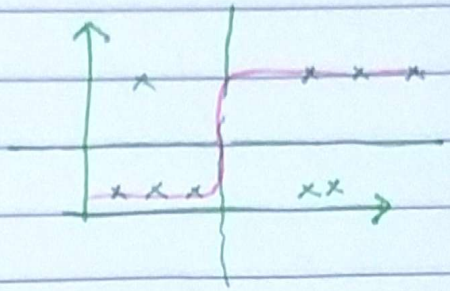
* Classification → Binary classification "2 classes"
  → multiclass classification "More than 2 classes"

* segmoid function:

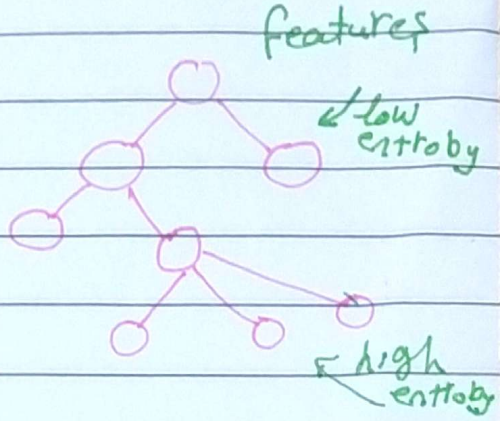
$$\text{Segmoid}(z) = \frac{1}{1+e^{-z}}$$ "converts inputs into Range 0 → 1"



linear

$$y = mx + b \longrightarrow y = \frac{1}{1+e^{-(mx+b)}}$$

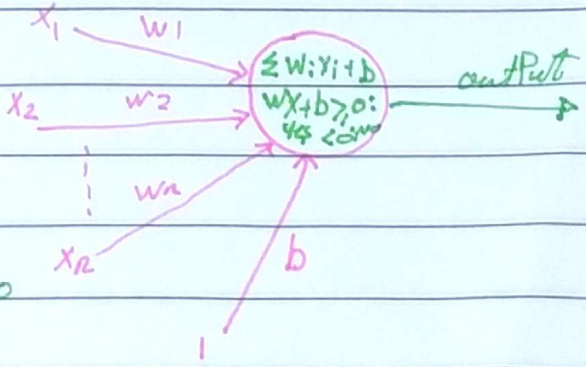
* Desision Trees



The less Knolage the less entroby

$$H = -\sum P \log P$$

- Preception



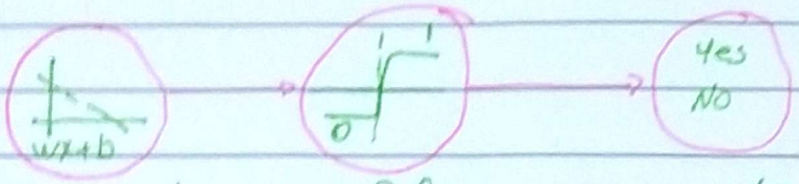
or n dimentional space:-

undry Plane $= w_1 x_1 \dots w_n x_n + b = 0$

$\rightarrow Wx + b = 0$

$\hat{y}$ → 1 if $wx+b \geq 0$

→ 0 if $wx+b < 0$



linear equation step function output

- XOR → used for multilayer natal networks

- Perception Tricks : → subtraction

← بنضرب القيم اللي جايزين نضيفها في الـ learning Rate وبنطرح أو نجمع معادلة الخط بناءً على القيمة

$\hat{y} > 1$ ← نجمع

$\hat{y} < 1$ ← نطرح

← بنضيف الخط يقرب أكتر النقط اللي مش مظبوطة