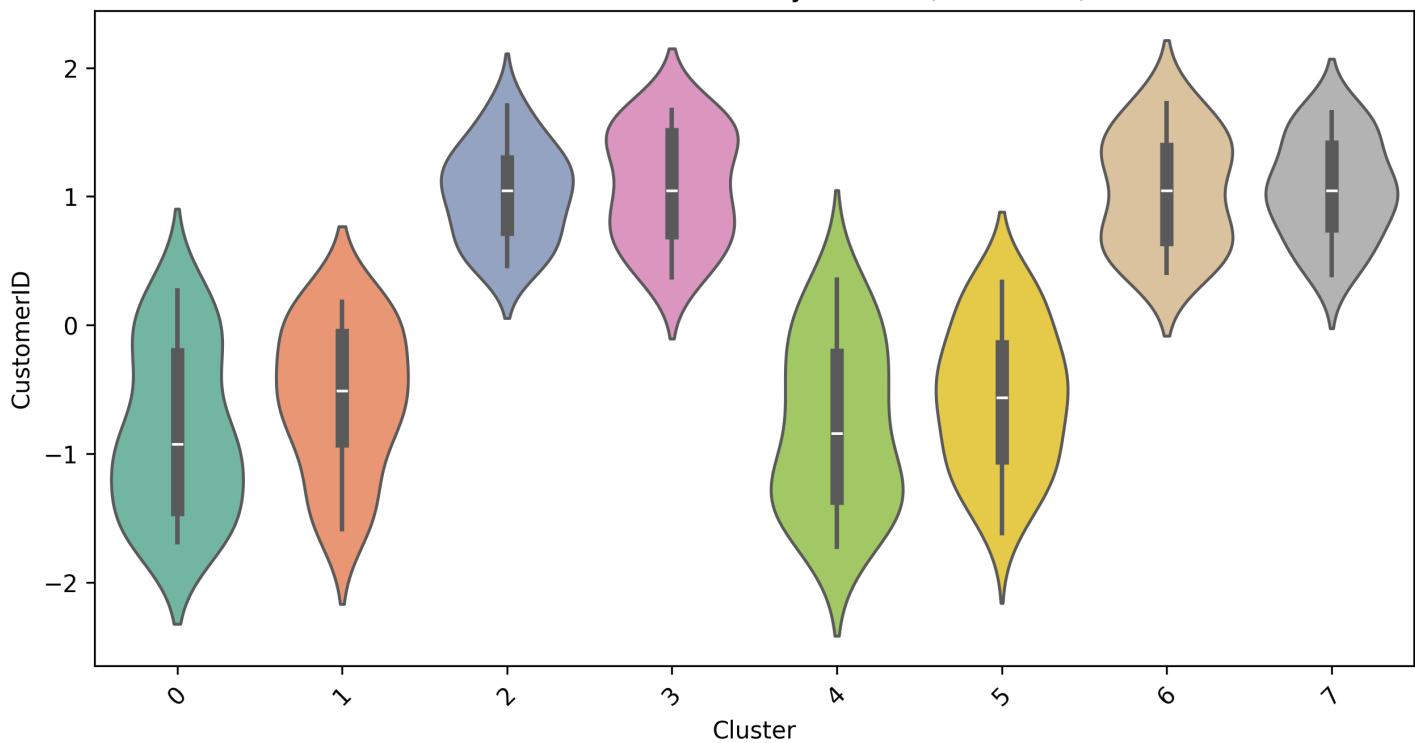
Distribution of Cluster by Cluster



CustomerID Distribution by Cluster (Violin Plot)

Customer Segmentation Analysis Report

CustomerID Distribution by Cluster (Violin Plot)



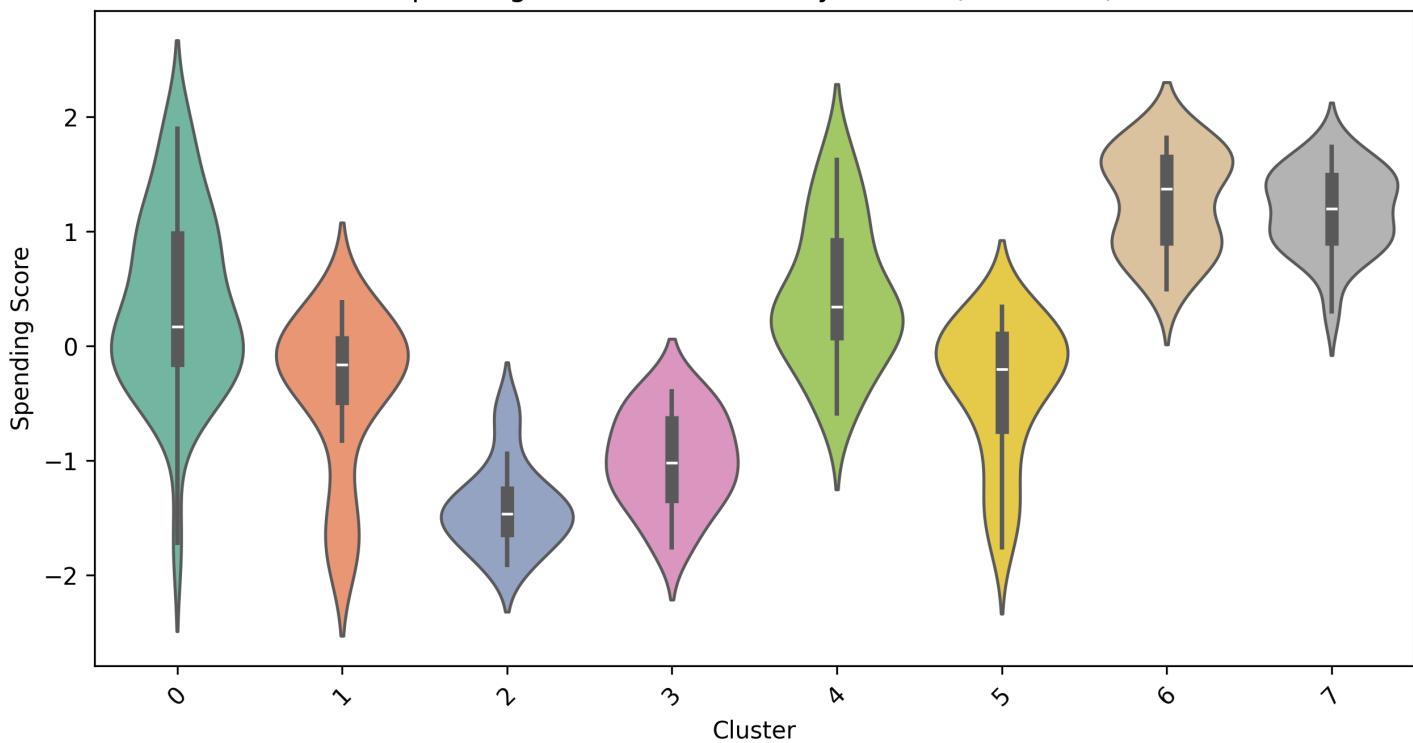
Age Distribution by Cluster (Violin Plot)



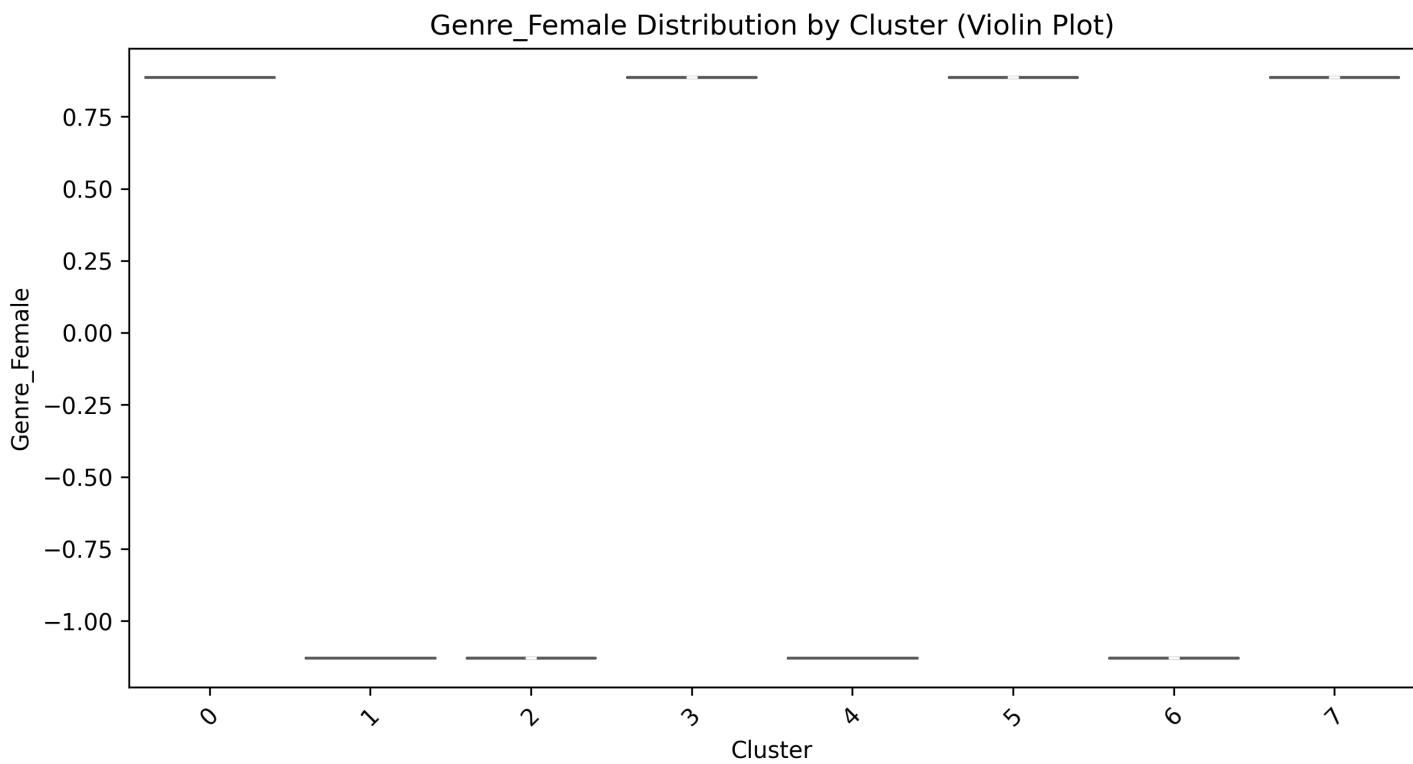
Spending Score Distribution by Cluster (Violin Plot)

Customer Segmentation Analysis Report

Spending Score Distribution by Cluster (Violin Plot)



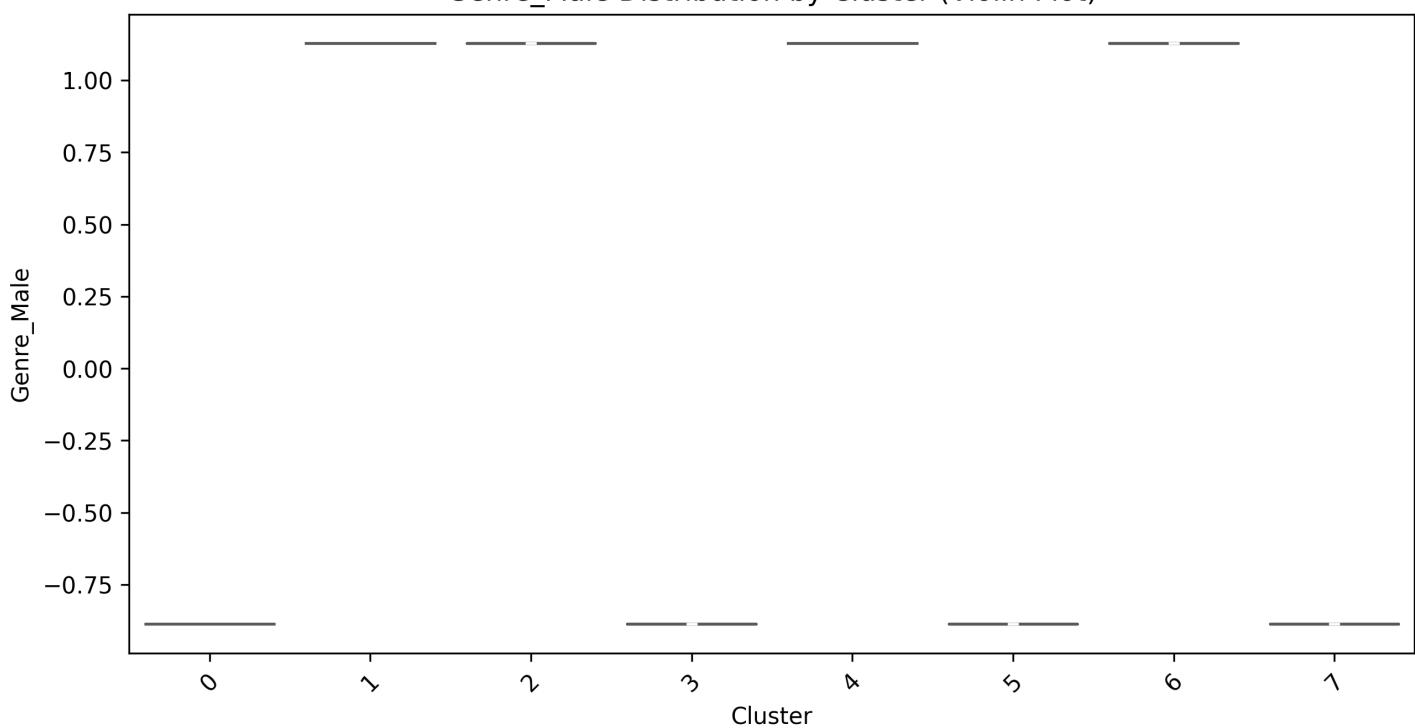
Genre_Female Distribution by Cluster (Violin Plot)



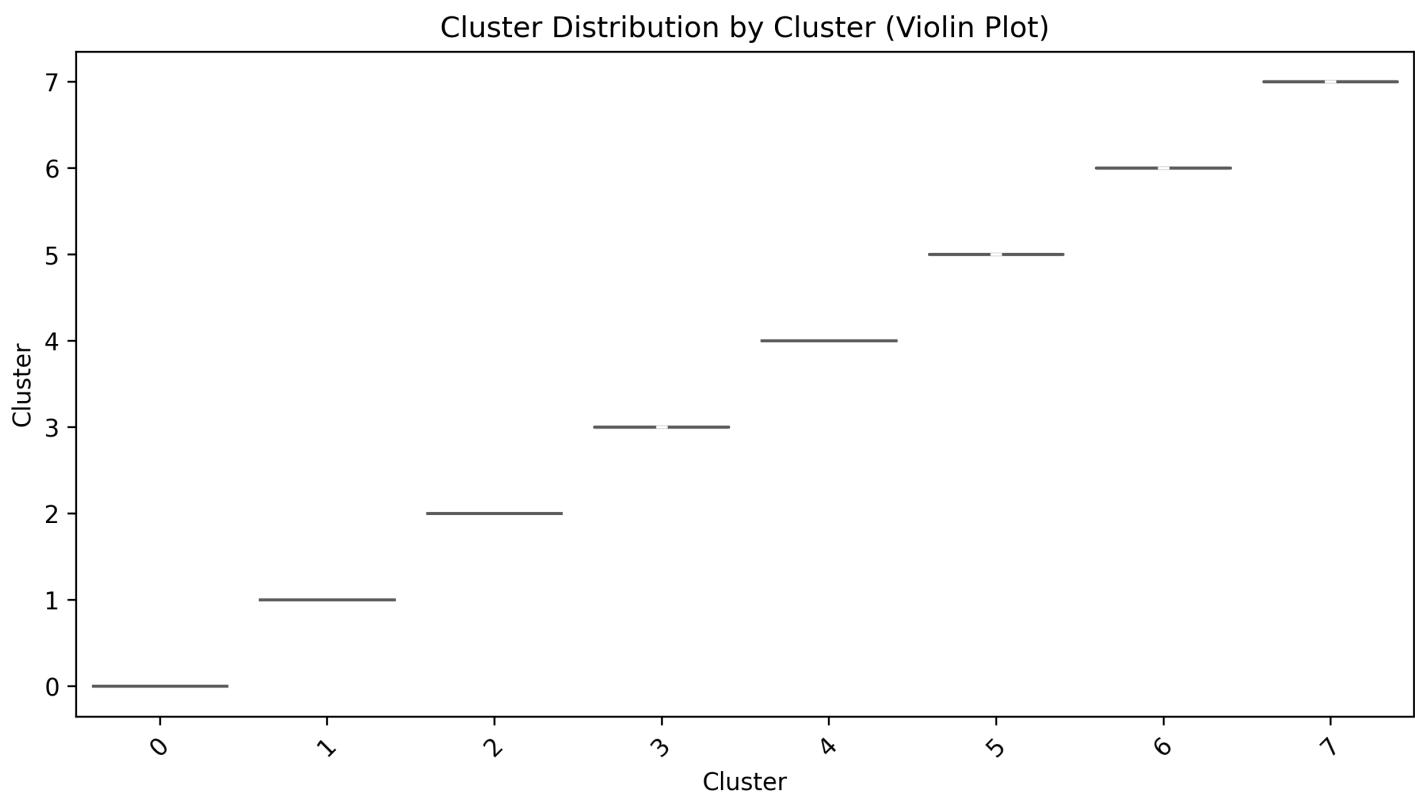
Genre_Male Distribution by Cluster (Violin Plot)

Customer Segmentation Analysis Report

Genre_Male Distribution by Cluster (Violin Plot)



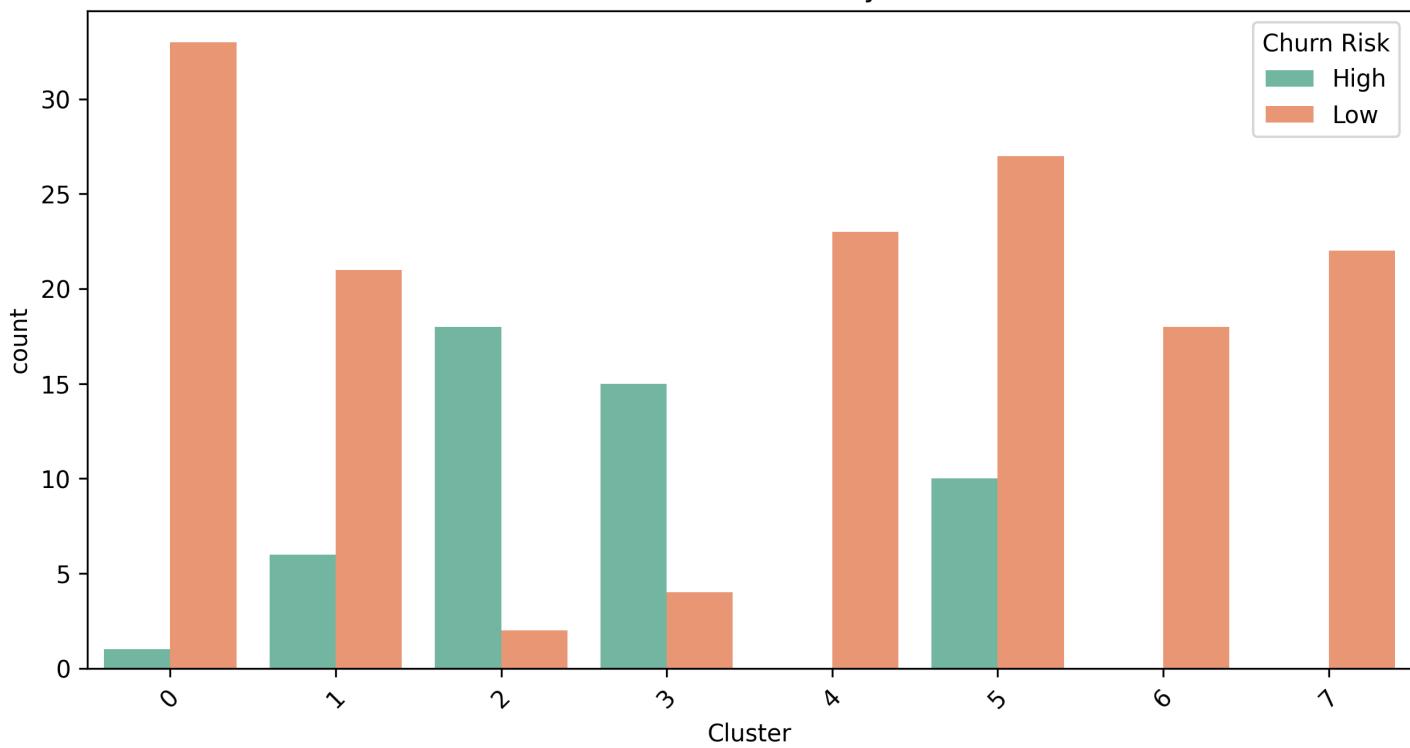
Cluster Distribution by Cluster (Violin Plot)



Churn Risk Distribution by Cluster

Customer Segmentation Analysis Report

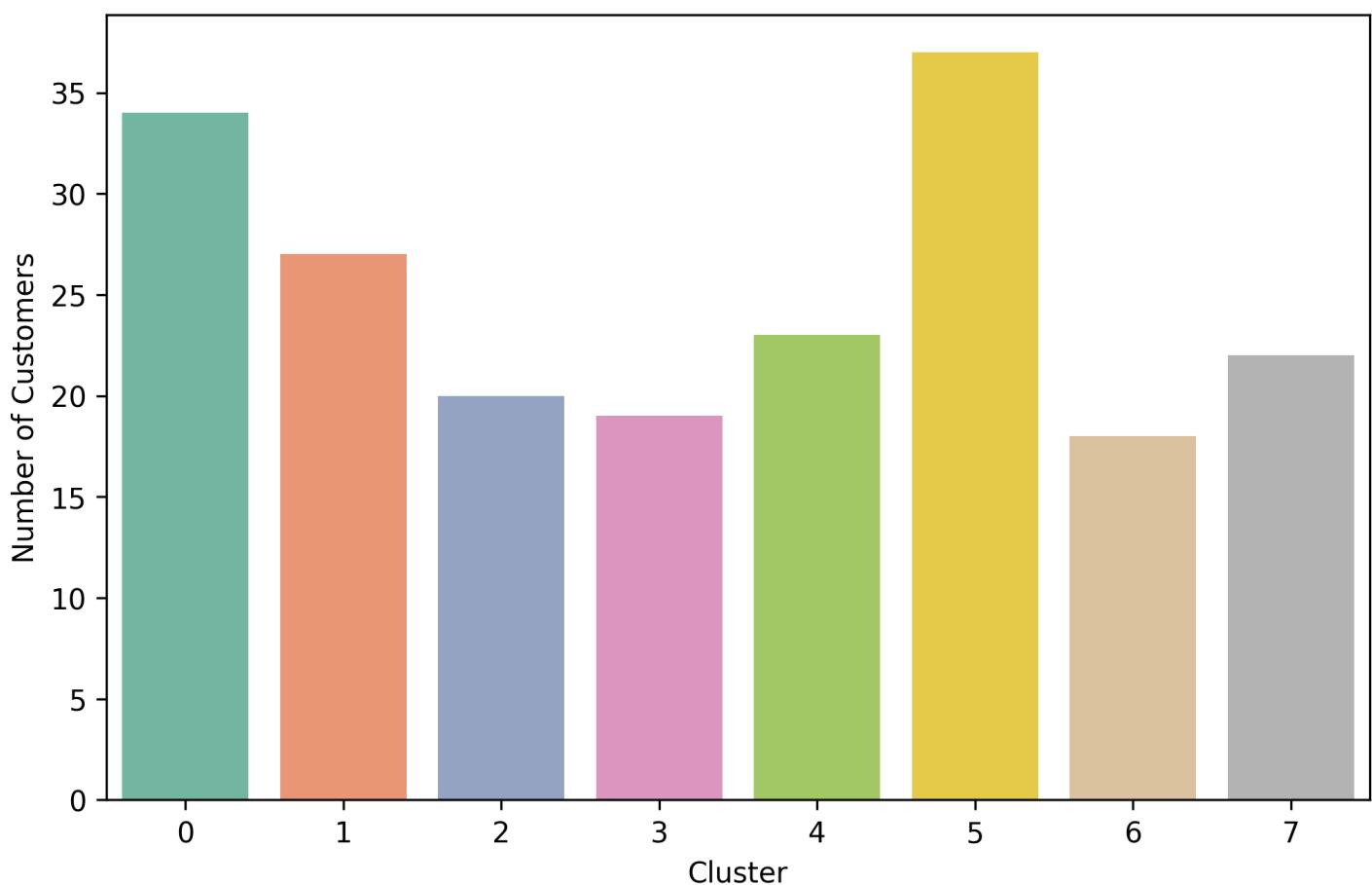
Churn Risk Distribution by Cluster



Cluster Size Distribution

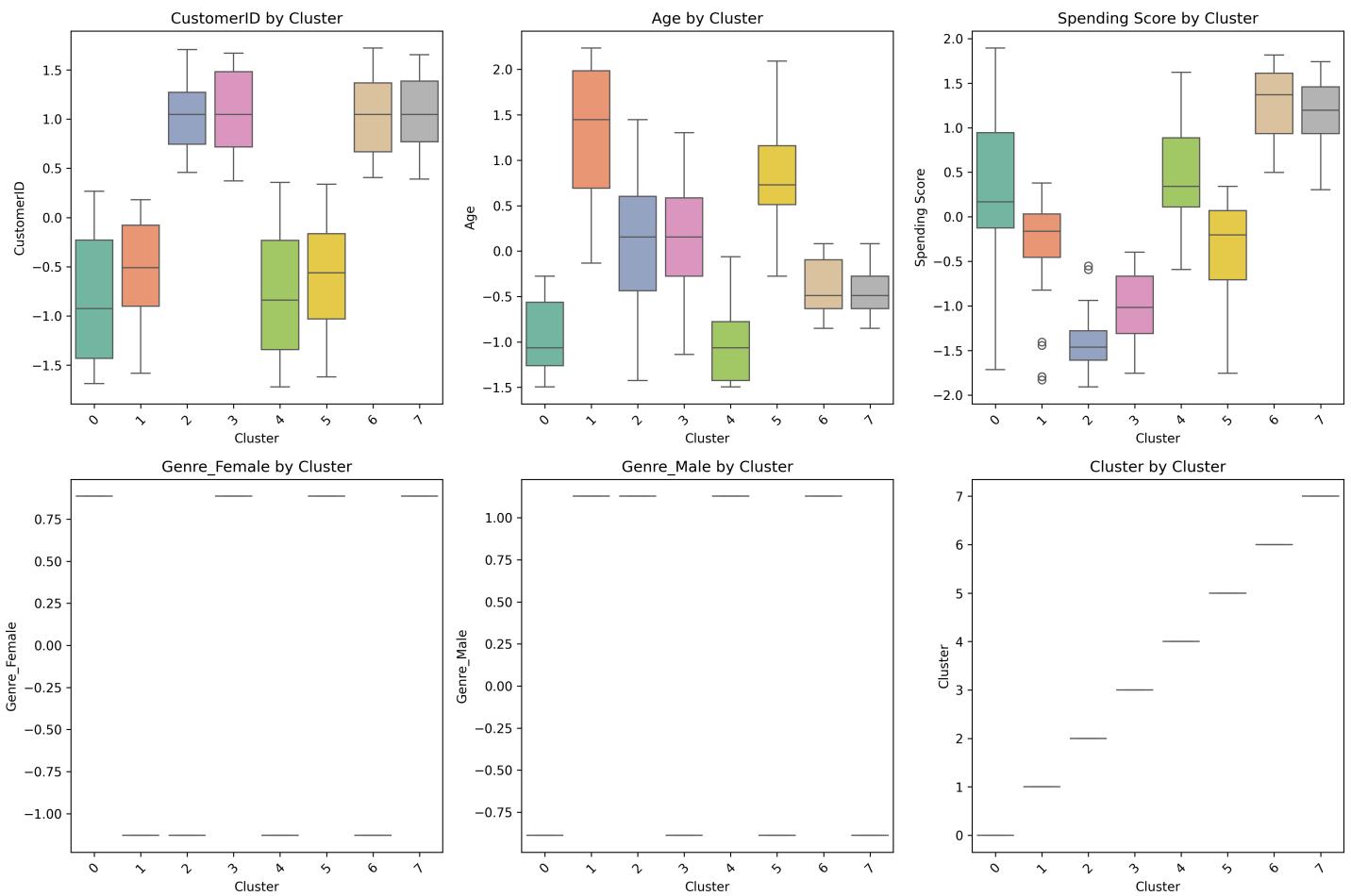
Customer Segmentation Analysis Report

Cluster Size Distribution



Cluster Profiles (Boxplots)

Customer Segmentation Analysis Report



Customer Segmentation (2D PCA View)

Customer Segmentation Analysis Report



Marketing Recommendations (Non-RFM)

Marketing Recommendations:

Cluster 0 (34 customers):

- Low CustomerID (avg: 52.29 vs overall: 100.50)
- Low Age (avg: 26.00 vs overall: 38.85)
- Low Annual Income (avg: 39.53 vs overall: 60.56)
- Low Cluster (avg: 0.00 vs overall: 3.31)
- Dominant Genre: Female (100.0%)
- Dominant Churn_Risk: Low (97.1%)
- Churn Risk: 2.9% High Risk
- Maintain engagement with loyalty programs

Cluster 1 (27 customers):

- Low CustomerID (avg: 67.67 vs overall: 100.50)
- High Age (avg: 57.33 vs overall: 38.85)
- Low Annual Income (avg: 47.00 vs overall: 60.56)
- Low Cluster (avg: 1.00 vs overall: 3.31)
- Dominant Genre: Male (100.0%)
- Dominant Churn_Risk: Low (77.8%)
- Churn Risk: 22.2% High Risk
- Maintain engagement with loyalty programs

Customer Segmentation Analysis Report

Cluster 2 (20 customers):

- High CustomerID (avg: 159.50 vs overall: 100.50)
- High Annual Income (avg: 85.15 vs overall: 60.56)
- Low Spending Score (avg: 14.05 vs overall: 50.20)
- Low Cluster (avg: 2.00 vs overall: 3.31)
- Dominant Genre: Male (100.0%)
- Dominant Churn_Risk: High (90.0%)
- Churn Risk: 90.0% High Risk
- Implement win-back campaigns for high-risk customers

Cluster 3 (19 customers):

- High CustomerID (avg: 162.53 vs overall: 100.50)
- High Annual Income (avg: 87.89 vs overall: 60.56)
- Low Spending Score (avg: 24.58 vs overall: 50.20)
- Dominant Genre: Female (100.0%)
- Dominant Churn_Risk: High (78.9%)
- Churn Risk: 78.9% High Risk
- Implement win-back campaigns for high-risk customers

Cluster 4 (23 customers):

- Low CustomerID (avg: 55.13 vs overall: 100.50)
- Low Age (avg: 24.61 vs overall: 38.85)
- Low Annual Income (avg: 40.70 vs overall: 60.56)
- High Spending Score (avg: 61.48 vs overall: 50.20)
- High Cluster (avg: 4.00 vs overall: 3.31)
- Dominant Genre: Male (100.0%)
- Dominant Churn_Risk: Low (100.0%)
- Churn Risk: 0.0% High Risk
- Maintain engagement with loyalty programs

Cluster 5 (37 customers):

- Low CustomerID (avg: 67.78 vs overall: 100.50)
- High Age (avg: 50.92 vs overall: 38.85)
- Low Annual Income (avg: 47.19 vs overall: 60.56)
- High Cluster (avg: 5.00 vs overall: 3.31)
- Dominant Genre: Female (100.0%)
- Dominant Churn_Risk: Low (73.0%)
- Churn Risk: 27.0% High Risk
- Maintain engagement with loyalty programs

Cluster 6 (18 customers):

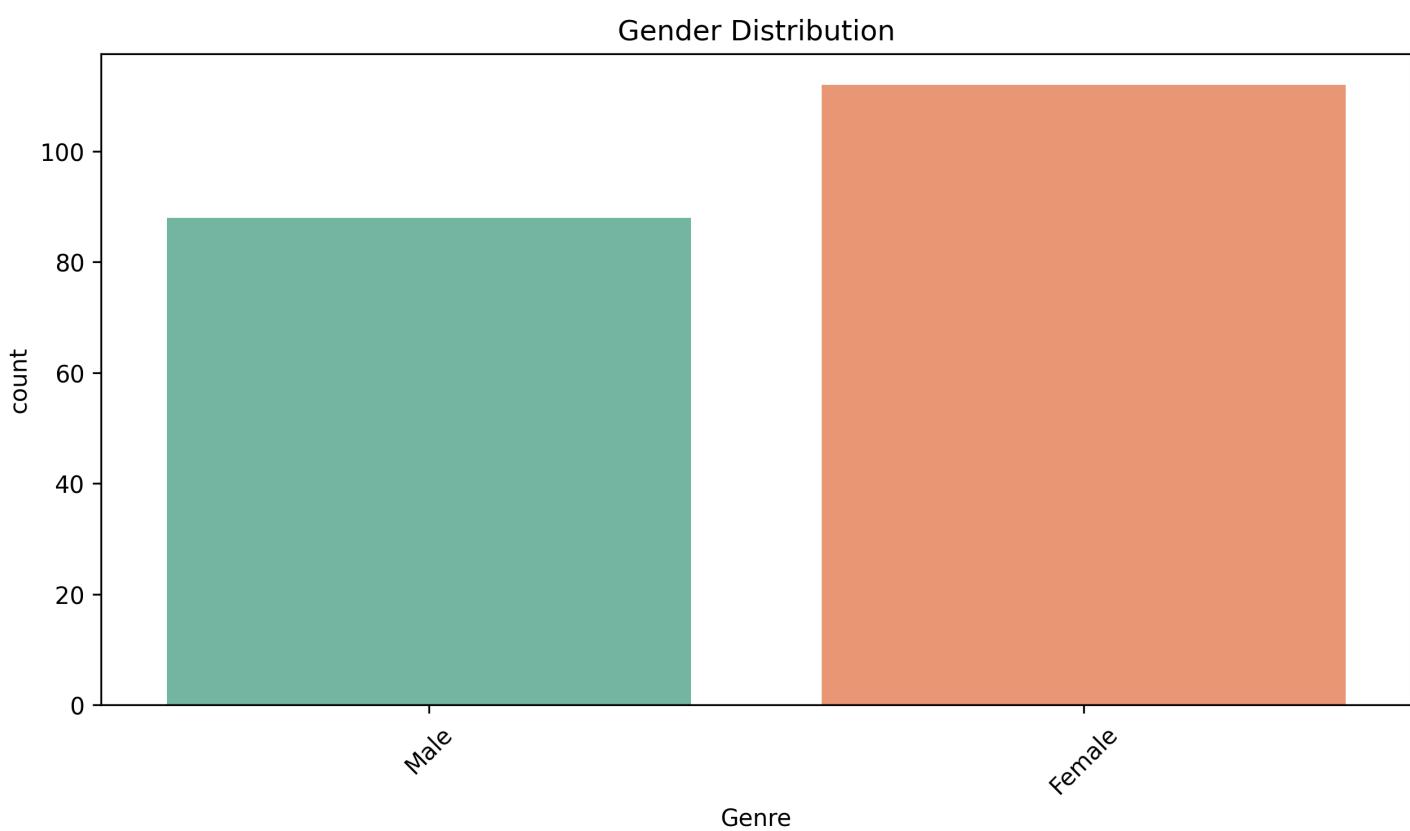
- High CustomerID (avg: 160.44 vs overall: 100.50)
- High Annual Income (avg: 87.11 vs overall: 60.56)
- High Spending Score (avg: 82.67 vs overall: 50.20)
- High Cluster (avg: 6.00 vs overall: 3.31)
- Dominant Genre: Male (100.0%)
- Dominant Churn_Risk: Low (100.0%)
- Churn Risk: 0.0% High Risk
- Maintain engagement with loyalty programs

Customer Segmentation Analysis Report

Cluster 7 (22 customers):

- High CustomerID (avg: 161.50 vs overall: 100.50)
- High Annual Income (avg: 85.27 vs overall: 60.56)
- High Spending Score (avg: 80.59 vs overall: 50.20)
- High Cluster (avg: 7.00 vs overall: 3.31)
- Dominant Genre: Female (100.0%)
- Dominant Churn_Risk: Low (100.0%)
- Churn Risk: 0.0% High Risk
- Maintain engagement with loyalty programs

Gender Distribution



Age Distribution

Customer Segmentation Analysis Report

Age Distribution

