

Modeling a converter (celcius to fahrenheit)

Ranjithkumar B

April 23, 2024

1 Problem definition

Modeling a converter with the help of single neuron, with the training data in ??.

S.no	$^{\circ}C$	F
1	5	41
2	7	44.6
3	15	59
4	20	68
5	25	77

Table 1: Traning data

2 Solution Methodology

1. The $^{\circ}CtoF$ formula

$$F = \frac{9}{5} C + 32 \quad (1)$$

2. First the two unknowns are here is weight and bias in this equation.
3. Initially randomly assumed the w and b value. with that random value the redicted F was found.
4. The Loss is the $(F - F_{pred})^2$.
5. The reason of the square is the making the all the loss value into positive. it is eassier to optimize.
6. The next diffrentiating the Loss with respect to corresponding variables we want.
7. New weight amd bias values are

$$w_{new} = w_{old} - \alpha \frac{dL}{dw} \quad (2)$$

$$b_{new} = b_{old} - \alpha \frac{dL}{db} \quad (3)$$

8. α is called learning rate

¹The final results are in the image folder