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. For our implementation, the MNIST dataset was split into training dataset and testing dataset. 63000 entries were used for training dataset and the remaining 7000 entries were used for testing dataset

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.