```
import numpy as np
import csv
import pandas as pd
from matplotlib import pyplot
from scipy.interpolate import interp1d
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m1 = np.matrix([[1,2],[3,4]])

m2 = np.matrix([[1],[2]])

m3 = m1.dot(m2)

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lst = pd.read_csv("sample.csv").values
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print lst

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S = lst[:,1] + lst[:,2] + lst[:,3]
X = lst[:,1] / S
Y = lst[:,2] / S
Z = lst[:,3] / S

X_max = sum(X)
Y_max = sum(Y)
Z_max = sum(Z)
S_max = X_max + Y_max + Z_max
Xp = X_max / S_max
Yp = Y_max / S_max
Zp = Z_max / S_max

print Z
```

M0 = [[0.4898, 0.3101, 0.2001],[0.1769, 0.8124, 0.0107],[0.0000, 0.0100, 0.9903]]

M1 = np.linalg.inv(M0)

print M1

Col_list = []

for i in range(len(X)):

[R,G,B] = M1.dot([X[i],Y[i],Z[i]])

Col_list.append([R,G,B])

for i in range(len(X)):
pyplot.plot(X[i],Y[i],'o',c=(X[i], Y[i], Z[i]))

f1 = interp1d(X, Y, kind='cubic')
y1 = f1(X)
pyplot.plot(X, y1, "r")

print y1

s1 = 0.15958146
t1 = 0.0158926119617

s2 = 0.723291748157
t2 = 0.27670825

a = abs(t2 -t1)/abs(s2-s1)
b = t1 - (a * s1)

x_lin = np.linspace(s1,s2,len(X))
y_lin = np.linspace(t1,t2,len(X))
pyplot.plot(x_lin,y_lin,'o')

```
for i in range(len(X)):

lin1 = np.linspace(X[i], Xp, len(X))

lin2 = np.linspace(Y[i], Yp, len(Y))

lin3 = np.linspace(Z[i], Zp, len(Z))

for j in range(len(lin1)):

pyplot.plot(lin1[j], lin2[j], 'x', c = (lin1[j], lin2[j], lin3[j]))

#

for i in range(len(X)):

lin1 = np.linspace(x_lin[i], Xp, len(X))

lin2 = np.linspace(y_lin[i], Yp, len(Y))

for j in range(len(lin1)):

pyplot.plot(lin1[j], lin2[j], 'x', c = (lin1[j],
```

lin2[j],))

#

pyplot.show()