<Logistic Regression Cost Function>

ex) Training Set

	tumor size (cm) x_1	...	Patient's age x_n	malignant? y
$i=1$	10		52	1
$i=2$	2		73	0
⋮	5	...	55	0
⋮	12		49	1
$i=m$	...		...	...

$j = 1, 2, \cdots, n$ ← features

target $y = 0$ or 1

$i = 1, 2, \cdots m$ ← training example

<Logistic Regression Model>

$$f_{\vec{w},b}(\vec{x}) = \frac{1}{1+e^{-(\vec{w}\cdot\vec{x}+b)}}$$

(How to choose $\vec{w} = [w_1\ w_2\ \cdots\ w_n]$ and b?)

- Squared error cost (linear regression)

$$J(\vec{w},b) = \frac{1}{m}\sum_{i=1}^{m}\frac{1}{2}\left(f_{\vec{w},b}(\vec{x}^{(i)}) - y^{(i)}\right)^2$$

<linear regression>

if use same cost function for logistic regression...

<logistic regression>

⇒ lots of local minima

∴ Squared error cost is good for logistic regression

⇓

" 따라서 이러한 형태를 convex 형태로 "

변환해줘야함