**Experiment-15**

AIM: Write a program to Implement Principle Component Analysis.

import numpy as np

import matplotlib.pyplot as plt

from sklearn.datasets import load\_iris

from sklearn.preprocessing import StandardScaler

from sklearn.decomposition import PCA

iris = load\_iris()

X = iris.data

y = iris.target

scaler = StandardScaler()

X\_scaled = scaler.fit\_transform(X)

pca = PCA(n\_components=2)

X\_pca = pca.fit\_transform(X\_scaled)

print("Explained Variance Ratio:", pca.explained\_variance\_ratio\_)

plt.figure(figsize=(8, 6))

plt.scatter(X\_pca[:, 0], X\_pca[:, 1], c=y, cmap='viridis')

plt.xlabel('Principal Component 1')

plt.ylabel('Principal Component 2')

plt.title('Principal Component Analysis (PCA)')

plt.colorbar(label='Target')

plt.show()

Output:

Explained Variance Ratio: [0.72962445 0.22850762]

