These three derivatives make up $-\nabla$:

$$\frac{dC}{dw_{jk}^{(L)}},\ \frac{dC}{db^{(L)}},\ \frac{dC}{da_k^{(L-1)}}$$

In order to get the correct activations, we follow these formulas:

$$a^{(L)} = \sigma([w_{j0}, w_{j1}, \ldots, w_{jk}] \begin{bmatrix} a_0^{(L-1)} \\ \vdots \\ a_k^{(L-1)} \end{bmatrix} + b^{(L)})$$

$$a^{(L)} = \sigma(z^{(L)})$$

$$C_0 = (a_0^{(L)} - y_0)^2 + (a_1^{(L)} - y_1)^2 + \ldots + (a_j^{(L)} - y_j)^2$$

$$C_1, \ldots, C_n : determined\ by\ the\ previous\ iterations$$

$$\frac{dC_0}{dw^{(L)}} = \frac{dz^{(L)}}{dw^{(L)}} \frac{da^{(L)}}{dz^{(L)}} \frac{dC_0}{da^{(L)}} = (a^{(L-1)})(\sigma'(z^{(L)})(2(a^{(L)} - y))$$

$$\frac{dC_0}{db^{(L)}} = \frac{dz^{(L)}}{db^{(L)}} \frac{da^{(L)}}{dz^{(L)}} \frac{dC_0}{da^{(L)}} = (1)(\sigma'(z^{(L)})(2(a^{(L)} - y))$$

$$\frac{dC_0}{da^{(L-1)}} = \frac{1}{L-1} \sum_{j=0}^{n_L - 1} \frac{dz_j^{(L)}}{da_k^{(L-1)}} \frac{da_j^{(L)}}{dz_j^{(L)}} \frac{dC_0}{da_j^{(L)}}$$