

2. Iterasyon

x	h(x)	y	hata
0	0,213	1	-0,8
1	0,2-0,14	2	-1,54
2	0,2+0	3	-2,28

$$J(a) = \frac{1}{2n} \sum_{i=1}^n (h(x_i) - y_i)^2$$

$$Q_0 = 0,2$$

$$Q_1 = 0,26$$

$$J(a) = \frac{1}{2 \cdot 3} \sum_{i=1}^3 (h(x_i) - y_i)^2 = \frac{1}{6} ((-0,8)^2 + (-1,54)^2 + (-2,28)^2)$$

$$= 1,36$$

$$Q_2 = Q_1 - a \frac{\partial J(a)}{\partial a} \quad (a=0,1)$$

$$\frac{\partial J(a)}{\partial Q_0} = \frac{1}{n} \sum_{i=1}^n (Q_0 + Q_1 x_i - y_i) = \frac{1}{3} [(-0,8) + (-1,54) + (-2,28)] = -1,54$$

$$\frac{\partial J(a)}{\partial Q_1} = \frac{1}{n} \sum_{i=1}^n (Q_0 + Q_1 x_i - y_i) \cdot x_i = \frac{1}{3} [(0,8) \cdot 0 + (-1,54) \cdot 1 + (-2,28) \cdot 2]$$

$$= -2,0$$

$$Q_2 = 0,2 - (0,1) \cdot (-1,54) = 0,354$$

$$Q_1 = 0,26 - (0,1) \cdot (-2,0) = 0,463$$

3. Iterasyon

x	h(x)	y	hata
0	0,354 + 0,463	1	0,646
1	0,354 + 1 \cdot 0,463	2	-1,183
2	0,354 + 2 \cdot 0,463	3	-1,22

$$Q_0 = 0,354$$

$$Q_1 = 0,463$$

$$J(a) = \frac{1}{2n} \sum_{i=1}^n (h(x_i) - y_i)^2$$

$$J(a) = \frac{1}{2 \cdot 3} \sum_{i=1}^3 (h(x_i) - y_i)^2 = \frac{1}{6} ((0,646)^2 + (-1,183)^2 + (-1,22)^2)$$

$$= 0,295$$

$$\rightarrow Q_3 = Q_2 - a \frac{\partial J(a)}{\partial Q_2} \quad (a=0,1)$$

$$\frac{\partial J(a)}{\partial Q_0} = \frac{1}{n} \sum_{i=1}^n (Q_0 + Q_1 x_i - y_i) = \frac{1}{3} (0,646 + (-1,183) + (-1,22)) = -1,183$$

$$\frac{\partial J(a)}{\partial Q_1} = \frac{1}{n} \sum_{i=1}^n (Q_0 + Q_1 x_i - y_i) \cdot x_i = \frac{1}{3} [(0,646) \cdot 1 + (-1,183) \cdot 1 + (-1,22) \cdot 2]$$

$$= -1,54$$

$$\rightarrow Q_3 = 0,354 - (0,1) \cdot (-1,183) = 0,4723$$

$$\rightarrow Q_1 = 0,463 - (0,1) \cdot (-1,54) = 0,617$$