LOGISTIC REGRESSION

↳ Sigmoid o/p value b/w 0 & 1 but we get 0 or 1
↳ When you do model. predict ⇒ apply Threshold. of 0.5 or o/p

Q why can't we use linear regression in classification

↳① Linear Regression o/p contineous o/p (real value number) but for classification target is categorical

Ⓗ

Logistic Regression

(Sigmoid) ↳ o/p ⇒ $\dfrac{1}{1+e^{-yin}}$

yout. ↳ $w_1 x_1 + c$.

Cost Function

$$L = \begin{cases} -\log(yout), & y=1 \\ -\log(1-yout), & y=0 \end{cases}$$

For single Data point

$$L = -\left[\overset{\text{actual}}{y} \log(y_{out}) + (1-y)\log(1-y_{out})\right]$$

For Entire Dataset

L = Binary Cross entropy

$$L = \frac{-1}{n} \sum_{i=1}^{n}\left[y \log(y_{out}) + (1-y)\log(1-y_{out})\right]$$

Q Draw the confusion matrix for Logistic Regression Problem.?

x_1	x_2	y (actual)	(Predicted) y_{out}
		0	1
		1	1
		1	1
		0	0
		1	□
		0	1
		1	Ω