Assignment - 6A

6A)

Price	Sqft - living
221900	1180
538000	2570
180000	770
604000	1960

Sample set / batch - 1

Price	Sqft living (x)
221900	1180
538000	2570

Sample set 2 / Batch 2

Price (y)	Sqft living (x)
180000	770
60400	1960

Step-1 $\eta = 0.1$ epochs = 1

$m = 1$ & $c = -1$ $n = 2$

Step-2 Set iteration = 1

Step-3 Set batch = 1

Step-4 $\frac{\partial E}{\partial m} = -(0.5)\left[(221400 - 1 * 1180 + 1)\right.$

$\left. * 1180 + (538000 - 1 * 2570 + 1) * 2570\right]$

$= (-0.5)(1636508450)$

$= -8182\,54225$

$$\frac{\partial E}{\partial c} = -(0.5)\left[(221900 - 141180 + 1) + (5380000 - 1 * 2570 + 1)\right]$$

$= -(0.5)(756152)$

$= -378076.$

Step-5 Step length

$\Delta m = -(0.1)(-8182\,54225)$

$= 8182\,54225$

$\Delta c = -(0.1)(-378076)$

$= 378076.$

Step-6 Update m, c

$m = 1 + 8182\,54225$

$m = 8182\,5423.5$

$c = -1 + 378076$

$C = 378076$

Step-7 Set back $i = i + 1$

$= 2$

$i = 2.$

Repeat

step-4. $\frac{\partial E}{\partial m} = -(0.5)\left[(180000 - 818254235 * 770 - 37806.6) * 770 + (604000 - 818254235 * 1760 - 37806.6) * 1960\right.$

$= -(0.5)(-3 - 10532013e^{14})$

$= 1.552660477e^{14}$

step-5

$\Delta m = -(0.1)(1.552660477e^{14})$

$= -1.552660477e^{13}$

$\Delta c = -(0.1)(8.33399488e^{10})$

$= -8.333994889e9$

step-6

$m = 818254235 - 1.552660477$

$m = -1.550652229e^{13}$

$c = 37806.6 - 8.333994889e^{9}$

$= -8.333395708e^{9}$