Ex.No-12

Unsupervised Learning – Clustering

Aim:

To implement unsupervised learning-clustering using any predefined dataset

Description:

- Unsupervised learning don't have any target/outcome variable to predict /estimate.

- it is used for clustering population in different groups, which is widely used for segmenting customers in different groups

   - Ex. Apriori algorithm , K-means

Program:

```
# Importing Modules
from sklearn import datasets
import matplotlib.pyplot as plt


# Loading dataset
iris_df = datasets.load_iris()


# Available methods on dataset
print("Methods:\n",dir(iris_df))


# Features
print("\nFeatures:\n",iris_df.feature_names)


# Targets
print("\nTargets:\n",iris_df.target)


# Target Names
print("\nTarget names:\n",iris_df.target_names)
label = {0: 'red', 1: 'blue', 2: 'green'}
```

```
# Dataset Slicing

x_axis = iris_df.data[:, 0]  # Sepal Length

y_axis = iris_df.data[:, 2]  # Sepal Width


# Plotting

plt.scatter(x_axis, y_axis, c=iris_df.target)

plt.show()
```

Output:

Methods:

['DESCR', 'data', 'data_module', 'feature_names', 'filename', 'frame', 'target', 'target_names']

Features:

['sepal length (cm)', 'sepal width (cm)', 'petal length (cm)', 'petal width (cm)']

Targets:

[0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

0 0 0 0 0 0 0 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

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2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2

2 2]

Target names:

['setosa' 'versicolor' 'virginica']

Result:
       The programs were run successfully