Assignment 1: Linear Regression

1(a): Linear Regression with Least Square Method.

Steps:

1) Load the required libraries
2) Import the dataset.
3) Preprocess the dataset (Remove null or missing values)
4) Seperate the dataset into dependent and independent variables, Y and Z respectively
5) Split the dataset into train and test data with your desired ratio
6) Manual Method
   a) Calculate the mean value of test and train dataset
   b) Calculate the least square.

```
for each row of train data
    num += (X_train[i] - X_train_mean) *
           (Y_train[i] - Y_tain_mean)
    den += (X_train[i] - X_train_mean)^2
```

   c) Calculate the slope and intersection

```
m = num/den
c = Y_train_mean - (m * X_train_mean)
```

   d) Predict the value of Y for each X of test dataset as

```
Y_pred = m * X_test + C
```

   e) Calculate the RMS and R2 score taking predicted and actual values of Y as parameter
7) Scikit-learn method:
   a) Load, Train and predict using inbuilt functions
   b) Calculate RMS and R2 score
8) Compare the results of Both Methods
9) Plot the line of Regression for both methods saperately.