

**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:

```
[00000000000000000000000000000000000000000000000  
00000000000000011111111111111111111111111111111  
11111111111111111111111111111111112222222222222  
2222222222222222222222222222222222222222222222  
22]
```

Target names:

['setosa' 'versicolor' 'virginica']

**Result:**

The programs were run successfully