

## **EXPERIMENT 10**

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### **A PYTHON PROGRAM TO DIMENTION REDUCTION USING PCA**

#### **AIM:**

*TO IMPLEMENT A PYTHON PROGRAM TO IMPLEMENT DIMENTION  
REDUCTION USING PCA*

#### **CODE:FOLLOWED BY 9B**

```
from sklearn import datasets
import pandas as pd
from sklearn.preprocessing import StandardScaler
from sklearn.decomposition import PCA
import seaborn as sns

iris = datasets.load_iris()
df = pd.DataFrame(iris['data'], columns = iris['feature_names'])
df.head()

scalar = StandardScaler()
scaled_data = pd.DataFrame(scalar.fit_transform(df)) #scaling the data
scaled_data

sns.heatmap(scaled_data.corr())

pca = PCA(n_components = 3)
pca.fit(scaled_data)
data_pca = pca.transform(scaled_data)
data_pca = pd.DataFrame(data_pca,columns=['PC1','PC2','PC3'])
data_pca.head()

sns.heatmap(data_pca.co)
```

#### **OUTPUT:**

```
IDLE Shell 3.12.3
File Edit Shell Debug Options Window Help
Python 3.12.3 (tags/v3.12.3:f6650f9, Apr 9 2024, 14:05:25) [MSC v.1938 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
=== RESTART: C:/Users/itzdi/AppData/Local/Programs/Python/Python312/ex10 1.py ==
>>>
```

## ***RESULT:***

*TO IMPLEMENT A PYTHON PROGRAM TO IMPLEMENT DIMENTION  
REDUCTION USING AS BEEN ANALYSED AND VERIFIED*