import pandas as pd

import numpy as np

data=pd.read\_csv("Iris.csv")

data.head()

for i in data.columns:

if(i != "Id" and i!="Species"):

data[i] = data[i] - data[i].mean() / data[i].std()

print(data)

cov\_matrix = data.drop(columns=["Id" , "Species"]).cov()

print(cov\_matrix)

eigenvalues, eigenvectors = np.linalg.eig(cov\_matrix)

print(eigenvalues)

print(eigenvectors)

sorted\_i = np.argsort(eigenvalues)

print(sorted\_i)

sorted\_eigenvalues = eigenvalues[sorted\_i]

sorted\_eigenvectors = eigenvectors[:, sorted\_i]

print("Sorted Eigenvalues:\n", sorted\_eigenvalues)

print("\nSorted Eigenvectors:\n", sorted\_eigenvectors)

d =2

top = eigenvectors[:,:d]

print(top)

projdata = data.drop(columns=["Id" , "Species"]).dot(top)

print(projdata)