U18ISI6204 – Machine Learning Techniques

LAB- EXPERIMENT 8

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ROLL_NO: 20BIS001

Write a program to implement k-means clustering algorithm for iris dataset.

With libraries:

import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns

from sklearn.cluster import KMeans

from sklearn.metrics import silhouette_score

from sklearn.preprocessing import MinMaxScaler

import pandas as pd

import numpy as np

import matplotlib.pyplot as plt

import seaborn as sns

from sklearn.cluster import KMeans

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```
In [17]: import pandas as pd
         import numpy as np
         import matplotlib.pyplot as plt
         import seaborn as sns
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         from sklearn.metrics import silhouette_score
         from sklearn.preprocessing import MinMaxScaler
         import pandas as pd
         import numpy as np
         import matplotlib.pyplot as plt
         import seaborn as sns
         from sklearn.cluster import KMeans
         from sklearn.metrics import silhouette_score
         from sklearn.preprocessing import MinMaxScaler
```

```
iris= pd.read_csv("C:/Users/Sankamethra/Documents/3rdYear/ML/LAB/archive (7)/IRIS.csv")
x=iris.iloc[:,[0,1,2,3]].values
iris.info()
iris[0:10]
```

In [23]:
```
iris= pd.read_csv("C:/Users/Sankamethra/Documents/3rdYear/ML/LAB/archive (7)/IRIS.csv")
x=iris.iloc[:,[0,1,2,3]].values
iris.info()
iris[0:10]
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 5 columns):
 #   Column        Non-Null Count  Dtype
---  ------        --------------  -----
 0   sepal_length  150 non-null    float64
 1   sepal_width   150 non-null    float64
 2   petal_length  150 non-null    float64
 3   petal_width   150 non-null    float64
 4   species       150 non-null    object
dtypes: float64(4), object(1)
memory usage: 5.3+ KB
```

Out[23]:

	sepal_length	sepal_width	petal_length	petal_width	species
0	5.1	3.5	1.4	0.2	Iris-setosa
1	4.9	3.0	1.4	0.2	Iris-setosa
2	4.7	3.2	1.3	0.2	Iris-setosa
3	4.6	3.1	1.5	0.2	Iris-setosa
4	5.0	3.6	1.4	0.2	Iris-setosa
5	5.4	3.9	1.7	0.4	Iris-setosa
6	4.6	3.4	1.4	0.3	Iris-setosa
7	5.0	3.4	1.5	0.2	Iris-setosa
8	4.4	2.9	1.4	0.2	Iris-setosa
9	4.9	3.1	1.5	0.1	Iris-setosa

```
iris_outcome=pd.crosstab(index=iris["species"],columns="count")

iris_outcome
```

In [25]:
```
iris_outcome=pd.crosstab(index=iris["species"],columns="count")

iris_outcome
```

Out[25]:

col_0	count
species	
Iris-setosa	50
Iris-versicolor	50
Iris-virginica	50

iris_setosa= iris.loc[iris["species"]=="Iris-setosa"]

iris_virginica=iris.loc[iris["species"]=="Iris-virginica"]

iris_versicolor=iris.loc[iris["species"]=="Iris-versicolor"]

```
In [26]: iris_setosa= iris.loc[iris["species"]=="Iris-setosa"]
         iris_virginica=iris.loc[iris["species"]=="Iris-virginica"]
         iris_versicolor=iris.loc[iris["species"]=="Iris-versicolor"]

In [ ]:
```

sns.FacetGrid(iris,hue="species",size=3).map(sns.distplot,"petal_length").add_legend()

sns.FacetGrid(iris,hue="species",size=3).map(sns.distplot,"petal_width").add_legend()

sns.FacetGrid(iris,hue="species",size=3).map(sns.distplot,"sepal_length").add_legend()

```
In [28]: sns.FacetGrid(iris,hue="species",size=3).map(sns.distplot,"petal_length").add_legend()
         sns.FacetGrid(iris,hue="species",size=3).map(sns.distplot,"petal_width").add_legend()
         sns.FacetGrid(iris,hue="species",size=3).map(sns.distplot,"sepal_length").add_legend()

C:\Users\Sankamethra\anaconda3\lib\site-packages\seaborn\axisgrid.py:316: UserWarning: The `size` parameter has been renamed
to `height`; please update your code.
  warnings.warn(msg, UserWarning)
C:\Users\Sankamethra\anaconda3\lib\site-packages\seaborn\distributions.py:2557: FutureWarning: `distplot` is a deprecated fu
nction and will be removed in a future version. Please adapt your code to use either `displot` (a figure-level function with
similar flexibility) or `histplot` (an axes-level function for histograms).
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```

Out[28]: <seaborn.axisgrid.FacetGrid at 0xad26028>