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
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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 2]

Target names:
 ['setosa' 'versicolor' 'virginica']
```

Result:

The programs were run successfully