

Homework Linear Regression

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(Tugas dikerjakan sendiri dengan tulisan tangan)

Logistics Regression

Given:

$$P(Y = 0|X, W) = \frac{1}{1 + \exp(w_0 + \sum_i w_i X_i)}$$

$$P(Y = 1|X, W) = \frac{\exp(w_0 + \sum_i w_i X_i)}{1 + \exp(w_0 + \sum_i w_i X_i)}$$

and

$$W_{MCLE} = \arg \max_W \prod_l P(Y^l|W, X^l)$$

Show that:

$$\frac{\partial l(W)}{\partial w_i} = \sum_l X_i^l (Y^l - \hat{P}(Y^l = 1|X^l, W))$$