Experiment – 4

import numpy as np

import matplotlib.pyplot as plt

def estimate\_coef(x, y):

n = np.size(x)

m\_x = np.mean(x)

m\_y = np.mean(y)

SS\_xy = np.sum(y\*x) - n\*m\_y\*m\_x

SS\_xx = np.sum(x\*x) - n\*m\_x\*m\_x

b\_1 = SS\_xy / SS\_xx

b\_0 = m\_y - b\_1\*m\_x

return (b\_0, b\_1)

def plot\_regression\_line(x, y, b):

plt.scatter(x, y, color = "r",

marker = "o", s = 30)

y\_pred = b[0] + b[1]\*x

plt.plot(x, y\_pred, color = "b")

plt.xlabel('x')

plt.ylabel('y')

plt.show()

def main():

x = np.array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])

y = np.array([1, 3, 2, 5, 7, 8, 8, 9, 10, 12])

b = estimate\_coef(x, y)

print("Estimated coefficients:\nb\_0 = {} \

\nb\_1 = {}".format(b[0], b[1]))

plot\_regression\_line(x, y, b)

if \_\_name\_\_ == "\_\_main\_\_":

main()

