

Day-1 (X)

5551.82208

4983.17184

Day-2 (Y)

4931.26380

4775.53968

Step 1: Read dataset, $\eta = 0.1$, epochs = 2, $m = 1$, $c = -1$, $\beta = 0.9$,
 $V_m = 0$ and $V_c = 0$

Step 2: Set iteration = 1

Step 3: Set sample $i = 1$

Step 4: $y = (1)(5551.82208) - 1 = 5550.82208$

Step 5: $\frac{\partial E}{\partial m} = - \left(\frac{5550.82208 - 1(5551.82208) + 1}{4931.26380} \right) 5551.82208$

$$\frac{\partial E}{\partial m} = 3439677.338750$$

$$\frac{\partial E}{\partial c} = - \left(4931.26380 - 1(5551.82208) + 1 \right)$$

$$\frac{\partial E}{\partial c} = 619.55828$$

Step 6: $V_m = 0.9(0) - (0.1)(3439677.333750)$

$$V_m = -343967.733875$$

$$V_c = 0.9(0) - (0.1)(619.55829)$$

$$V_c = -61.95583$$

Step 7: $m = 1 + (-343967.733875) = -343966.733875$

$$c = -1 + (-61.95583) = -62.95583$$

Step 8: sample $i = i + 1 = 2$

Step 9: $Y = (-343966.734)(4983.17184) + (-62.95583)$

$$Y = -1714045405.72$$

Step 10: $\frac{\partial E}{\partial m} = - \left(\left(\overset{4775.53968}{\cancel{-1714045405.72}} - (-343966.734) \right) (4983.17184) - (-62.95583) \right) (4983.17184)$

$$\frac{\partial E}{\partial m} = - (4775.53968 + 1714045405.72) (4983.17184)$$

$$\frac{\partial E}{\partial m} = -8541406595607.112$$

$$\frac{\partial E}{\partial c} = -1714050181.261$$

Step 11: $V_m = 0.9(-343967.734) - (0.1)(-8541406595607.112)$

$$V_m = -854140969131.67$$

$$V_c = 0.9(-\cancel{61.95583}) - (0.1)(-1714050181.261)$$

$$V_c = -171405073.88634$$

Step 12:

$$m = -343966.734 - 854140969131.67$$

$$m = -854141313098.4$$

$$c = -62.95583$$

Step 13:

$$\text{Iteration} + 1 = 2, \text{ Sample} = 1$$

Step 14:

$$Y = (-854141313098.4)(5551.82208) + (-62.95583)$$

$$Y = -4.7420406014E15$$

Step 15:

$$\frac{\partial E}{\partial m} = - \frac{(4931.26380 + 4.7420406014E15)}{(5551.82208)}$$

$$= -2.63269657156E19$$

$$\frac{\partial E}{\partial c} = -4.74204060150E15$$

Step 16:

$$V_m = (0.9)(-854140969131.67) - (0.1)(-2.63269657156E19)$$

$$= 2.6326958e18$$

$$V_c = (0.9)(-171405073.88634) - (0.1)(-4.74204060150E15)$$

$$= 4.74203906E14$$

Step 17 :

$$m = -554141313096 \cdot 4 + 2 \cdot 6326958E18$$

$$= 2 \cdot 63269495E18$$

$$c = -62 \cdot 95583 + 4 \cdot 74203906E14$$

$$= 4 \cdot 74203906E14$$

Step 18 :

$$\text{sample} = i+1 = 2$$

Step 19 :

$$y = (2 \cdot 63269495E18)(4983 \cdot 17184) + 4 \cdot 74203906E14$$

$$y = 1 \cdot 31191718E22$$

Step 20 :

$$\frac{\partial E}{\partial m} = - \left((4775 \cdot 53968 - (2 \cdot 63269495E18)(4983 \cdot 17184) - 474203906E14) \right)$$

$$(4983 \cdot 17184)$$

$$= - (4775 \cdot 53968 - 1 \cdot 31191718E22) (4983 \cdot 17184)$$

$$= -6 \cdot 53750875E25$$

$$\frac{\partial E}{\partial c} = - (4775 \cdot 53968 - 1 \cdot 31191718E22)$$

$$= -1 \cdot 31191718E22$$

Step 21 :

$$V_m = (0 \cdot 9)(2 \cdot 6326958E18) - (0 \cdot 1)(-6 \cdot 53750875E25)$$

$$= 6 \cdot 53751112E24$$

$$V_c = (0 \cdot 9)(4 \cdot 74203906E14) - (0 \cdot 1)(-1 \cdot 31191718E22)$$

$$= 1 \cdot 31191761E21$$

Step 22:

$$m = 2.63269495115 + 6.53751112124$$

$$\boxed{m = 6.53751375124}$$

$$c = 4.7420390614 + 1.31191761121$$

$$\boxed{c = 1.31191808E21}$$