CI Assignment - 3 **04-05-2022**

Implementation of Neuro Fuzzy Inference System using Python

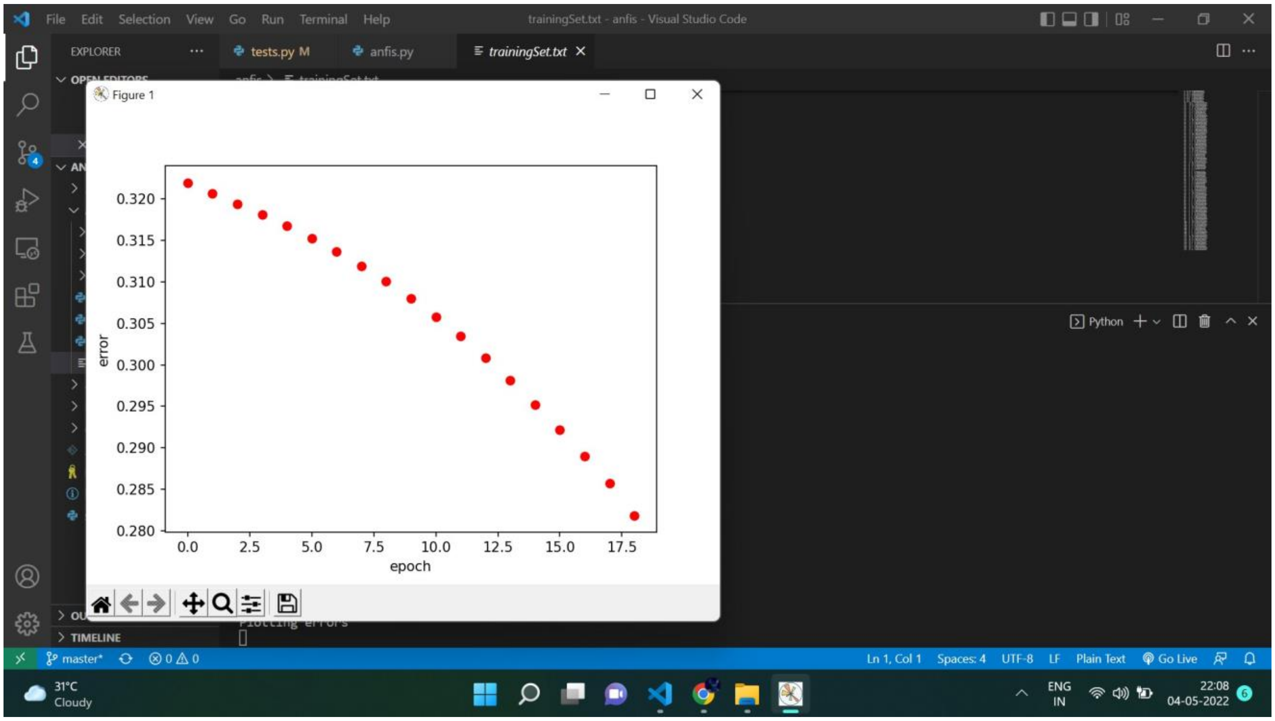
Aim:

To implement a Neuro Fuzzy Inference System using Python.

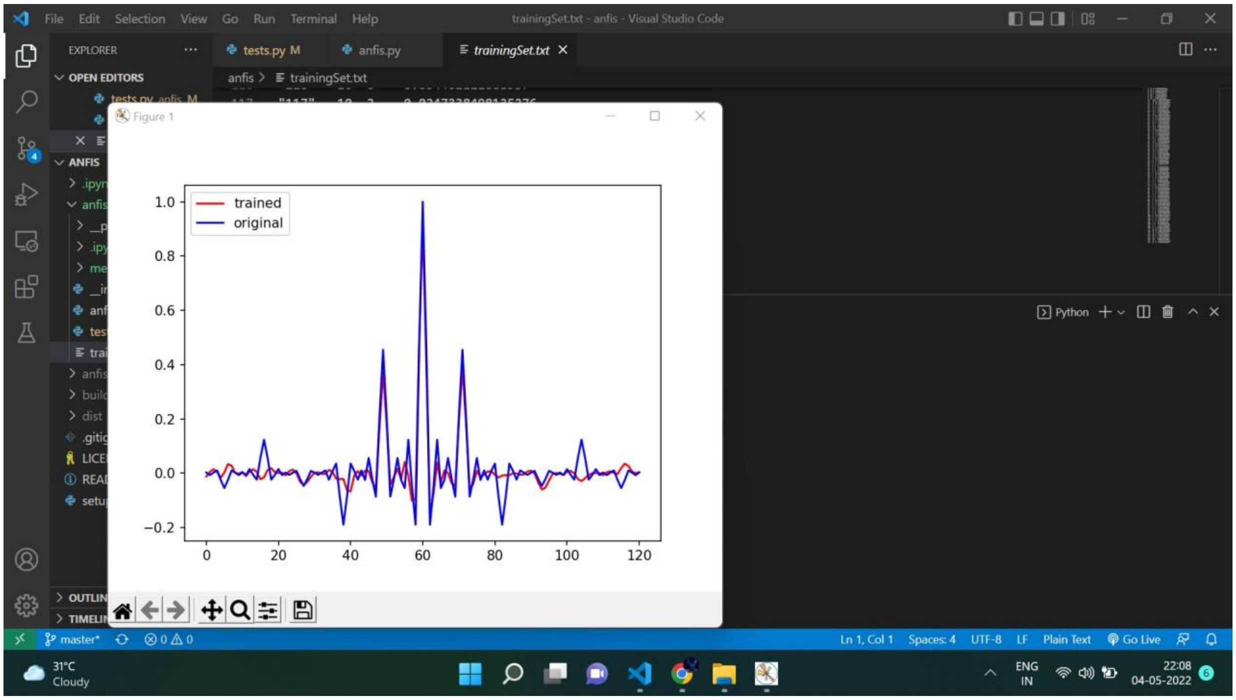
Test Code:

```
import sys
import anfis
import numpy
import membership.mfDerivs
import membership.membershipfunction


# numpy.loadtxt('c:\\Python_fiddling\\myProject\\MF\\trainingSet.txt',usecols=[1,2,3])
ts = numpy.loadtxt("trainingSet.txt", usecols=[1, 2, 3])
X = ts[:, 0:2]
Y = ts[:, 2]

mf = [[['gaussmf',{'mean':0.,'sigma':1.}],['gaussmf',{'mean':-1.,'sigma':2.}],
['gaussmf',{'mean':-4.,'sigma':10.}],['gaussmf',{'mean':-7.,'sigma':7.}]],
      [['gaussmf',{'mean':1.,'sigma':2.}],['gaussmf',{'mean':2.,'sigma':3.}],
['gaussmf',{'mean':-2.,'sigma':10.}],['gaussmf',{'mean':-10.5,'sigma':5.}]]]


mfc = membership.membershipfunction.MemFuncs(mf)
anf = anfis.ANFIS(X, Y, mfc)
anf.trainHybridJangOffLine(epochs=20)
print(round(anf.consequents[-1][0],6))
print(round(anf.consequents[-2][0], 6))
print(round(anf.fittedValues[9][0], 6))
if round(anf.consequents[-1][0],6) == -5.275538 and round(anf.consequents[-2][0],6) ==
-1.990703 and round(anf.fittedValues[9][0],6) == 0.002249:
    print('test is good')

print("Plotting errors")
anf.plotErrors()
print("Plotting results")
anf.plotResults()
```

Output



```
Plotting errors
```



Result

Thus the Neuro Fuzzy Inference System has been implemented using Python.