# Logistic Regression :

## Probality

no. of days studied: 16   16   27   26   15.

Above 90% : Yes   Yes   No   Yes   No..

Yes : 1   No : 0.

Sigmoid $f(x) = \dfrac{1}{1+e^{-x}}$ → range $(0,1)$

also writen as : $\dfrac{1}{1+e^{-(ax+b)}}$

## Gradient Descent:

$$\frac{de}{da} = (f(ax_i+b) - y_i)$$

$a = a - 0.01\dfrac{de}{da}$

$$= (f(ax_i+b) - y_i)x_i$$

$b = b - 0.01\dfrac{de}{db}$   $\dfrac{de}{db} = f(ax_i+b) - y_i$

Probability of $x$ : $f(ax+b)$