

**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

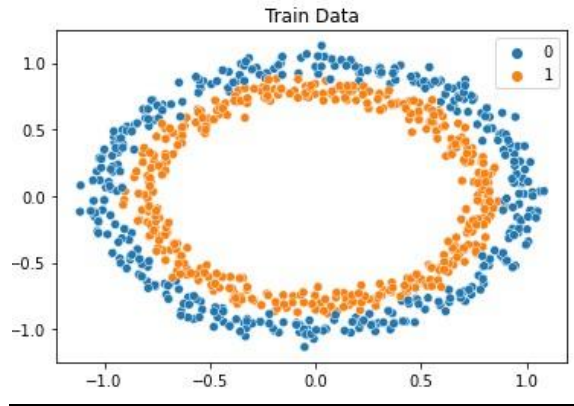
%matplotlib inline

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()

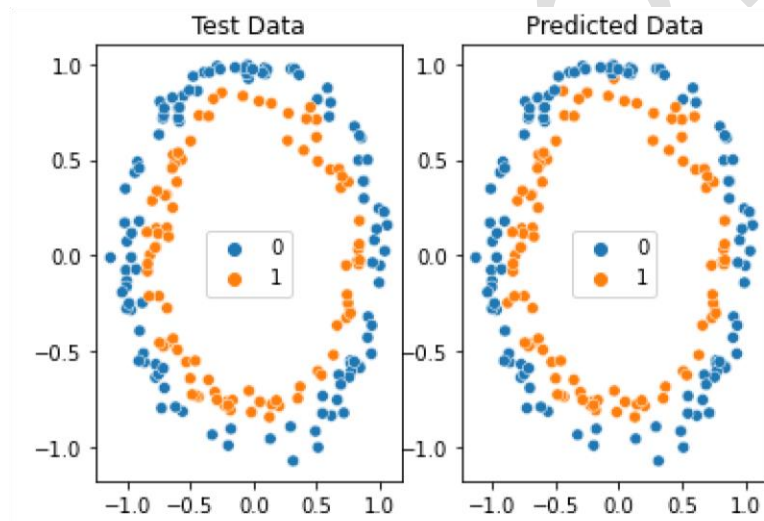
clf = MLPClassifier(max_iter=1000)
clf.fit(X_train, y_train)
print(f'R2 Score for Training Data = {clf.score(X_train, y_train)}')

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()
```



**OUTPUT :**



**RESULT :** Thus the above python code is executed successfully and output is verified.