Kody Quintana
CS 473
Artificial Neural Network
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Homework # 2

Linear regression

- Solvable using closed form mathematics (pseudo-inverse)
- Nueral network allows us to play with some of the approximation algorithm terms to see how it performs compared to the closed form solution

We need a cost function:

$\boldsymbol{J}$

$(\boldsymbol{e_h})_i = (\boldsymbol{h} - \boldsymbol{t})_i = \vec{\boldsymbol{W}}^{\boldsymbol{T}}\vec{\boldsymbol{X}} + \boldsymbol{b} - \boldsymbol{t_I}$

$(\boldsymbol{e_y})_i = (\hat{\boldsymbol{y}} - \boldsymbol{t})_i$

$\hat{\boldsymbol{y}} = \frac{1}{1+e^{-h}}$

Unknowns: $\boldsymbol{m}$(slope) and $\boldsymbol{b}$(intercept) -> $\boldsymbol{w_1}$(weight) and $\boldsymbol{w_0}$(bias)