* **Simple Linear Regression Implementation using Python Programming :**

**CODE :**

import numpy as np

import matplotlib.pyplot as plt

# Main part of the model

X = np.array([1, 2, 3, 4, 5])

Y = np.array([2, 4, 5, 4, 5])

# Preprocessing and displaying Input data

plt.scatter(X, Y)

plt.show()

n = np.size(X)

m = ((n\*sum(X\*Y)) - (sum(X)\*sum(Y))) / ((n\*sum(X\*X)) - (sum(X)\*sum(X)))

c = ((sum(Y)\*sum(X\*X)) - (sum(X)\*sum(X\*Y))) / ((n\*sum(X\*X)) - (sum(X)\*sum(X)))

print("Slope(m) is = ", m )

print("Intercept(c) is = ", c)

# predicting

Y\_pred = m\*X + c

plt.scatter(X, Y) # actual (DATA)

# plt.scatter(X, Y\_pred, color='red')

plt.plot([min(X), max(X)], [min(Y\_pred), max(Y\_pred)], *color*='red') # Predicted Values

plt.show()

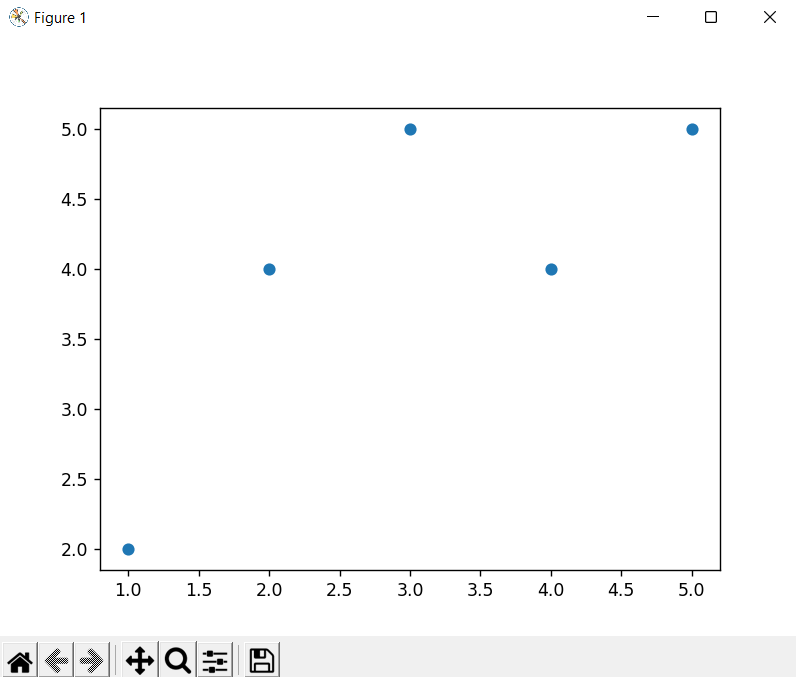
error = Y-Y\_pred

print(error)

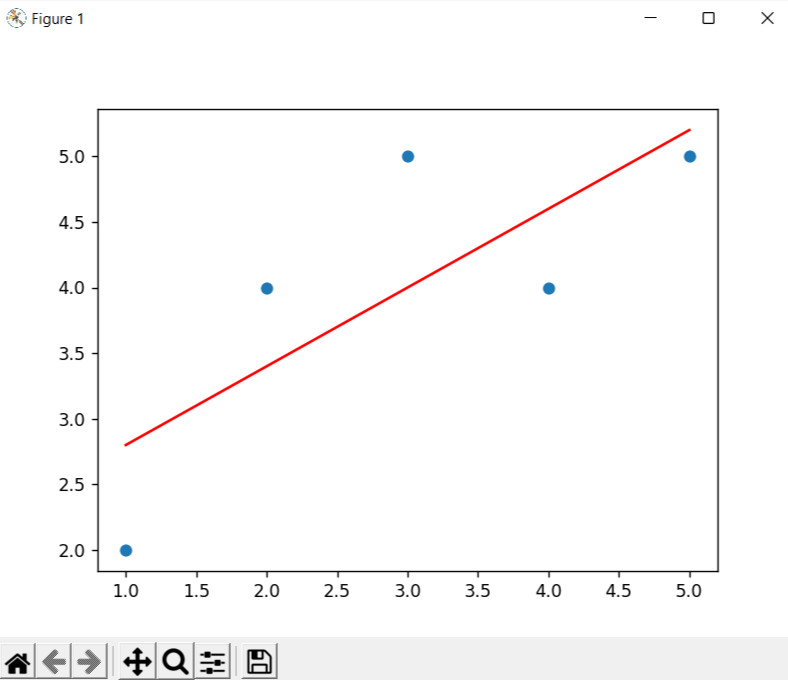
sq\_er = error\*error

print(sq\_er)

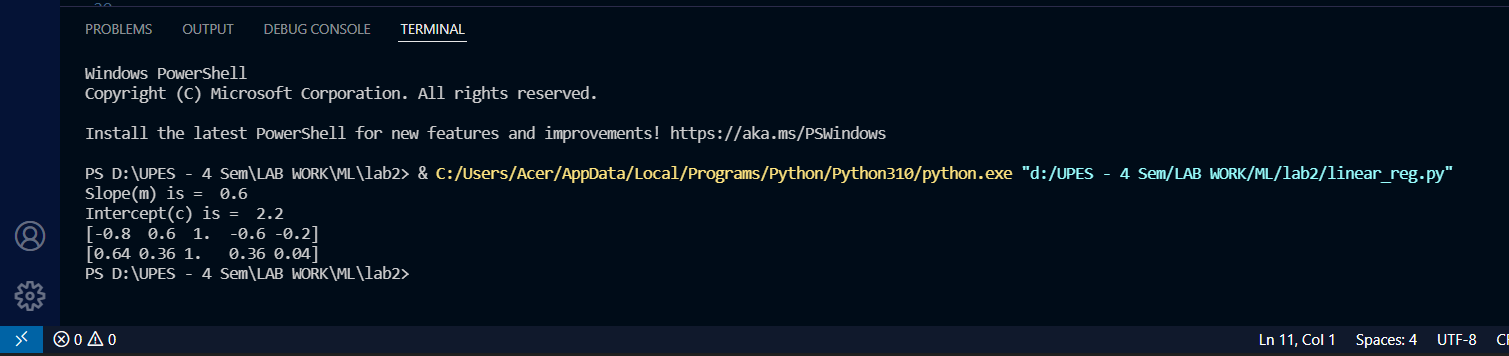
**{INPUT DATA PLOTTED}**

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**{FINAL RESULT - Regression Line}**

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**OUTPUT :**

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