pres $h = b_0 + b_1 x$ fct de mapare $x \to y$

fct de cost $\Rightarrow$ MSE $J(\Theta) = \frac{1}{n} \sum_{i=1}^{n} (h_\Theta(x^i) - y^i)^2$

Gradient descent

$\Theta_j := \Theta_j - \alpha \frac{\partial}{\partial \Theta_j} J(\Theta)$ ← learning rate

repetat până la convergență

$$\frac{\partial}{\partial \Theta_j} J(\Theta) = \frac{\partial}{\partial \Theta_j} (h_\Theta(x^i) - y^i)^2 =$$

($h_\Theta(x^i)$ ↓ ypred, y^i ↓ y)

$$= 2(y - y_{pred}) \frac{\partial}{\partial \Theta_j} (\Theta_0 x_0 + \Theta_1 x_1 + \dots + \Theta_n x_n)$$

$= x_j$ pt orice x_j

Cazul meu:

$$\frac{\partial}{\partial b_0} J = \frac{\partial}{\partial b_0} (y - b_0 - b_1 x)^2 = 2(y - b_0 - b_1 x)(-1)$$

$$= -2(y - b_0 - b_1 x)$$

$$\frac{\partial}{\partial b_1} J = \frac{\partial}{\partial b_1} (y - b_0 - b_1 x)^2 = 2(y - b_0 - b_1 x)(-x)$$

$$b_1 = b_1 - \alpha \frac{1}{n} \sum_{1}^{n} -2 x_i (y_i - (b_0 + b_1 x_i))$$

$\Rightarrow$

$$b_0 = b_0 - \alpha \frac{1}{n} \sum_{1}^{n} -2 (y_i - (b_0 + b_1 x_i))$$