Machine Learning
Assignment 1 Questions
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10/10/17

1a

$$h_\theta\left(x^{(i)}\right) = \frac{1}{1 + e^{-\theta^{(i)T} x^{(i)}}}$$

1b

$$J(\theta) = \frac{1}{m}\sum_{i=1}^{m} y^{(i)} \log h_\theta\left(x^{(i)}\right) + \left(1 - y^{(i)}\right) * \log\left(1 - h_\theta\left(x^{(i)}\right)\right)$$

1c

$$\theta := \frac{1}{m}\sum_{i=1}^{m}\left[\left(h_\theta\left(x^{(i)}\right) - y^{(i)}\right) * x^{(i)}\right]$$

1d

$$\theta_j := \theta_j - \alpha\frac{1}{m}\sum_{i=1}^{m}\left[\left(h_\theta\left(x^{(i)}\right) - y^{(i)}\right) * x_j^{(i)}\right]$$

1e

$$J(\theta) = \frac{1}{2m}(X\theta - \vec{y})(X\theta - \vec{y})^T$$