**Machine Learning Lab**

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**Batch- 2**

**Experiment- 5**

**Implementation of Simple Linear Regression using Python (Without using Library)**

**Syntax:**

def simple\_linear\_regression(x, y):

mean\_x = sum(x) / len(x)

mean\_y = sum(y) / len(y)

deviation\_x = [xi - mean\_x for xi in x]

deviation\_y = [yi - mean\_y for yi in y]

slope = sum([xi\*yi for xi, yi in zip(deviation\_x, deviation\_y)]) / sum([xi\*\*2 for xi in deviation\_x])

intercept = mean\_y - slope \* mean\_x

y\_pred = [slope\*xi + intercept for xi in x]

return slope, intercept, y\_pred

x = [1, 2, 3, 4, 5]

y = [2, 4, 5, 4, 5]

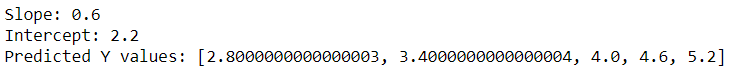
slope, intercept, y\_pred = simple\_linear\_regression(x, y)

print("Slope:", slope)

print("Intercept:", intercept)

print("Predicted Y values:", y\_pred)

**Output:**

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