import numpy as np

from numpy import \*

import math

import matplotlib.pyplot as plt

from scipy.interpolate import UnivariateSpline

import sympy as sp

x = [0.1, 0.15, 0.2, 0,3, 0.4, 0.5, 0.6, 0.7, 0.47, 0.5]

y = []

XX=0

YY=0

XX2=0

XY=0

a1=0

a0=0

i=0

while i<len(x):

y.append(sp.sin(5\*x[i]))

i+=1

i=0

while i<(len(x)-1):

XX+=x[i]

YY+=y[i]

XX2+=(x[i])\*\*2

XY+=x[i]\*y[i]

i+=1

XX/=len(x)

YY/=len(x)

XX2/=len(x)

XY/=len(x)

print ("X avg---",XX, "Y avg---",YY, "XY ---",XY, "XX\*\*2 ---",XX2)

a1=XY-XX\*YY/XX2-XX\*\*2

a0=YY-a1\*XX

print ("A1 --- ",a1, "A0 --- ",a0)

def F(a1, a0):

f=a0-a1

print ("F-", f)

return f

xs = linspace(0, 4.5, 1000)

plt.plot(F(a1,a0), 'ro', xs)

plt.title('LB\_12 Ihor Uchiha')

plt.legend(loc='upper left')

plt.xlabel('x')

plt.ylabel('y')

plt.grid()

plt.show()