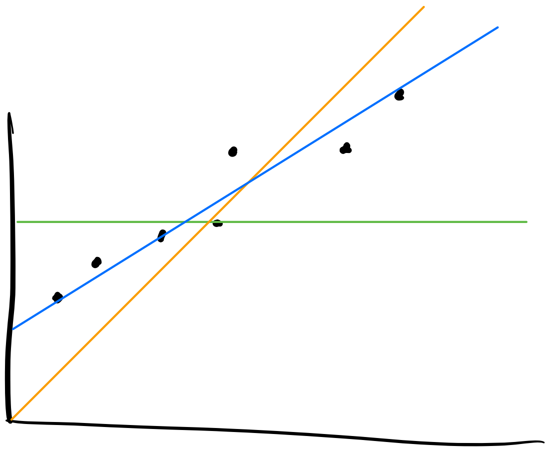
MLO - Linear Models and Loss Functions



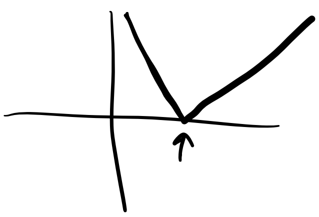
$y = c$

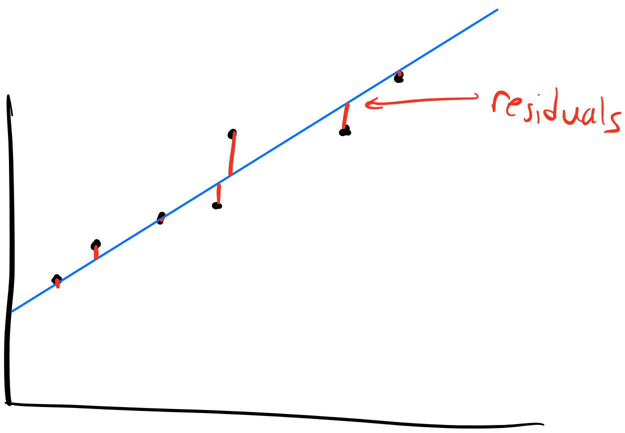
$y = wx$

$$\boxed{y = wx + b}$$

weight bias

How good is a line?

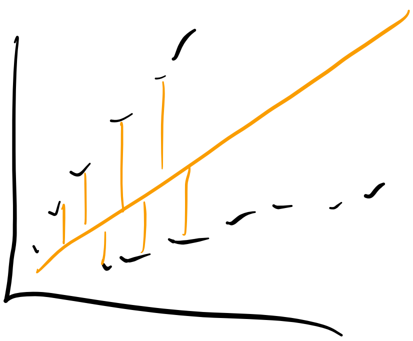




$$MAE = \frac{1}{n}\sum_{i=1}^{n}|y_i - \hat{y}_i|$$

mean abs. error

$$MSE = \frac{1}{n}\sum_{i=1}^{n}(y_i - \hat{y}_i)^2$$



Linear Classifier

$$P(Y=1 \mid x) = \hat{p} = \sigma(wx+b)$$

$$\sigma(z) = \frac{1}{1+e^{-z}}$$

$$BCE = -\frac{1}{n}\sum_{i=1}^{n}\left[y_i \log(\hat{p}_i) + (1-y_i)\log(1-\hat{p}_i)\right]$$

$$-\left[y_i \log(\hat{p}_i) + (1-\underline{y_i})\log(1-\hat{p}_i)\right]$$

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