18K41A04B4

Assignment-15

step 1 : [x, y] , $\eta = 0.1$, epochs = 2, $m = 1$, $c = -1$,

$\gamma = 0.9$, $\epsilon_m = \epsilon_c = 0$, $\varepsilon = 10^{-8}$

step 2 : iter = 1

step 3 : sample = 1

step 4 : $g_m = -(3.4 - (1)(0.2) + 1)(0.2) = -0.84$

$g_c = -(3.4 - (1)(0.2) + 1) = -4.2$

step 5 : $\epsilon_m = (0.9)(0) + (1 - 0.9)(-0.84)^2 = 0.07$

$\epsilon_c = (0.9)(0) + (1 - 0.9)(-4.2)^2 = 1.764$

step 6 : $\Delta m = 0.31$

$\Delta c = 0.31$

step 7 : $m = m + \Delta m = 1 + 0.31 = 1.31$

$c = c + \Delta c = -1 + 0.31 = -0.69$

step 8 : sample += 1

$\Rightarrow 1 + 1 = 2$

step 9 : if (sample > ns) go to step 10
else go to step 4

step 4 : $gm = -(3.8 - (1.31)(0.4) + 0.69)\,0.4 = -1.5$

$gc = -(3.8 - (1.31)(0.4) + 0.69) = -3.9$

step 5 = $\epsilon m = 0.28$

$\epsilon c = 3.1$

step 6 : $\Delta m = \frac{-0.1}{\sqrt{0.28 + 15^2}} \times 1.5 = 0.28$

$\Delta c = \frac{-0.1}{\sqrt{3.1 + 15^2}} \times -3.9 = 0.22$

step 7 : $m = m + \Delta m \Rightarrow 1.31 + 0.28 = 1.59$

$c = c + \Delta c = -0.69 + 0.22 = -0.47$

step 8 : Sample + = 1

$\Rightarrow 2 + 1 = 3$

step 9 : if (sample > ns) go to step 10

$3 > 2$

else step 4

Step 10 : iter = iter + 1

$= 1 + 1 = 2$

step 11 : if (iter > epochs) go to 12

else step 3

step 3 : Sample = 1

step 4 : $gm = -1.4$

$gc = -3.6$

step 5 : $\epsilon m = 0.46$

$\epsilon c = 4.89$

step 6 : $\Delta m = \frac{-0.1}{\sqrt{0.46 + 10^{-8}}} \times -1.4 = 0.2$

$\Delta c = \frac{-0.1}{\sqrt{4.89 \times 10^{-8}}} \times -3.6 = 0.16$

step 7 : $mt = \Delta m \rightarrow 1.71 + 0.2 = 1.91$

$ct = \Delta c \rightarrow -0.3 + 0.16 = -0.14$

step 8 : sample += 1 $\Rightarrow$ 2+1 = 3

step 9 : if (sample > ns) go to 10

3 > 2

else : go to step 4

step 10 : iter += 1 $\rightarrow$ 2+1 = 3

step 11 : if (iter > epochs) go to 12

3 > 2

else go to step 3

step 12 : m = 1.91

c = -0.14