Assignment - 8(A)

8(A)

Day 1 (x)	Day 2 (Y)
5554.82208	4983.17184
4983.17184	4888.3968

Step 1 $\gamma = 0.9$ epochs = 1 $c = -1$

$\eta = 0.1$ $m = 1$

$\Delta v_0^c = 0$ $v_0^c = 0$

Step 2 iteration = 1

Step 3 sample = 1

Step 4 $\left.\frac{\partial L}{\partial m}\right|_{m = m_0 + \gamma \Delta v_0^m} = -(y_i^a - (m_0 + \gamma v_0^m) x_i^a -$

$(c_0 + \gamma v_0^c)] x_i^a$

$= -[4983.17184 - (1 + 0.9)(0))$

$(5551.82208) - (-1 + (0.9)(0)]$

(5551.82208)

$= 3151493.136$

Step 5 $\left.\frac{\partial L}{\partial c}\right|_{c = c_0 + \gamma v_0} =$

$$= -\left(y_i^a - (m_0 + \delta v_0^m) x_i^a - (c_0 + \delta v_0^c)\right)$$

$$= -(4983.17184 - (1 + (0.9)(0))$$
$$(5551.82208) - (-1 + (0.9)(0))]$$

$$= 567.65024$$

Step-5 $\Delta m = \delta v_0^m - \eta \frac{\partial L}{\partial m} (m_0 + \delta v_{\epsilon-1})$

$$= (0.9)(0) - (0.1)(3151493.136)$$

$$= -315149.3136$$

$$\Delta c = \delta v_0^c - \eta \frac{\partial L}{\partial c} (c_0 + \delta v_0^c)$$

$$= (0.9)(0) - (0.1)(567.65024)$$

$$= -56.765024$$

Step-6 $m = m_0 + \Delta m$

$$= 1 + (-315149.3136)$$

$$= -315148.3136$$

$$c = c_0 + \Delta c$$

$$= -1 + (-56.765024)$$

$$= -57.765024.$$

Step-7 Sample

$$i = i + 1 = 2.$$

2 < epochs

goto step-4

Step-4 $\frac{\partial L}{\partial m} = -[4888.3968 - (-315148.3136 + (0.9)(0))(4983.17184) - (-57.765024 + (0.9)(0)](4483.17184)$.

$= -7.8257 \times 10^{12}$

$\frac{\partial L}{\partial c} = -[4888.3968 - (-315148.3136 + (0.9)(0)) - (-57.765024 + (0.9)(0))]$

$= -1570443148$.

Step-5 $\Delta m = (0.9)(0) - (0.1)(-7.8257 \times 10^{12})$

$= 7.8257 \times 10^{11}$

$\Delta c = (0.9)(0) - (0.1)(-1570443148)$

$= 1570443148.8$

Step-6 $m = m_0 + \Delta m$

$= -315148.3136 + 7.8257 \times 10^{11}$

$= 7.82569849 \times 10^{11}$

$c = -57.765024 + 1570443148.8$

$= 1570442571$