Write a python program to implement multiple Linear Regression for a given dataset

import matplotlib.pyplot as plt

import numpy as np

from sklearn import datasets, linear\_model, metrics

# load the boston dataset

boston = datasets.load\_boston(return\_X\_y=False)

# defining feature matrix(X) and response vector(y)

X = boston.data

y = boston.target

# splitting X and y into training and testing sets

from sklearn.model\_selection import train\_test\_split

X\_train, X\_test, y\_train, y\_test = train\_test\_split(X, y, test\_size=0.4,

random\_state=1)

# create linear regression object

reg = linear\_model.LinearRegression()

# train the model using the training sets

reg.fit(X\_train, y\_train)

# regression coefficients

print('Coefficients: ', reg.coef\_)

# variance score: 1 means perfect prediction

print('Variance score: {}'.format(reg.score(X\_test, y\_test)))

# plot for residual error

## setting plot style

plt.style.use('fivethirtyeight')

## plotting residual errors in training data

plt.scatter(reg.predict(X\_train), reg.predict(X\_train) - y\_train,

color = "green", s = 10, label = 'Train data')

## plotting residual errors in test data

plt.scatter(reg.predict(X\_test), reg.predict(X\_test) - y\_test,

color = "blue", s = 10, label = 'Test data')

## plotting line for zero residual error

plt.hlines(y = 0, xmin = 0, xmax = 50, linewidth = 2)

## plotting legend

plt.legend(loc = 'upper right')

## plot title

plt.title("Residual errors")

## method call for showing the plot

plt.show()