(6a)

x_i^a | y_i^a

Batch 1	Sq·Ft living (x)	price(y)
	1180	221900
	2570	538000

Batch 2	Sq·living(x)	price (y)
	770	180000
	1960	604000

step 1:- (x_i^a, y_i^a), $n = 0.01$, epochs = 1,

$m = -1$, $c = -1$, iter = 1, batch = 1

Calculating gradient with respect to m, c.

$$\frac{\partial E}{\partial m} = \frac{-1}{bs} \sum_{i=1}^{bs} \left[(y_i^a - m x_i^a - c)(x_i^a) \right]$$

$$= -\frac{1}{2} \sum_{i=1}^{2} \left[(y_i^a - m x_i^a - c)(x_i^a) \right]$$

$$= -\frac{1}{2} \left[[221900 - (-1)(1180) - (-1)] \right.$$
$$(1180) + (538000 - (-1)(2570) -$$
$$\left. (-1)](2570) \right]$$

$$= -826251525$$

$$\frac{\partial E}{\partial c} = \frac{-1}{bs} \sum_{i=1}^{bs} \left(y_i^a - m x_i^a - c \right)$$

$$= \frac{-1}{2} \left(223081 + 540571 \right)$$

$$= \frac{-1}{2} \left(763652 \right)$$

$$= -381826$$

step length.

$$\Delta m = -\eta \cdot \frac{\partial E}{\partial m}$$

$$= -(0.01)(-826251525)$$

$$= 8262515.25$$

$$\Delta c = -\eta \cdot \frac{\partial E}{\partial c}$$

$$= -(0.01)(-381826)$$

$$= 3818.26$$

update.

$$m = m + \Delta m$$

$$= -1 + 8262515.25$$

$$= 8262514.25$$

$$c = c + \Delta c$$

$$= -1 + 3818.26$$

$$= 3817.26$$

set batch = batch + 1

$$= 2$$