

## Experiment 5

The aim of this experiment is to implement Linear Regression using first principles in Python. The algorithm will be used to predict house price using distance from metro station. Implement the following steps in Python.

1. Read the file 'realestatedataset.xlsx' using read\_excel() in pandas.
2. Scale the features using StandardScalar() in sklearn.
3. Split the dataset into train and test sets.
4. Develop a Linear Regression Model using Gradient Descent Algorithm.
5. Evaluate training error and optimal parameters.
6. Draw the scatter plot and optimal regression line obtained in previous steps.
7. Draw the loss plot (Loss v/s parameters) and observe the trajectory in which Gradient Descent learns the parameters.
8. Repeat Steps 4-7 using Stochastic Gradient Descent Algorithm.