Assignment 5

18641A0515

step 1: sample x values = [0.2, 0.4, 0.6, 0.8, 1.0, 1.2]

sample y values = [3.4, 3.8, 4.2, 4.6, 5.0, 5.4]

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

step 2: Batch 0. x = [0.2, 0.4]

y = [3.4, 3.8]

step 3: $grad\ m = -[(y_1 - mx_1 - c)x_1 + (y_2 - mx_2 - c)x_2]$

$grad\ c = -[(y_1 - mx_1 - c) + (y_2 - mx_2 - c)]$

grad m = -1.3

grad c = -4.3

step 4 $\Delta m$ = -1 * learning rate * grad m = 0.01300

$\Delta c$ = -1 * learning rate * grad c = 0.042

step 5: m = m + $\Delta m$ = 1.013

c = c + $\Delta c$ = -0.958

Step 6 : Batch 2

Step 7 : grad m = −3.2634

grad c = −4.6479

Step 8 : Δm = 0.032633

Δc = 0.046479

Step 9 : m = m + Δm = 1.045634

c = c + Δc = −0.90520