Logistic Regression

Given x, we want:

$\hat{y} = P(y = 1|x)$, $(0 \leq \hat{y} \leq 1)$

$x \in \mathbb{R}^{n_x}$

Parameters:

$\omega \in \mathbb{R}^{n_x}$

$b \in \mathbb{R}$

Output:

$\hat{y} = \sigma(\omega^T x + b)$

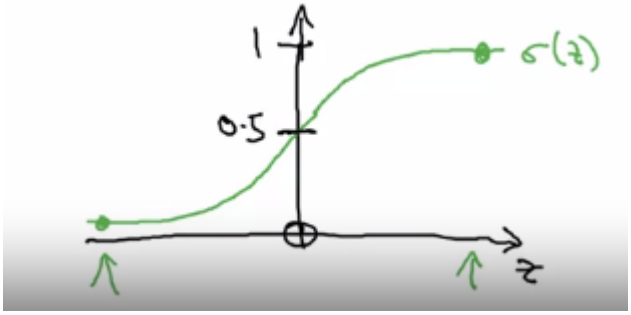

Figure 1: Sigmoid function

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

If z is a large number, then:

$G(z) \approx \frac{1}{1+0} \approx 1$

If z is a large negative number, then:

$G(z) \approx \frac{1}{1+e^{-\infty}} \approx 0$