Medium1

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Problem Write a vignette in LaTeX or MathJax explaining how to use the logistic loss with non-uniform weights to get the binomial loss function in xgboost.

Answer - Logistic loss is used when y = {-1,1} and binomial loss or cross entropy or log loss function refers to cross entropy or log loss where y = {0,1}. Logistic loss is as below:-

$$logistic\ loss = \frac{-\sum_{i=1}^{n} 2 * ln(1 + e^{-y_i * \hat{y_i}})}{n} \tag{1}$$

where as

$$binomial\ loss = -\frac{ylog(\hat{y}) + (1 - y)log(1 - \hat{y})}{n} \tag{2}$$

We can adjust it by factor of 2 to get the logistic loss.