1(b): Linear Regression using Gradient Descent Method

Steps:

1) Load the require libraries.
2) Import the dataset
3) Preprocess the dataset
4) Seperate the datset into independent and dependent variable
5) Split the dataset into train and test data with your desired ratio.
6) Manual Method:
   (a) Define the learning rate and number of iterations.
   (b) Perform Gradient Descent Method over training dataset as:
      (i) Initialize the parameters m and c with random values.
      (ii) Iterate for each.

$$y\_pred = m * X\_train + c$$

$$D\_m = [-2/len(X\_train)] * \Sigma[X\_train * (Y\_train - Y\_pred)$$

$$D\_c = [-2/len(X\_train)] * \Sigma(Y\_train - y\_pred).$$

$$m = m - (learningrate * D\_m$$

$$c = c - (learning\ rate * D\_c$$

   (c) Predict
   (d) Calculate RMS and R2

7) Scikit-Learn Method
   a) Load the S.G.D Regression() Method.
   b) Train, Predict, Calculate RMS and R2

8) Compare both the Results
9) Plot the line of Regression for both Methods