Exercices 4

TABLE DES MATIÈRES

1 LOGISTIC REGRESSION GRADIENT

As in **Exercices 3.pdf**, we consider a supervised classification problem.
We use the following conventions :

— $\mathcal{X} = \mathbb{R}^2$

— $\mathcal{Y} = \{-1, 1\}$

—

$$l(\hat{y}, y) = \log(1 + e^{-\hat{y}y}) \tag{1}$$

The empirical risk writes :

$$R_n(\theta) = \frac{1}{n} \sum_{i=1}^{n} l(x_i^T \theta, y_i) \tag{2}$$

Hence, The only difference is in the expression of the loss function.
Compute the gradient $\nabla_\theta R_n$ of the empirical risk $R_n(\theta)$ in this setting.