National University of Modern Languages

Artificial Intelligence - Lab

Lab # 12

BSSE - 5 - Morning

Submitted By:

Muhammad Umair - 12093

Submitted To:

Sir Faiq

12.2.1 Implementation of K-NN Regressor

Dataset

The data set contains 3 classes of 50 instances each, where each class refers to a type of iris plant.

Attribute Information:

1. sepal length in cm
2. sepal width in cm
3. petal length in cm
4. petal width in cm
5. class:
-- 1.2 (Iris Setosa)
-- 2.3 (Iris Versicolour)
-- 3.5 (Iris Virginica)

	A	B	C	D	E
1	sepal_length	sepal_width	petal_length	petal_width	species
2	5.1	3.5	1.4	0.2	1.2
3	5.7	2.8	4.1	1.3	2.3
4	6.3	3.3	6	2.5	3.5

Code:

```
print("Muhammad Umair - 12093")


import numpy as np
import pandas as pd
from sklearn.model_selection import train_test_split
from sklearn.preprocessing import StandardScaler


data = pd.read_csv(r'E:\NUML\Semester Data\Semester 5\AI\AI Lab\Python Files\iris_data_2a.csv')
print(data.head())


x = data.drop('species', 'columns')
y = data['species']
x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.20)
```

```
scaler = StandardScaler()
scaler.fit(x_train)
x_train = scaler.transform(x_train)
x_test = scaler.transform(x_test)
# print(x_train)
# print(x_test)

from sklearn.linear_model import LinearRegression
regressor = LinearRegression()
regressor.fit(x_train, y_train)
result = regressor.predict(x_test)
print("Result: \n", result)
from sklearn.metrics import mean_absolute_error, mean_squared_error
print("\nMean absolute error: ", mean_absolute_error(y_test, result))
print("Mean square error: ", mean_squared_error(y_test, result))
print("Mean root square error: ", np.sqrt(mean_squared_error(y_test, result)))
```

Output:

```
PS E:\NUML\Semester Data\Semester 5\AI\AI Lab\Python Files> & C:/Users/muham/Ap
ester 5/AI/AI Lab/Python Files/Lab12_Task01.py"
Muhammad Umair - 12093
   sepal_length  sepal_width  petal_length  petal_width  species
0           5.1          3.5           1.4          0.2        0
1           4.9          3.0           1.4          0.2        0
2           4.7          3.2           1.3          0.2        0
3           4.6          3.1           1.5          0.2        0
4           5.0          3.6           1.4          0.2        0
Result:
 [-0.01563511  1.75653073  1.63573005  1.27342536  1.07033098  1.20172424
  1.92832618  1.64420332 -0.06830869  0.83536416  1.84625412  1.18796086
  1.37497512  1.79839719  1.55061052  1.88126173  2.01103348  0.02382426
  1.33130312 -0.08115359  1.7252318   1.7282392   1.87891728  1.33058194
  1.53951222  0.01313606  2.06511136  0.87608432  1.75260309  0.98758537]

Mean absolute error:  0.18945509650219006
Mean square error:  0.053863018671878524
Mean root square error:  0.23208407673056444
PS E:\NUML\Semester Data\Semester 5\AI\AI Lab\Python Files>
```