Exp No: 10

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IMPLEMENTING ARTIFICIAL NEURAL NETWORKS FOR AN APPLICATION USING PYTHON -REGRESSION

AIM:

To implement artificial neural networks for an application in regression using Python.

ALGORITHM:

(i) Prepare and split data: load or generate a dataset, then split it into training and test cases.

(ii) Initialize the model and setup - ANN using ML progessing.

(iii) Train the model and fit into training data, allowing it to learn from patterns in data.

(iv) Use R2 score and other metrics to access the performance on the test set.

PROGRAM:

```
from sklearn.neural_network import MLPRegressor
from sklearn.model_selection import train_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_te
                                    -split(
      X, Y, test_size=0.2, shuffle
      =true, random_state=42)
clf = MLP Regressor (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 Test Data = 0.96865584662129
```

RESULT:

Thus, the program is executed successfully and output is verified.