

# Assignment - 5:

18KAI1304P6

2 → samples

$x$	$y$
0.2	2.4
0.4	2.8

Step-1:  $m = 1, c = 0.1, \eta = 0.1, epochs = 2, b = 2$

Step-2: no. of batches =  $\frac{2}{2} = 1(b_b)$

Step-3:  $iter = 1$

Step-4: batch = 1

Step-5:  $\frac{\partial E}{\partial m} = -(y_i - mx_i - c)x_i = -0.84$

$$\frac{\partial E}{\partial c} = -(y_i - mx_i - c) = -4.2$$

Step-6:  $\Delta m = -\eta \cdot \frac{\partial E}{\partial m} = 0.084$

$$\Delta c = -\eta \cdot \frac{\partial E}{\partial c} = 0.42$$

Step-7:  $m = m + \Delta m = 1.084$

$$c = c + \Delta c = -0.58$$

Step-8: batch =  $b + 1 = 2$

Step-9:  $(2 > 1) \checkmark$  next step

Step-10:  $iter = iter + 1 = 2$

$$2 > 2 (x)$$

Step-4: batch = 1

Step-5:  $\frac{\partial E}{\partial m} = (y_i - mx_i - c)x_i = -0.75264$

$$\frac{\partial E}{\partial c} = -3.7632$$

step-6:  $\Delta m = -\eta \cdot \frac{\partial L}{\partial m} = - (0.1) \times (-0.7564) = 0.07564$

$$\Delta c = - (0.1) (-7.7632) = 0.77632$$

step-7:  $m = m + \Delta m = 1.159$

$$c = c + \Delta c = -0.203$$

step-8:  $b = b + 1 = 2$

step-9:  $2 > 1 (\checkmark)$  -> next step

step-10:  $iter = iter + 1 = 2 + 1 = 3 > 2 (\checkmark)$   
goto next step

step-11: print m, c.

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