import matplotlib.pyplot as plt

import numpy as np

def scale (OldMax, OldMin, NewMax, NewMin, OldValue):

OldRange = (OldMax - OldMin)

NewRange = (NewMax - NewMin)

NewValue = (((OldValue - OldMin) \* NewRange) / OldRange) + NewMin

return NewValue

file = open("Test5.TXT")

array = file.readlines()

x = np.array([])

y = np.array([])

z = np.array([])

t = np.array([])

tdata = array[len(array)-4:len(array)]

array = array[0:len(array)-4]

track = 1

nump = abs(int(tdata[1].replace("\n","")))

milli = int(tdata[3].replace("\n",""))

length = 0

for p in array:

try:

if track == 1:

length += 1

val = scale(675, 0, 3, -3, float(p))

val = (val+.115)\*(1.680672)

x = np.append(x, val)

elif track == 2:

val = scale(675, 0, 3, -3, float(p))

val = (val - .033) \* (1.618123)

y = np.append(y, val)

elif track == 3:

val = scale(675, 0, 3, -3, float(p))

val = (val + .0645) \* (1.61943)

z = np.append(z, val)

track +=1

if track == 4:

track = 1

except:

next

div = milli/length

for i in range(length):

t = np.append(t,[(div\*i)/1000])

print(len(t))

print(len(y))

plt.plot(t, y)

plt.title("y readings")

plt.xlabel("Time (seconds)", fontdict=None, labelpad=None)

plt.ylabel("Acceleration (g)", fontdict=None, labelpad=None)

plt.savefig("y readings")

plt.close()

plt.plot(t, z)

plt.title("z readings")

plt.xlabel("seconds", fontdict=None, labelpad=None)

plt.ylabel("Acceleration (g)", fontdict=None, labelpad=None)

plt.savefig("z readings")

plt.close()

plt.plot(t, x)

plt.title("x readings")

plt.xlabel("seconds", fontdict=None, labelpad=None)

plt.ylabel("Acceleration (g)", fontdict=None, labelpad=None)

plt.savefig("x readings")

plt.close()