

## **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]

