$$\frac{\partial L}{\partial w^{(k)}} = \lambda w^{(k)} + \frac{1}{m}\sum_{i=1}^{m}\begin{cases} -x^{(i)} \cdot \sum_{j=1}^{K} \mathbb{1}\left\{\left(w^{(j)}x^{(i)} + b^{(j)}\right) - \left(w^{\left(y^{(i)}\right)}x^{(i)} + b^{\left(y^{(i)}\right)}\right) + \Delta > 0\right\},\ \text{if } k = y^{(j)} \\ x^{(i)},\ \text{if } \left(w^{(k)}x^{(i)} + b^{(k)}\right) - \left(w^{\left(y^{(i)}\right)}x^{(i)} + b^{\left(y^{(i)}\right)}\right) + \Delta > 0 \\ 0,\ \text{otherwise} \end{cases}$$

$$\frac{\partial L}{\partial b^{(k)}} = \frac{1}{m}\sum_{i=1}^{m}\begin{cases} \sum_{j=1}^{K} \mathbb{1}\left\{\left(w^{(j)}x^{(i)} + b^{(j)}\right) - \left(w^{\left(y^{(i)}\right)}x^{(i)} + b^{\left(y^{(i)}\right)}\right) + \Delta > 0\right\},\ \text{if } k = y^{(j)} \\ 1,\ \text{if } \left(w^{(k)}x^{(i)} + b^{(k)}\right) - \left(w^{\left(y^{(i)}\right)}x^{(i)} + b^{\left(y^{(i)}\right)}\right) + \Delta > 0 \\ 0,\ \text{otherwise} \end{cases}$$