Deep Learning Assignment 2

# In your own words please describe Gradient Descent and Stochastic Gradient Descent

Gradient descent can be described as a method to find out the lowest value for a particular function. In it a random point is first taken into consideration. The gradient at the point is evaluated and then the direction where the slope decreases is taken into consideration and a point further along the slope is taken into consideration and its slope is checked. In this way the value is improved upon little by little until we finally come upon a local minima. However the global minima is what is required many a time. In order to solve this conundrum, multiple initial points are taken into consideration and the lowest value is taken.

In gradient descent, when calculating the new values for the coefficients, all the data points in the dataset are taken into consideration. However, if the dataset is extremely huge, the computational complexity will go up by a huge amount. However, if only one data point is taken into consideration, the computational complexity is reduced by a huge factor. This is what is done in stochastic gradient descent. The data point is randomly chosen.