x	0	1	2
y	1	2	3

$$J(\theta) = \frac{1}{2m} \sum_{i=1}^{3} [h_\theta(x_i) - y_i]^2$$

1. Adım: $\theta_0 = 0,2$ $\theta_1 = 0,26$ $h_\theta(x) = 0,2 + 0,26x$ $\alpha = 0,1$

x	$h_\theta(x)$	y	hata
0	0,2	1	-0,8
1	0,46	2	-1,54
2	0,72	3	-2,28

$$\frac{\partial J(\theta_0)}{\partial \theta_0} = \frac{1}{3} \sum_{i=1}^{3} (h_\theta(x_i) - y_i)$$

$$= \frac{1}{3}(-0,8 - 1,54 - 2,28) = \boxed{-1,54}$$

$$\frac{\partial J(\theta_1)}{\partial \theta_1} = \frac{1}{3} \sum_{i=1}^{3} (h_\theta(x_i) - y_i)x_i = \frac{1}{3}[0.(-0,8) + 1(-1,54) + 2(-2,28)]$$

$$= \boxed{-2,03}$$

$$\theta_0 = \theta_0 - \alpha \frac{\partial J(\theta_0)}{\partial \theta_0} = 0,2 + (0,1)(1,54) = 0,354$$

$$\theta_1 = \theta_1 - \alpha \frac{\partial J(\theta_1)}{\partial \theta_1} = 0,26 + (0,1)(2,03) = 0,463$$

3. Adım $\theta_0 = 0,354$ $\theta_1 = 0,463$ $h_\theta(x) = 0,354 + 0,463 \cdot x$ $\alpha = 0,1$

x	$h_\theta(x)$	y	Hata
0	0,354	1	-0,646
1	0,817	2	-1,183
2	1,28	3	-1,72

$$\frac{\partial J(\theta_0)}{\partial \theta_0} = \frac{1}{3} \sum_{i=1}^{3} (h_\theta(x_i) - y_i)$$

$$= -\frac{1}{3}(0,646 + 1,183 + 1,72) = -1,183$$

$$\frac{\partial J(\theta_1)}{\partial \theta_1} = \frac{1}{3} \sum_{i=1}^{3} (h_\theta(x_i) - y_i)$$

$$= -\frac{1}{3}[(0).(0,646) + (1)(1,183) + 2(1,72)] = -1,541$$

$$\theta_0 = 0,354 - (0,1)(-1,183) = 0,4723$$

$$\theta_1 = 0,463 - (0,1)(-1,541) = 0,6171$$

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