SupervisedMachineLearning-WEEK-3-QUIZ-2

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$$\overbrace{J(\overrightarrow{w}, b)}^{?} = \frac{1}{m} \sum_{i=1}^{m} \underbrace{L\left(f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right), y^{(i)}\right)}_{?}$$

1. In this lecture series, "cost" and "loss" have distinct meanings. Which one applies to a single training example?

   ☑ Loss

   ⊘ **Correct**
   In these lectures, loss is calculated on a single training example. It is worth noting that this definition is not universal. Other lecture series may have a different definition.

   ☐ Cost

   ☐ Both Loss and Cost

   ☐ Neither Loss nor Cost

1 / 1 point

Simplified loss function

$$L\left(f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right), y^{(i)}\right) = \begin{cases} -\log\left(f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right)\right) & \text{if } y^{(i)} = 1 \\ -\log\left(1 - f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right)\right) & \text{if } y^{(i)} = 0 \end{cases}$$

$$\boxed{L\left(f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right), y^{(i)}\right) = -y^{(i)}\log\left(f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right)\right) - \left(1 - y^{(i)}\right)\log\left(1 - f_{\overrightarrow{w},b}\left(\vec{x}^{(i)}\right)\right)}$$

2. For the simplified loss function, if the label $y^{(i)} = 0$, then what does this expression simplify to?

   ○ $\log(f_{\overrightarrow{w},b}(\mathbf{x}^{(i)})$

   ○ $\log(1 - f_{\overrightarrow{w},b}(\mathbf{x}^{(i)})) + log(1 - f_{\overrightarrow{w},b}(\mathbf{x}^{(i)}))$

   ◉ $-\log(1 - f_{\overrightarrow{w},b}(\mathbf{x}^{(i)}))$

   ○ $-\log(1 - f_{\overrightarrow{w},b}(\mathbf{x}^{(i)})) - log(1 - f_{\overrightarrow{w},b}(\mathbf{x}^{(i)}))$

   ⊘ **Correct**
   When $y^{(i)} = 0$, the first term reduces to zero.