—o— Logistic regression:
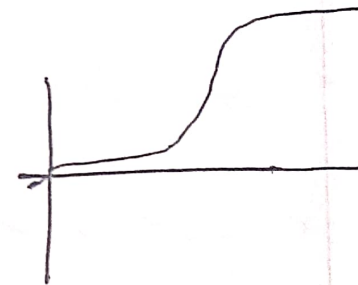
Input - features x_1, x_2, x_3

Hello World^3

Page-3— It can be either yes or no + more to ~~Reo~~ learn.

Logistic function / sigmoid function

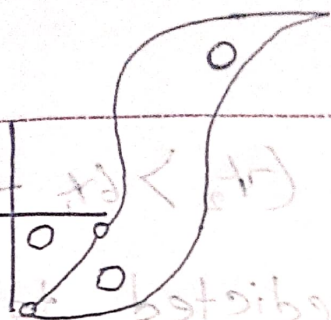$$i/p \Rightarrow f(x) \Rightarrow (0,1)$$

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

$$g'_z = \frac{1}{1+e^{-z}}$$

Here, $z = \theta_0 + \theta_1 x_1 + \theta_2 \otimes x_2 + \ldots + \theta_n x_n$
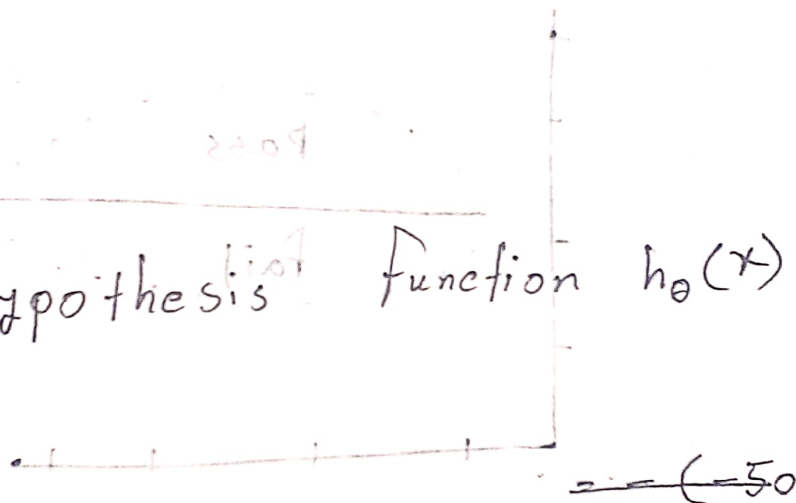
Exercise -1

Build a logistic regression model & derive the decision boundary. —02

$\theta_0 = -50$

$\theta_1 = 6$

$\theta_2 = 1$

So the hypothesis function $h_\theta(x) = \dfrac{1}{1+e^{-(50+6x_1+1x_2)}}$

$= -(-50)$

decision boundary $\Rightarrow -(-50 + 6x_1 + x_2) = 0$

$\Rightarrow 50 - 6x_1 + x_2 = 0$

$\Rightarrow 50 = 6x_1 + x_2$
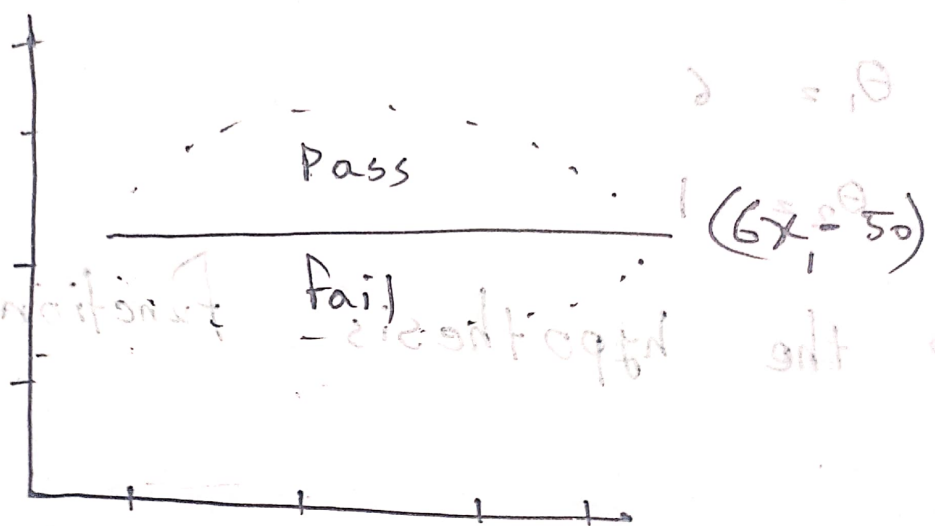
$\Rightarrow x_2 = 6x_1 - 50$

This line represent the decision Boundary.

⇒ Above the line $(x_2 > 6x_1 - 50)$; the student is predicted to pass (class 1)

⇒ Below the line $(x_2 < 6x_1 - 50)$; the student is predicted to fail (class 0)

Pass

fail

$(6x_1 - 50)$

x_2 OR x_1 নির্ভর করবে।