For our group to find the best parameters (S, D, L, M) suited for the data after all of the hardship, with many hours of coding, statistics, “research “(borderline almost unable to understand coding algorithm YouTube video), and many more reference. We come up with a way to find the very best of parameter which is to do Gradient Descent. The reason we pick it is that it’s the best for us to find the best fitted data for the graph we were given. Even if there is a possible chance that the learning rate, we given it can be bad due to the possible skills required to do so, but it’s a good bet for us to do it.

Since we decide to use Gradient Descent for projecting the parameters. We create all the necessary parameter need in order to do so. Then we start to train the model right away. Each time the model is train with different learning rate, we curve fit it all through iterations, propagate the error by partial derivatives, and then store the lowest MSE model for each different learning rates down. Then update the parameters each time for a total of 5 (0,1,2,3,4) time. When we update the parameter, that is when we used the formular for gradient descent.

$$X = X - lr * \frac{d}{dX} f(X)$$

$$\begin{aligned} &Where, \\ &X \quad = input \\ &F(X) = output \ \ based \ on \ X \\ &lr \quad = learning \ rate \end{aligned}$$

(https://towardsai.net/p/machine-learning/gradient-descent-algorithm-explained)

With all of it combined, we will make a graph best fitted for the given data. Which is to predict future day and projection of the past day to fix the Curve of Sigmund Function.