#### **EX.NO:9**

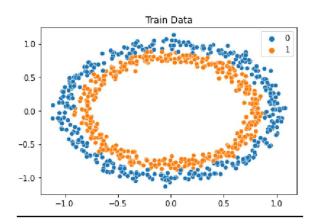
#### AIM:

# IMPLEMENTING ARTIFICIAL NEURAL NETWORKS FOR AN APPLICATION USING PYTHON CLASSIFICATION

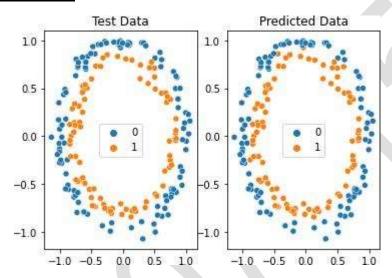
To implementing artificial neural networks for an application in classification using python.

#### **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 python code is implemented successfully and the output is verified.