Lec 5. Logistic Regression의 cost 함수

※ cost function

$$C(H(x), y) = \begin{cases} -\log(H(x)) & ; y=1 \\ -\log(1-H(x)) & ; y=0 \end{cases}$$

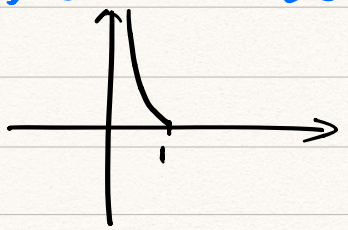
$H(x) = \frac{1}{1+e^{-z}}$

cost = $g(z) = -\log(z)$ 일때.

$y=1$.

$H(x)=1 \rightarrow$ cost $= 0$

$H(x)=0 \rightarrow$ cost $= \infty$

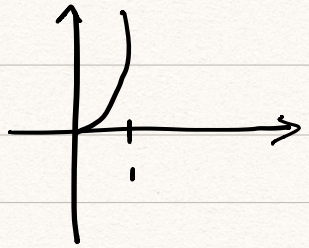


cost = $g(z) = -\log(1-z)$ 일때.

$y=0$.

$H(x)=0 \rightarrow$ cost $=0$

$H(x)=1 \rightarrow$ cost $= \infty$



※ if condition을 제거한 최종 cost function

$$C(H(x), y) = -y\log(H(x)) - (1-y)\log(1-H(x))$$

※ Minimize cost - Gradient decent algorithm

$$cost(W) = -\frac{1}{m}\sum y\log(H(x)) + (1-y)\log(1-H(x))$$

$$W := W - \alpha \frac{\partial}{\partial W} cost(W)$$

→ Tensorflow가 알아서 해줘.