

# 06\_customer\_seg\_maldata\_report

December 27, 2022

## 1 Customer Segmentation Report

```
c:\Users\Sebas\anaconda3\envs\customer_cluster_app\lib\site-  
packages\tqdm\auto.py:22: TqdmWarning: IProgress not found. Please update  
jupyter and ipywidgets. See  
https://ipywidgets.readthedocs.io/en/stable/user\_install.html  
from .autonotebook import tqdm as notebook_tqdm
```

## 2 Import Data

	Gender	Age	Income	Spending_Score
CustomerID				
1	Male	19	15	39
2	Male	21	15	81
3	Female	20	16	6
4	Female	23	16	77
5	Female	31	17	40

## 3 Load Model Artifacts

## 4 Transform Dataset

	Age	Income	Spending_Score	Gender	cluster
CustomerID					
1	19.0	15.0	39.0	Male	0
2	21.0	15.0	81.0	Male	0
3	20.0	16.0	6.0	Female	0
4	23.0	16.0	77.0	Female	3
5	31.0	17.0	40.0	Female	3

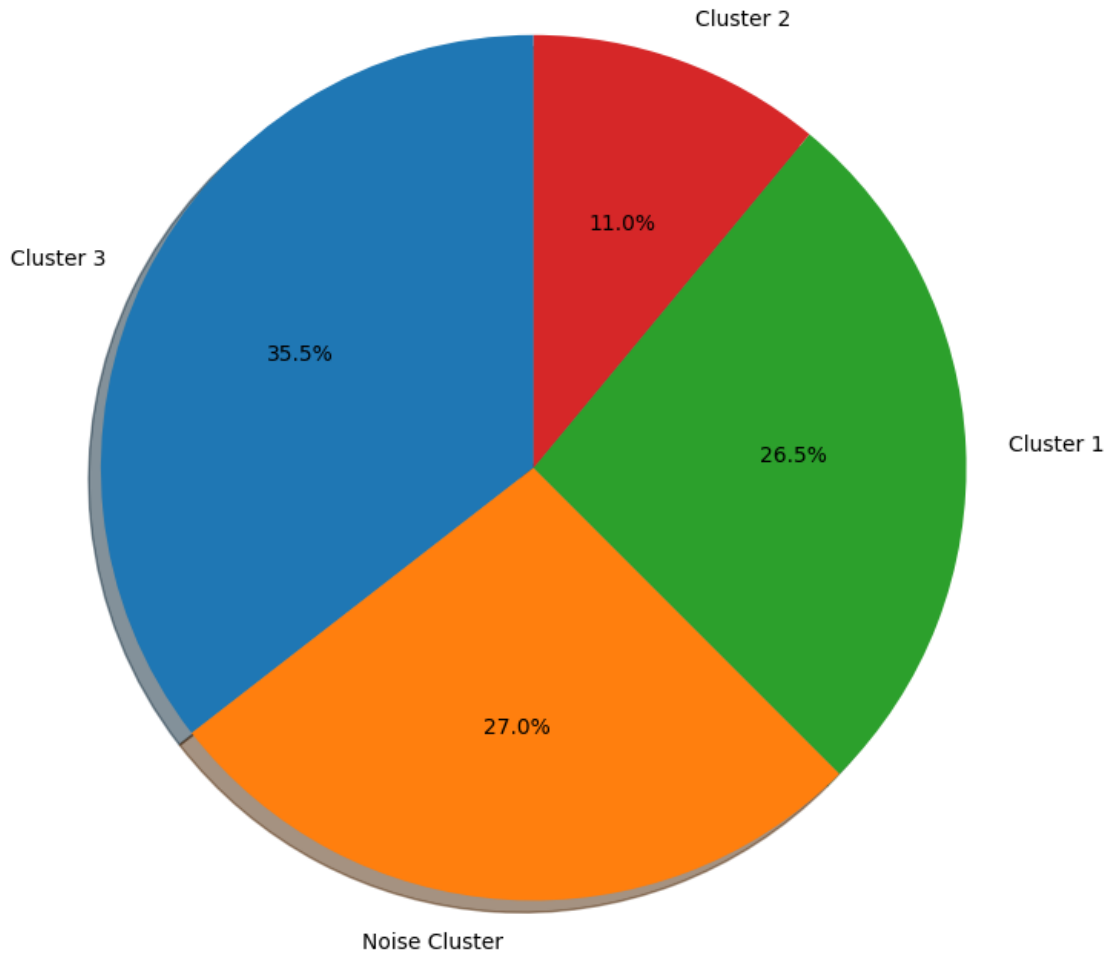
## 5 Data Visualization

3	71
0	54
1	53

```
2    22
Name: cluster, dtype: int64
```

## 5.1 What does the Cluster Distribution Look Like?

```
['Cluster 3', 'Noise Cluster', 'Cluster 1', 'Cluster 2']
```



## 6 Determine Cluster Centers

The default value of `numeric_only` in `DataFrameGroupBy.mean` is deprecated. In a future version, `numeric_only` will default to `False`. Either specify `numeric_only` or select only columns which should be valid for the function.

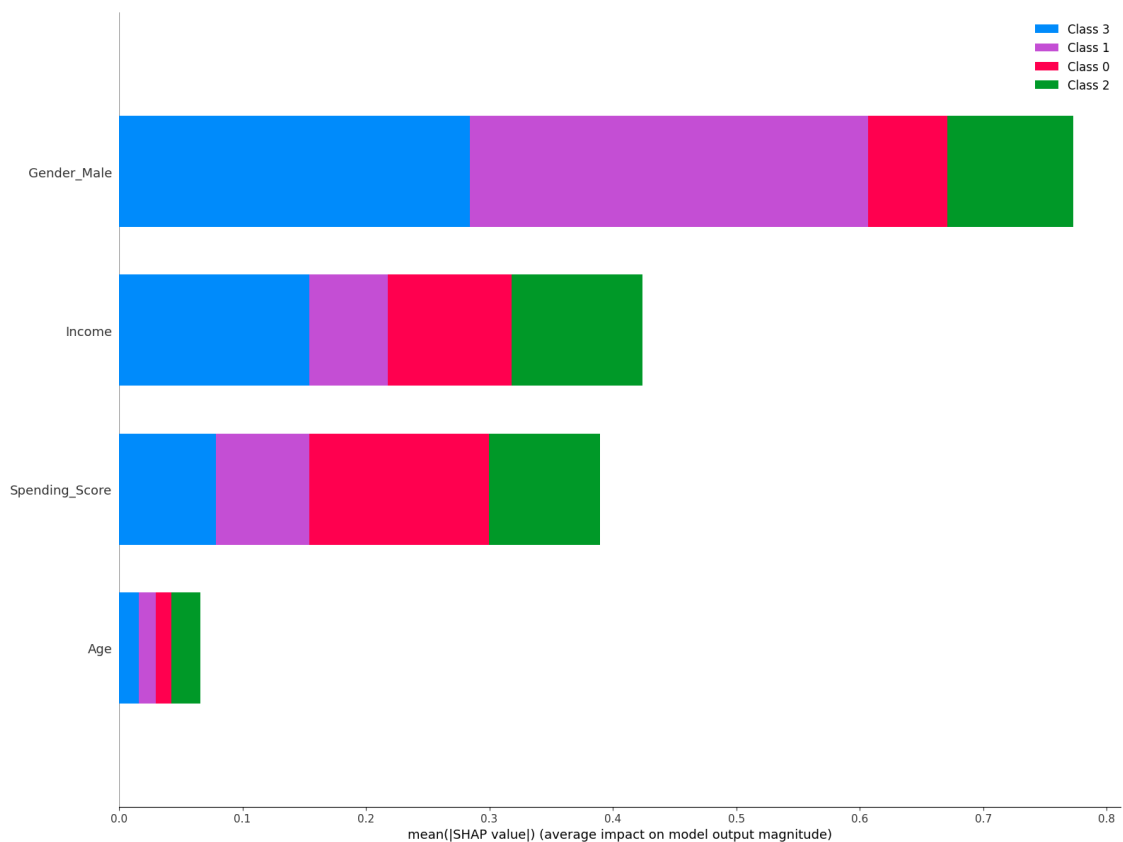
`['Age']` did not aggregate successfully. If any error is raised this will raise in a future version of pandas. Drop these columns/ops to avoid this warning.

	Age	Income	Spending_Score	Gender
cluster				
0	39.703704	68.759259	27.185185	Male
1	41.226415	59.924528	59.169811	Male
2	32.545455	85.272727	80.590909	Female
3	38.380282	47.140845	51.591549	Female

## 7 Explain Clusters

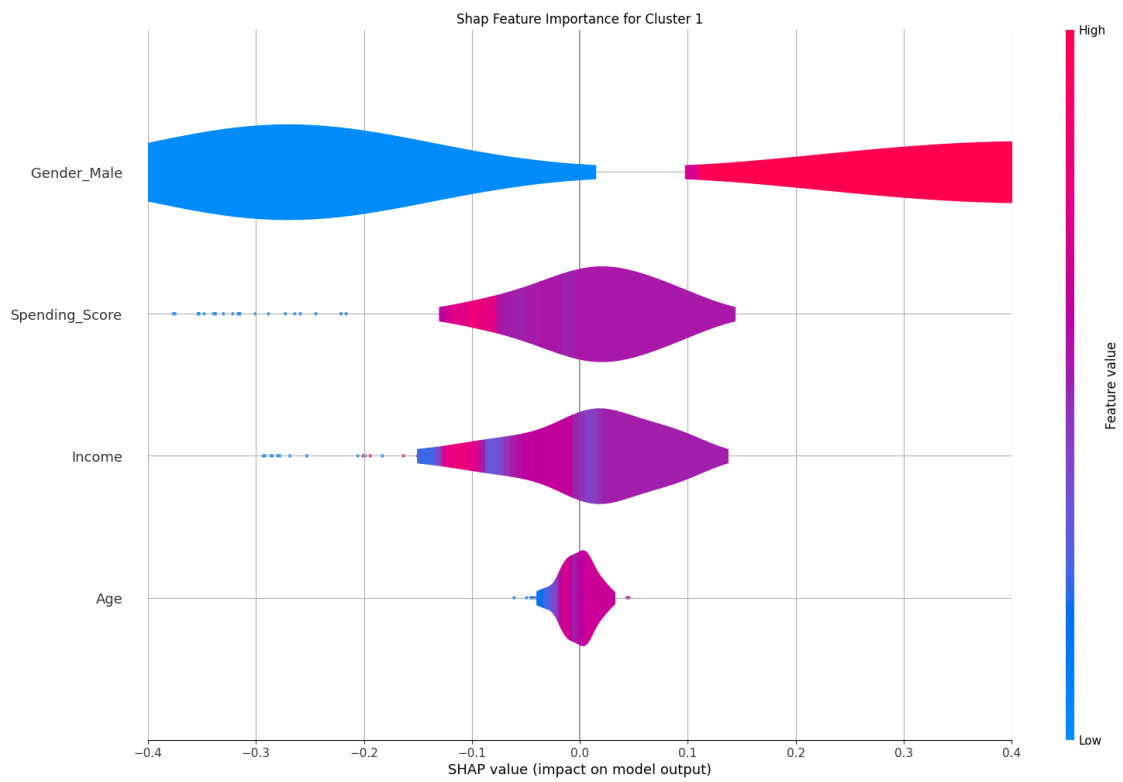
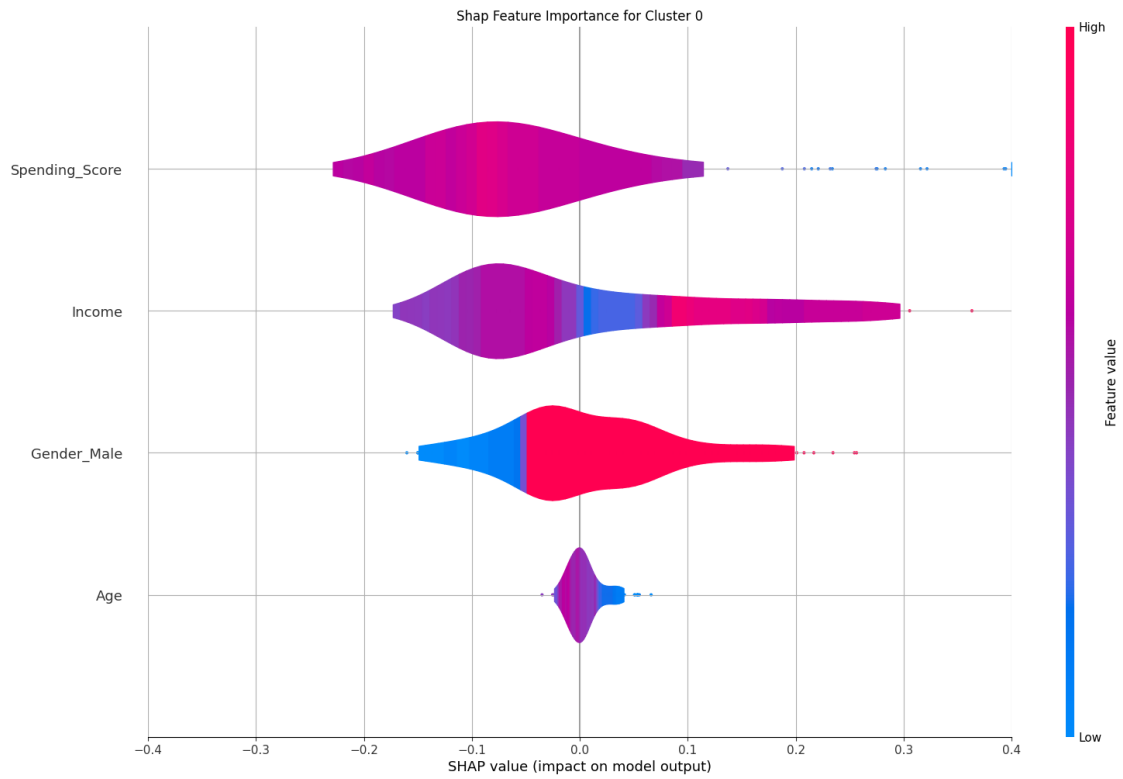
## 8 Custom Functions

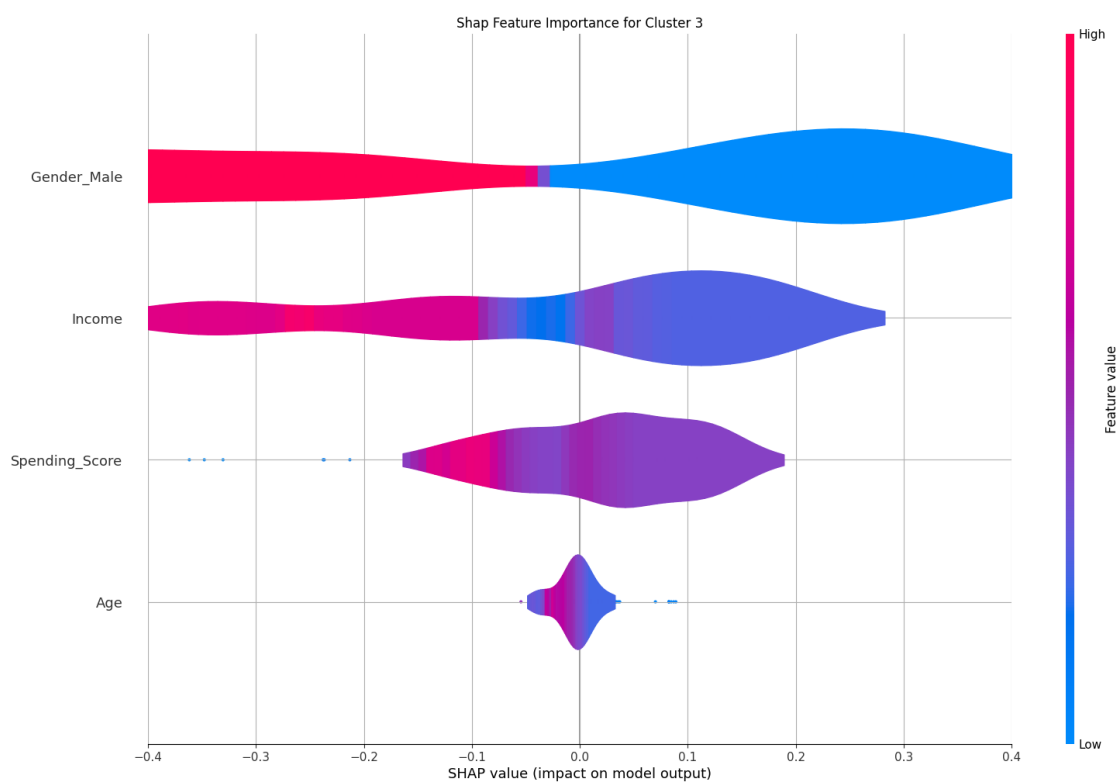
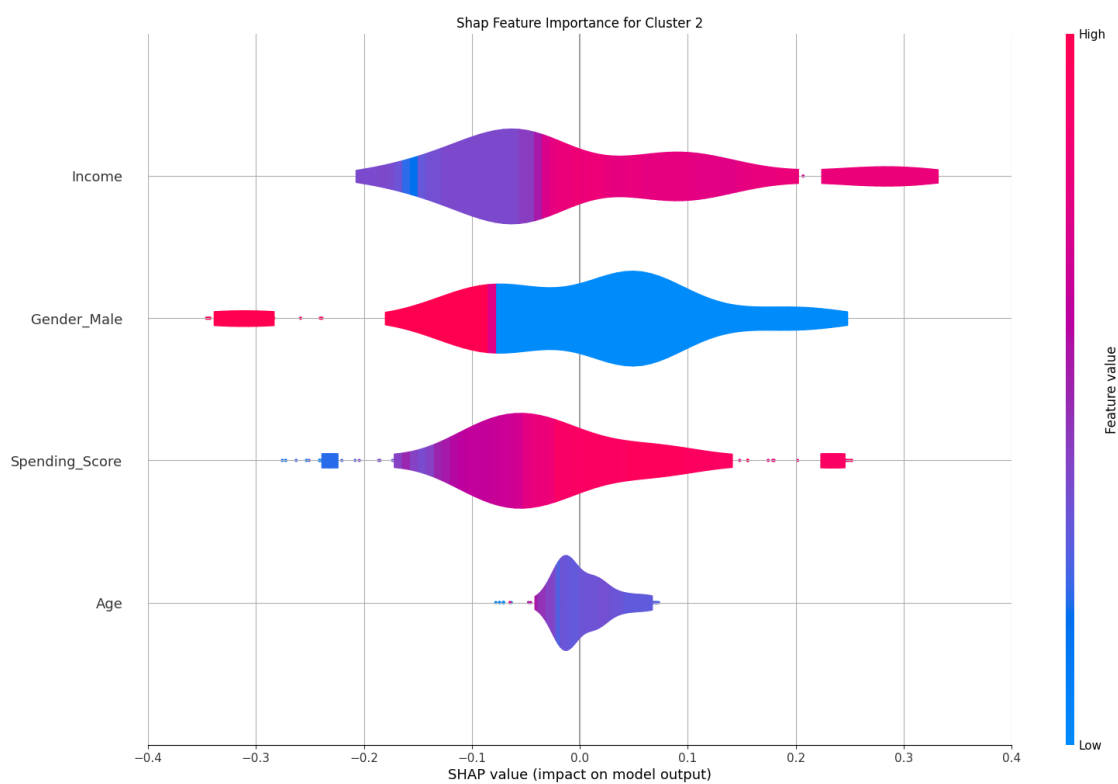
### 8.1 Average Feature Importance on Cluster Building



### 8.2 Explain Single Cluster vs Rest

No data for colormapping provided via 'c'. Parameters 'vmin', 'vmax' will be ignored



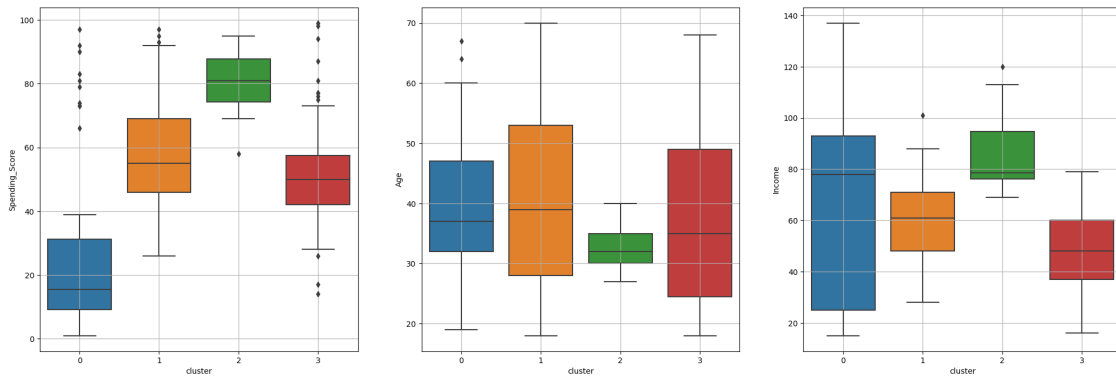


['Income', 'Gender\_Male', 'Spending\_Score', 'Age']

['Spending\_Score', 'Age', 'Income', 'Gender\_Male']

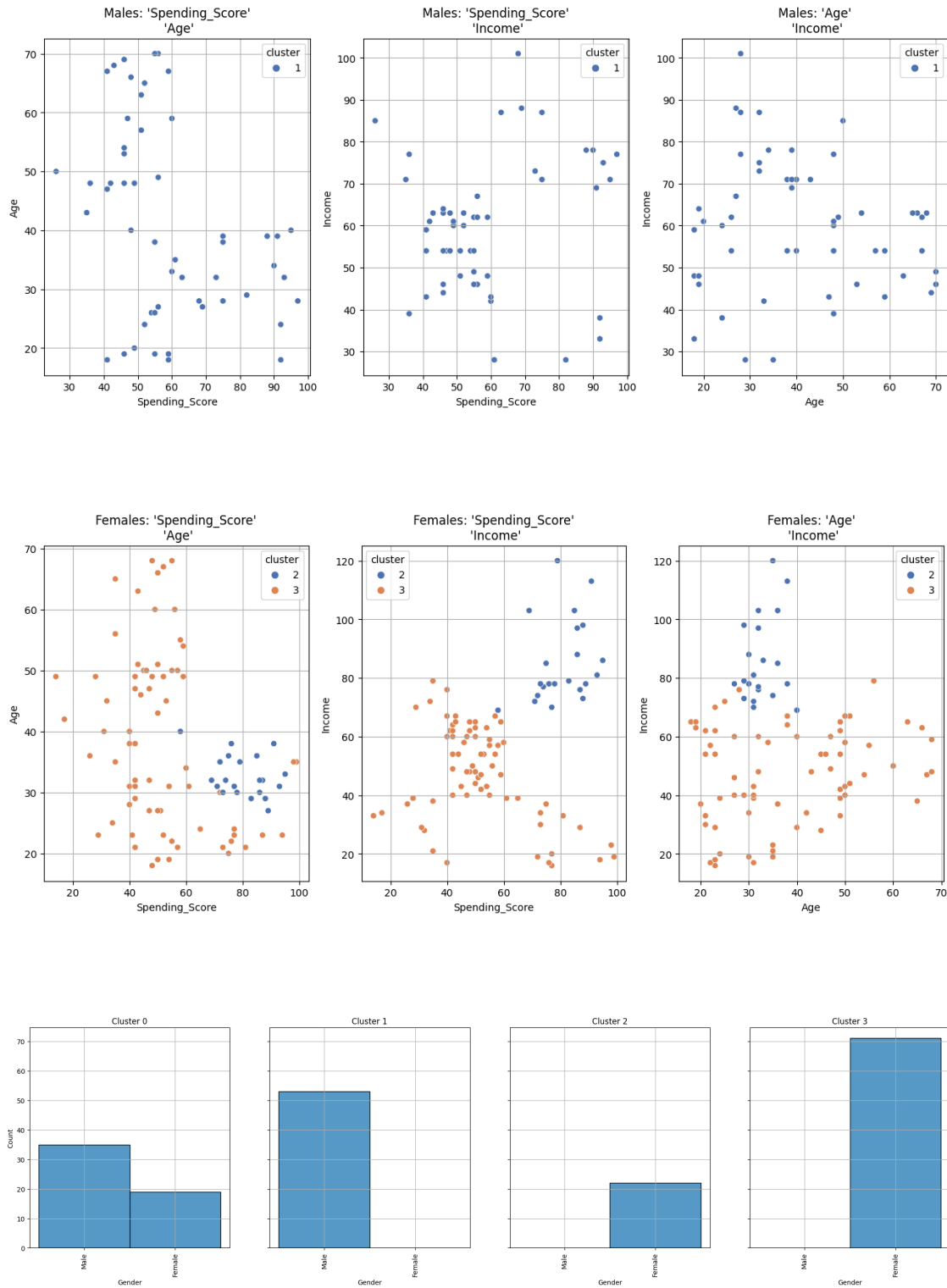
['Spending\_Score', 'Age', 'Income']

['Gender']



3





C:\Users\Sebas\anaconda3\envs\customer\_cluster\_app\lib\site-packages\traitlets\traitlets.py:2544: FutureWarning: Supporting extra quotes

around strings is deprecated in traitlets 5.0. You can use '../reports' instead of "'../reports'" if you require traitlets >=5.

```
warn(  
[NbConvertApp] Converting notebook 06_customer_seg_maldata_report.ipynb to pdf  
[NbConvertApp] Support files will be in 06_customer_seg_maldata_report_files\  
[NbConvertApp] Making directory .\06_customer_seg_maldata_report_files  
[NbConvertApp] Making directory .\06_customer_seg_maldata_report_files  
[NbConvertApp] Making directory .\06_customer_seg_maldata_report_files  
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[NbConvertApp] Making directory .\06_customer_seg_maldata_report_files  
[NbConvertApp] Writing 29176 bytes to notebook.tex  
[NbConvertApp] Building PDF  
[NbConvertApp] Running xelatex 3 times: ['xelatex', 'notebook.tex', '-quiet']  
[NbConvertApp] Running bibtex 1 time: ['bibtex', 'notebook']  
[NbConvertApp] WARNING | b had problems, most likely because there were no  
citations  
[NbConvertApp] PDF successfully created  
[NbConvertApp] Writing 640900 bytes to  
..\reports\06_customer_seg_maldata_report.pdf
```