

EX NO: 10

DATE:

## A PYTHON PROGRAM TO IMPLEMENT DIMENSIONALITY REDUCTION

### USING PCA

#### AIM:

To implement Dimensionality Reduction using PCA in a python program.

#### PROGRAM:

```
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()

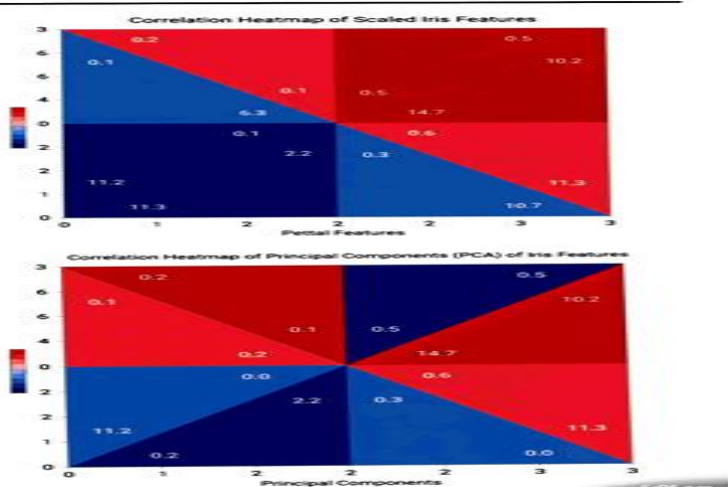
scalar = StandardScaler()
scaled_data = pd.DataFrame(scalar.fit_transform(df)) #scaling the data
scaled_data

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.corr())
```

#### OUTPUT:



**RESULT:**

Thus Dimensionality Reduction has been implemented using PCA in a python program successfully and the results have been analyzed