

Vectorised:

$$db = \frac{1}{m} \sum_{i=1}^m dz^{(i)}$$

$$= \frac{1}{m} \text{np.sum}(dZ)$$

$$dw = \frac{1}{m} X dZ^T$$

$$= \frac{1}{m} \begin{bmatrix} x^{(1)} & \dots & x^{(m)} \\ \vdots & & \vdots \end{bmatrix} \begin{bmatrix} dz^{(1)} \\ \vdots \\ dz^{(m)} \end{bmatrix}$$

$$= \frac{1}{m} [x^{(1)} dz^{(1)} + \dots + x^{(m)} dz^{(m)}]$$

for iter in range(1000):

$$Z = w^T X + b$$

$$= \text{np.dot}(w.T, X) + b$$

$$A = \sigma(Z)$$

$$dZ = A - y$$

$$dw = \frac{1}{m} X dZ^T$$

$$db = \frac{1}{m} \text{np.sum}(dZ)$$

Updates:

$$w := w - \alpha dw$$

$$b := b - \alpha db$$