## Perceptron Loss Function

What loss function should you use for this model?

1. Consider the following training data

| Weight | Screen Size | Liked(y) |
|--------|-------------|----------|
| 0.19 | 0.64 | 1 |
| 0.63 | 0.81 | 1 |
| 0.33 | 0.67 | 0 |
| 1 | 0.88 | 0 |

2. Loss/cost
   a. $= 0$ if $y = \hat{y}$,
   b. $= 1$ otherwise
3. More often, it is represented using an indicator variable
   a. $L = 1_{(y \neq \hat{y})}$
   b. Or $L = 0_{(y = \hat{y})}$
4. **Q**: what is the purpose of the loss function
   a. **A**: It is to tell the model that some sort of correction needs to be done
5. Comparing to Square Error loss function
6.

| Weight | Screen Size | Liked(y) | $\hat{y}$ | Perceptron loss $L = 1_{(y \neq \hat{y})}$ | Sq. Error $(y - \hat{y})^2$ |
|--------|-------------|----------|-----------|---------------------------------------------|------------------------------|
| 0.19 | 0.64 | 1 | 0 | 0 | 0 |
| 0.63 | 0.81 | 1 | 0 | 1 | 1 |
| 0.33 | 0.67 | 0 | 1 | 1 | 1 |
| 1 | 0.88 | 0 | 0 | 0 | 0 |

7. The Perceptron loss is almost identical to the square error loss function. For all intents and purposes in this course, it can be considered equivalent to the square error loss function.