

# Doğrusal Analiz 5.Ödev

## 1. iterasyon

$$\frac{\partial J(\theta)}{\partial \theta_0} = \frac{1}{m} \cdot \sum_{i=1}^m (\theta_{10} + \theta_{11} \cdot x_i - y_i) \cdot 1 = \frac{1}{3} \cdot [(-1) + (-2) + (-3)] = \frac{1}{3} \cdot -6 = -2$$

$$\frac{\partial J(\theta)}{\partial \theta_1} = \frac{1}{m} \cdot \sum_{i=1}^m (\theta_{10} + \theta_{11} \cdot x_i - y_i) \cdot x_i = \frac{1}{3} \cdot [(-1) \cdot 0 + (-2) \cdot 1 + (-3) \cdot 2] = \frac{-8}{3} = -2,6$$

$$\theta_0 = 0 - (0,1) \cdot (-2) = \underline{0,2}$$

$$\theta_1 = 0 - (0,1) \cdot (-2,6) = \underline{0,26}$$

## 2. iterasyon

$$\frac{\partial J(\theta)}{\partial \theta_0} = \frac{1}{m} \cdot \sum_{i=1}^m (\theta_{10} + \theta_{11} \cdot x_i - y_i) \cdot 1 = \frac{1}{3} \cdot [(-0,8) + (-1,54) + (-2,28)] = \frac{1}{3} \cdot (-4,62) = -1,54$$

$$\frac{\partial J(\theta)}{\partial \theta_1} = \frac{1}{m} \cdot \sum_{i=1}^m (\theta_{10} + \theta_{11} \cdot x_i - y_i) \cdot x_i = \frac{1}{3} \cdot [0 + (-1,54) + (-4,56)] = \frac{1}{3} \cdot (-6,1) = -2,03$$

$$\theta_0 = 0,2 - (0,1) \cdot (-1,54) = 0,35$$

$$\theta_0 = 0,35$$

$$\theta_1 = 0,26 - (0,1) \cdot (-2,03) = 0,46$$

$$\theta_1 = 0,46$$

## 3. iterasyon

$$\frac{\partial J(\theta)}{\partial \theta_0} = \frac{1}{m} \cdot \sum_{i=1}^m (\theta_{10} + \theta_{11} \cdot x_i - y_i) \cdot 1 = \frac{1}{3} \cdot [(-0,65) + (-1,19) + (-1,73)] = \frac{1}{3} \cdot (-3,57) = -1,19$$

$$\frac{\partial J(\theta)}{\partial \theta_1} = \frac{1}{m} \cdot \sum_{i=1}^m (\theta_{10} + \theta_{11} \cdot x_i - y_i) \cdot x_i = \frac{1}{3} \cdot [0 + (-1,19) + (-3,46)] = \frac{1}{3} \cdot (-4,65) = -1,55$$

$$\theta_0 = 0,35 - (0,1) \cdot (-1,19) = 0,47$$

$$\theta_0 = 0,35$$

$$\theta_1 = 0,46 - (0,1) \cdot (-1,55) = 0,615$$

$$\theta_1 = 0,615$$