

EXPERIMENT – 10

K-MEANS CLUSTERING

Aim:

To perform model clustering using K-means Clustering technique

Procedure:

- Upload the given dataset
- Import all the necessities
- Read the dataset as DataFrame
- Using seaborn visualize the trends
- Using sklearn train the model for predicting

Program:

```
[ ] 1 from google.colab import files
2 uploaded=files.upload()
3 import numpy as np
4 import pandas as pd
5 import matplotlib.pyplot as plt
6 import seaborn as sns
7 %matplotlib inline
8 file=next(iter(uploaded))
9 df=pd.read_csv(file)
10 df.info
```

Choose Files No file chosen Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.

Saving Mall_Customers - Mall_Customers.csv to Mall_Customers - Mall_Customers.csv

```
pandas.core.frame.DataFrame.info
def info(verbose: bool | None=None, buf: WriteBuffer[str] | None=None, max_cols: int | None=None,
memory_usage: bool | str | None=None, show_counts: bool | None=None) -> None
```

Print a concise summary of a DataFrame.

This method prints information about a DataFrame including the index dtype and columns, non-null values and memory usage.

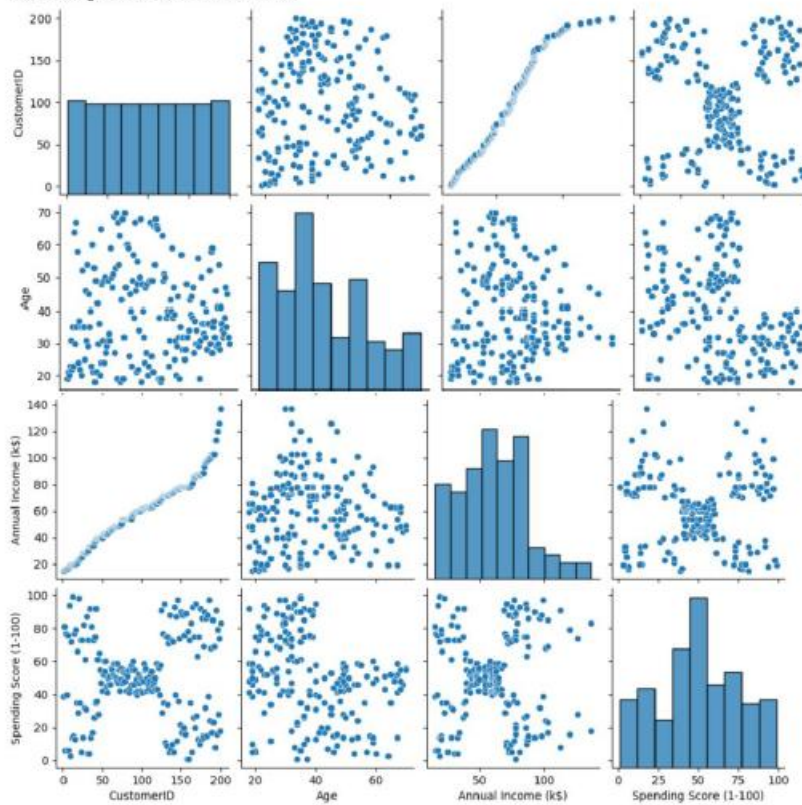
Parameters

```
[ ] 1 df.head()
```

	CustomerID	Gender	Age	Annual Income (k\$)	Spending Score (1-100)
0	1	Male	19	15	39
1	2	Male	21	15	81
2	3	Female	20	16	6
3	4	Female	23	16	77
4	5	Female	31	17	40

```
sns.pairplot(df)
```

```
<seaborn.axisgrid.PairGrid at 0x7ef83f8bb568>
```



```
features=df.iloc[:,[3,4]].values
from sklearn.cluster import KMeans
model=KMeans(n_clusters=5)
model.fit(features)
KMeans(n_clusters=5)
```

```
KMeans
```

```
KMeans(n_clusters=5)
```

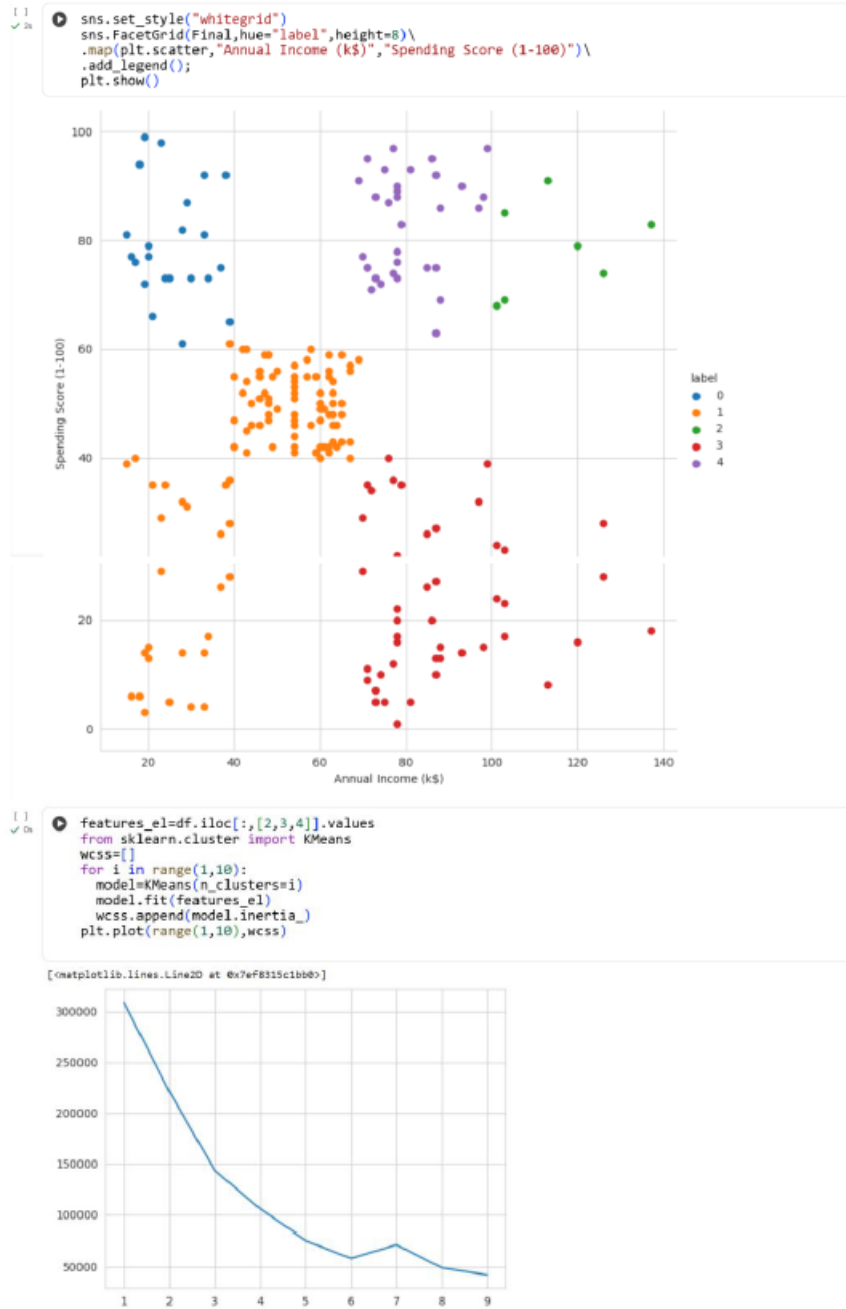
```
Final=df.iloc[:,[3,4]]
Final['label']=model.predict(features)
Final.head()
```

/tmp/ipython-input-470183701.py:12: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy

```
Final['label']=model.predict(features)
```

	Annual Income (k\$)	Spending Score (1-100)	label
0	15	39	1
1	15	81	0
2	16	6	1
3	16	77	0
4	17	40	1



Result:

Thus the python program to make prediction model using K-means Clustering is executed and verified successfully