Assignment 4

Step 1: $y = [0.2, 0.4, 0.6, 0.9, 1.0, 1.2]$

$y = [3.4, 3.9, 4.2, 4.6, 5.0, 5.4]$

$m = 1$, $c = -1$, learning rate $= 0.01$, batch size $= 2$

$V_m = 0$, $V_c = 0$, momentum coeff $= 0.9$

Step 2 Batch ①

$$\text{gradient } m = -[(y_1 - mx_1 - c)x_1 + (y_2 - mx_2 - c)x_2]$$

$$= 2.13$$

$$\text{gradient } c = -[(y_1 - mx_1 - c)x_1 + (y_2 - mx_2 - c)x_2]$$

$$= -4.3$$

Step 3

$\Delta m = -1 *$ learning rate $*$ gradient $m = 0.01300$

$\Delta c = -1 *$ learning rate $*$ gradient $c = 0.043$

Step 4: $V_m = V_m *$ momentum coeff $- \Delta m$

$= 0.01300$

$V_c = V - c *$ momentum coeff $+ \Delta c$

$= 0.043$

step 5 $m = m + Vm = 1.013$

$c = c + Vc = 0.957$

step 6 Balik 11, Balik 6

step 7 gradient $m = -1.1634$

gradient $c = -4.4479$

step 8: $\Delta m = 0.032633$

$\Delta c = 0.0616479$

step 9:

$Vm = 0.044334$

$Vc = 0.085179$

step 10. $m = m + Vm = 1.057334$

$c = c + Vc = -0.871821$