Assignment-15

1) [a, y], $\eta = 0.1$, epochs = 1, m = 1, c = -1, r = 0.9,
$E_m = E_c = 0$, $\varepsilon = 10^{-8}$

x	y
0.2	3.4
0.4	3.8

2) $\eta t = 1$

3) Sample = 1

4) $g_m = -(3.4 - 1(0.2) + 1)\,0.2$

$= -0.84$

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

$= -4.2$

5) $E_m = 0.9(0) + (1 - 0.9)(-0.84)^2$

$= 0.1 \times 0.705$

$= 0.070$

$E_c = 0.9(0) + (1 - 0.9)\cdot(-4.2)^2$

$= 0.1 \times 17.64$

$= 1.764$

6) $\Delta m = -\frac{0.1}{\sqrt{0.07 + 10^{-8}}}(-0.84) = \frac{0.084}{0.264}$

$= 0.318$

$\Delta c = -\frac{0.1}{\sqrt{1.764 + 10^{-8}}}(-4.2) = \frac{0.42}{1.328}$

$= 0.316$

7) $m = m + \Delta m = 1 + 0.318 = 1.318$

$c = -1 + 0.316 = -0.684$

8) Sample = $l + 1 = 2$

9) if $(2 > 2)$ ×

↳ 4) $g_m = -(3.8 - 1.318(0.4) + 0.684)0.4$

$= -(3.8 - 0.527 + 0.684)0.4$

$= -1.582$

$g_c = -(3.8 - 1.318(0.4) + 0.68)$

$= -3.957$

5) $E_m = 0.9(0.07) + (1 - 0.9)(-1.58)^2$

$= 0.063 + 0.1 \times 2.49$

$= 0.063 + 0.249$

$= 0.3126$

$E_c = 0.9(1.76) + (1 - 0.9)(-3.957)^2$

$= 1.584 + 0.1 \times 15.657$

$= 1.584 + 1.565$

$= 2.149$

6) $\Delta m = -\frac{0.1}{\sqrt{0.312 + 10^{8}}}(-1.58) = \frac{0.158}{0.558}$

$= 0.283$

$\Delta c = -\frac{0.1}{\sqrt{2.149 + 10^{8}}}(-3.957) = \frac{0.395}{1.465}$

$= 0.269$

7) $m = 1.318 + 0.283 = 1.601$

$c = -0.684 + 0.269 = -0.415$

8) Sample $= 2 + 1 = 3$

9) if $(3 > 2)$ ✓

10) ~~if(0)~~ it $= 1 + 1 = 2$

11) if $(2 > 1)$ ✓

12) $m = 1.601$; $c = -0.415$