EX.NO : 10

DATE :

IMPLEMENTING ARTIFICIAL NEURAL NETWORKS FOR AN APPLICATION USING PYTHON - REGRESSION

AIM :

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

CODE :

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

X, y = make_regression(n_samples=1000, noise=0.05, n_features=100)

X.shape, y.shape = ((1000, 100), (1000,))
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, shuffle=True, random_state =42)
clf = MLPRegressor(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)}")
```

OUTPUT :

```
R2 Score for Training Data = 0.9999961211221968
R2 Score for Test Data = 0.9659070140205263
```

RESULT :

thus the program is successfully executed and output is verified