EX.NO : 10

IMPLEMENTING ARTIFICIAL NEURAL NETWORKS FOR AN APPLICATION USING PYTHON - CLASSIFICATION

AIM :

To implementing artificial neural networks for an application in classification using python.

Source Code :

```
sklearn.model_selection import train_test_split from
sklearn.datasets import make_circles
import from sklearn.neural_network import MLPClassifier
from  numpy as np import matplotlib.pyplot as plt import
seaborn as sns
%matplotlib inline


X_train, y_train = make_circles(n_samples=700, noise=0.05)
X_test, y_test = make_circles(n_samples=300, noise=0.05)
sns.scatterplot(X_train[:,0],    X_train[:,1],    hue=y_train)
plt.title("Train Data") plt.show()


clf = MLPClassifier(max_iter=1000)
clf.fit(X_train, y_train)
print(f"R2 Score for Training Data = {clf.score(X_train, y_train)}")


print(f"R2 Score for Test Data = {clf.score(X_test, y_test)}")
y_pred = clf.predict(X_test) fig, ax =plt.subplots(1,2)
sns.scatterplot(X_test[:,0], X_test[:,1], hue=y_pred, ax=ax[0]) ax[1].title.set_text("Predicted
Data")
sns.scatterplot(X_test[:,0], X_test[:,1], hue=y_test, ax=ax[1])
ax[0].title.set_text("Test Data") plt.show()
```
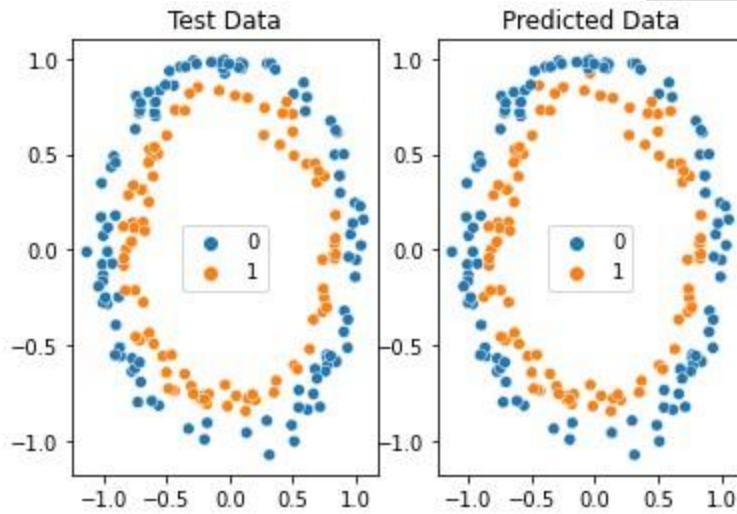
Train Data

OUTPUT :

Test Data · Predicted Data
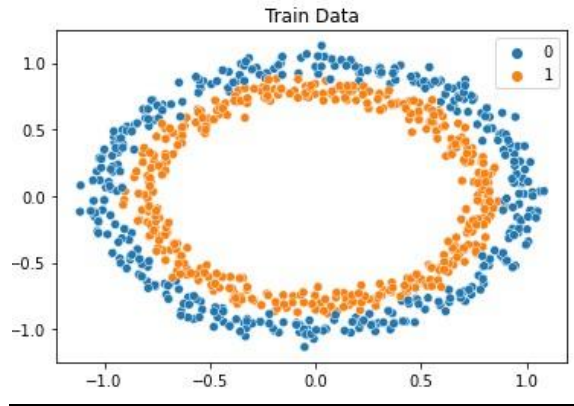
RESULT : **Thus the above python code is executed successfully and output is verified.**