WEEK-3 (PART-1)

```
import numpy as np
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 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 coeffiecents:\nb_0 = {}\nb_1={}".format(b[0],b[1]))
main()
```

```
Estimated coeffiecents:
b_0 = 1.2363636363636363
b_1=1.1696969696969697
```

```
import numpy as np
import matplotlib.pyplot as plt
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)
def plot_regression_line(x,y,b):
    plt.scatter(x,y,color="m",marker = "o",s=30)
    y_pred=b[0]+b[1]*x
    plt.plot(x,y_pred,color='g')
    plt.xlabel("x")
    plt.ylabel("y")
plot_regression_line(x,y,b)
```