EX NO : 7

DATE :

IMPLEMENTING ARTIFICIAL NEURAL NETWORKS FOR AN APPLICATION USING PYTHON - CLASSIFICATION

AIM :

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

PROGRAM :

```
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 = MLPClassiffer (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.
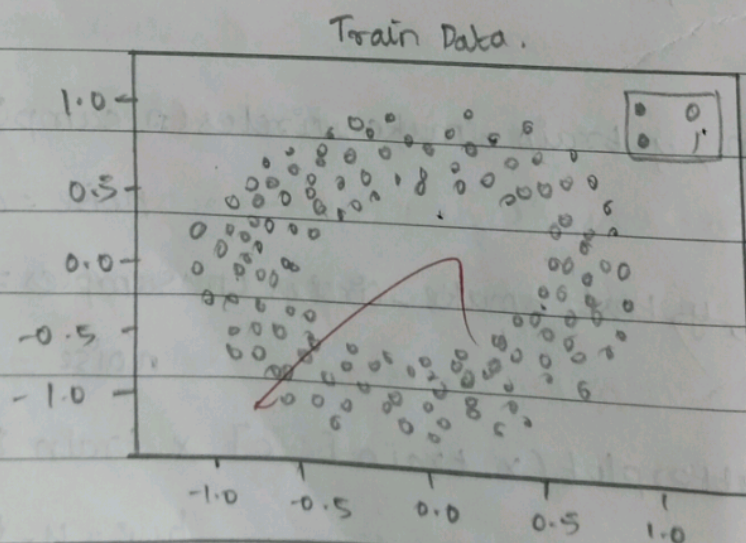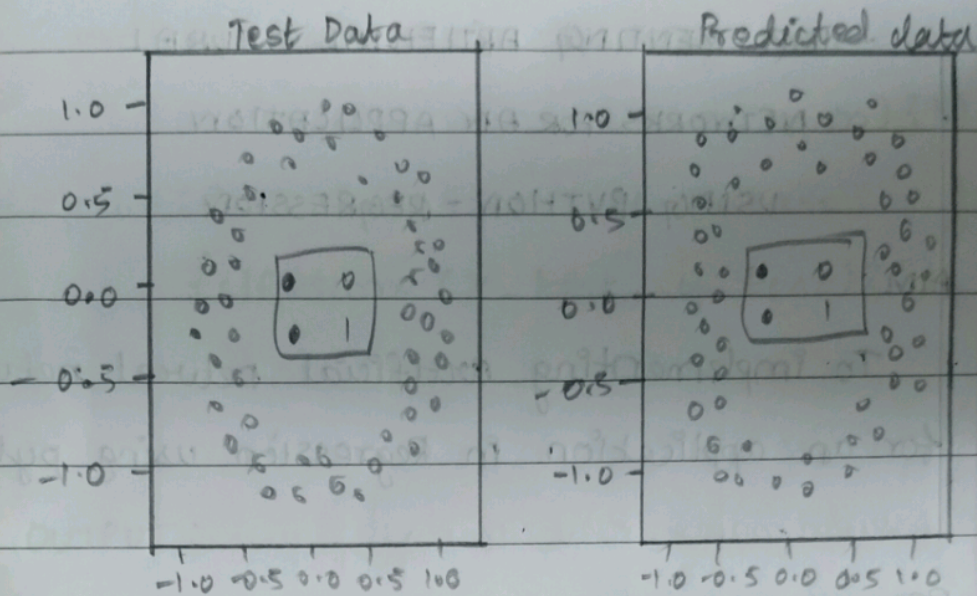
OUTPUT :

RESULT :

      To implement Artificial Neural networks
for an application using python- classification
is observed and the output is verified.