EX: 11

Date:

Implementing artificial neural networks for an application using python - classification

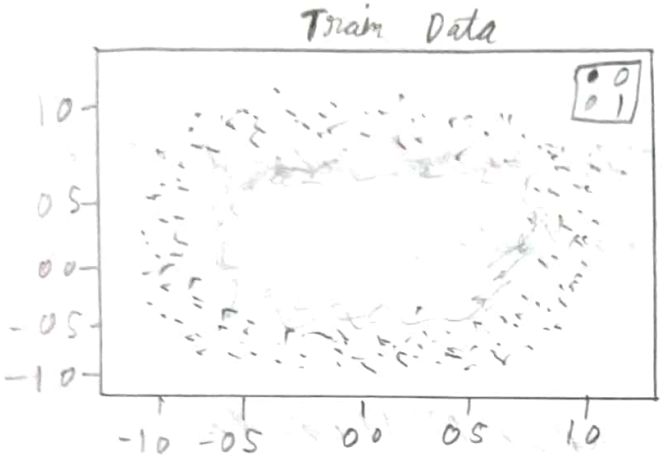
Aim:

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

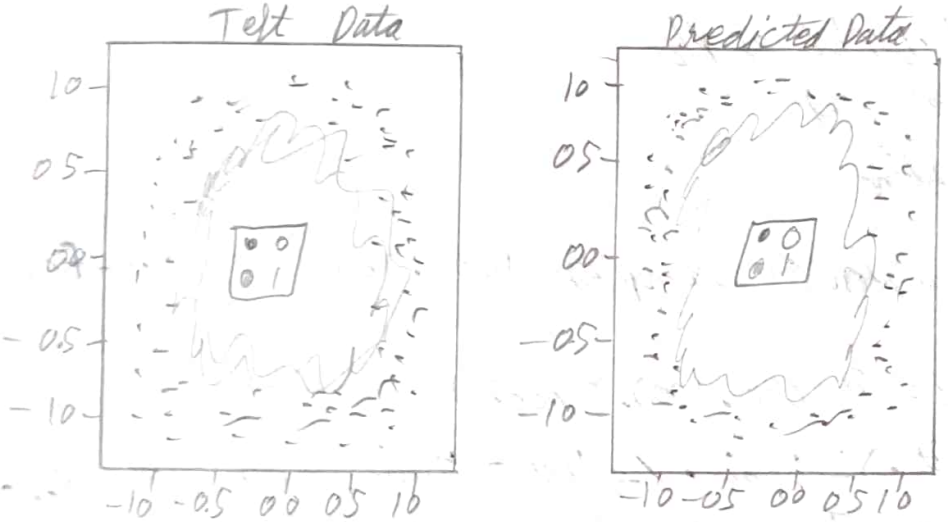
Source code:

```
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[1].title.set_text("Predicted Data")          ax=ax[0])
sns.scatterplot(X_test[:,0], X_test[:,1], hue=y_test,
ax[0].title.set_text("Test Data")              ax=ax[1])
plt.show()
```



Output:



Result:

Thus Program of Artificial Neural Network in classification has been succesfully executed