To test and train our model MNIST (Mixed National Institute of Standards and Technology database)

Dataset is being used. MNIST dataset contains 70000 images of numbers ranging from 0 to 9. It was developed by Yann LeCun, Corinna Cortes and Christopher Burges for evaluating machine learning models. Each image is 28 pixels in height and 28 pixels in width, for a total of 784 pixels in total. Each pixel has a single pixel-value associated with it, indicating the lightness or darkness of that pixel, with higher numbers meaning darker. This pixel-value is an integer between 0 and 255, inclusive.

The data set is preprocessed using sklearn’s MinMaxScaler function in the preprocessing module which scales down the features to a range of values between 0 and 1. The scaling helps in creating a very small standard deviation between features and existing zero entries in a sparse data.

The formula used to scale the values is:

Where min and max are the range of feature values and X\_scaled is the new feature value generate from the function.