

Laboratory Activity 1

Actual Code in Python:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

if __name__ == '__main__':

    df = pd.read_csv('ML_Activity1.csv')
    x_df = df.loc[:, "X"]
    y_df = df.loc[:, 'Y']
    n = np.size(x_df)

    # Getting the x and y mean
    y_mean = np.mean(y_df)
    x_mean = np.mean(x_df)

    # Getting the slope and y intercept
    sum_xy = np.sum(x_df * y_df) - n * x_mean * y_mean
    sum_xx = np.sum(x_df * x_df) - n * x_mean * x_mean

    # Getting the slope and y intercept
    m = sum_xy / sum_xx # This is slope
    b = y_mean - m * x_mean # This is the y intercept

    print("Number of dataset: " + str(n))
    print("The x mean: " + str(x_mean))
    print("The y mean: " + str(y_mean))
    print("The slope: " + str(m))
    print("The y intercept: " + str(b))

    y_preb = m * x_df + b
    plt.title('Historical Data')
    plt.scatter(x_df, y_df, color='blue')
    plt.plot(x_df, y_preb, color='red')
    plt.xlabel('Independent variable X')
    plt.ylabel('Dependent Variable Y')
    plt.show()
```

Actual Run:

