Assignment 6a:

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

Batch1

Price(y)	Sqft-living(x)
221900	1180
538000	2570

Batch2

Price(y)	Sqft-living(x)
180000	770
604000	1960

1) η = 0.1 epochs = 1, m = 1 and c = -1, n = 2

2) set iteration = 1

3) set sample = 1

4) dE/dm = -(0.5)[(221900 – (1)(1180)+1)*1180 +(538000-(1)(2570)+1)*2570]

=-(0.5)(1636508450)

=-818254225

dE/dc = -(0.5)[(221900 – (1)(1180)+1) +(538000-(1)(2570)+1)]

= -0.5(756152)

=-378076

5) step length : Δ m = -(0.1)(-81254225)

= 818252422.5

Δ c = -(0.1)(-37807.6)

= 37806.6

6) update: m = 1 + 81825422.5 and c = -1 + 37807.6

m = 81825423.5 c = 37806.6

7) set batch i = 1 + 1 = 2 and i = 2

Repeat 4 : dE/dm = -(0.5)[(180000 – (81825423.5)(770)37806.6)*770 +(60400-(81825423.5)(1960) – 37806.6)*1960]

=-(0.5)(-3.1053209e^{14})

=1055266047e^{14}

dE/dc = -(0.5)[(180000 – (81825423.5)(770)37808.6)+(60400-(81825423.5)(1960) – 37806.6)]

= -0.5(-1.667989e^{11})

=8.33399498e^{10}

Repeat 5: step length Δ m = -(0.1)(1.55266047e^{14})

= -1.55266047e^{13}

Δ c = -(0.1)(8.33399489e^{10})

= -5.33399489e^{9}

Repeat 6: m = 81825422.5 -1.55266047e^{13} and c = 37807.6 -5.33399489e^{9}

m = -1.55265229e^{13} c = -8.33395708e^{9}