**Practical No.09**

* **PCA(Principal Component Analysis)**

**Code:**

import numpy as np

from sklearn.datasets import load\_iris

from sklearn.decomposition import PCA

import matplotlib.pyplot as plt

# Load the Iris dataset

iris = load\_iris()

X = iris.data

y = iris.target

# Standardize the data

X\_standardized = (X - np.mean(X, axis=0)) / np.std(X, axis=0)

# Perform PCA with 2 components

pca = PCA(n\_components=2)

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

# Plot the transformed data

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

for i, target\_name in enumerate(iris.target\_names):

plt.scatter(X\_pca[y == i, 0], X\_pca[y == i, 1], label=target\_name)

plt.xlabel('Principal Component 1')

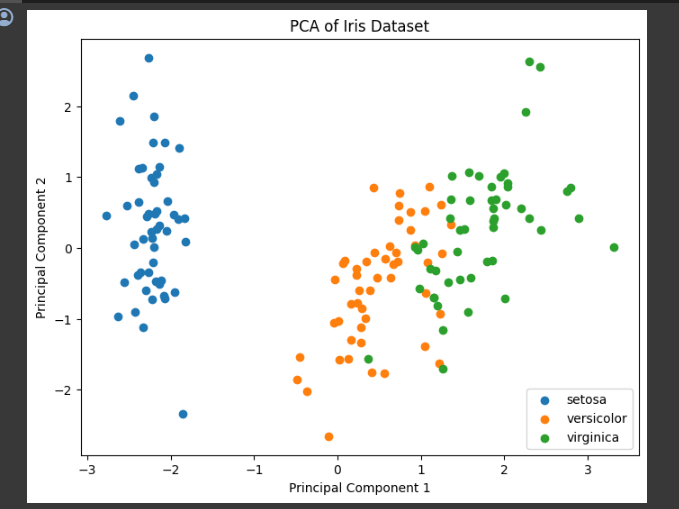
plt.ylabel('Principal Component 2')

plt.title('PCA of Iris Dataset')

plt.legend()

plt.show()

**Output:**

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