import numpy as np

import math

n=int(input("Enter number of readings"))

t=list(map(float,input("Enter time at which voltage is recorded(msec)").split()))

Vc=list(map(float,input("Enter the voltgae across capacitor(volts)").split()))

t1=np.array(t)

Vc1=np.array(Vc)

 # Process

Sx=sum(t1); Sx2=sum(t1\*\*2); Sx3=sum(t1\*\*3); Sx4=sum(t1\*\*4);

Sy=sum(Vc1); Sxy=sum(t1\*Vc1); Sx2y=sum(t1\*t1\*Vc1)

X=[[Sx2, Sx, n],

[Sx3, Sx2, Sx],

[Sx4, Sx3, Sx2]]

Y=[[Sy], [Sxy], [Sx2y]]

Cof=np.dot(np.linalg.inv(X),Y)

print(Cof)

#print("The best fit equation is Vc="+"{:0.3f}".format(Cof[0,0]),"t^2+"+"{:0.3f}".format(Cof[1,0]),"t+"+"{:0.3f}".format(Cof[2,0]))

print(Cof[0,0], "t^2", "+", Cof[1,0],"t","+",Cof[2,0])

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