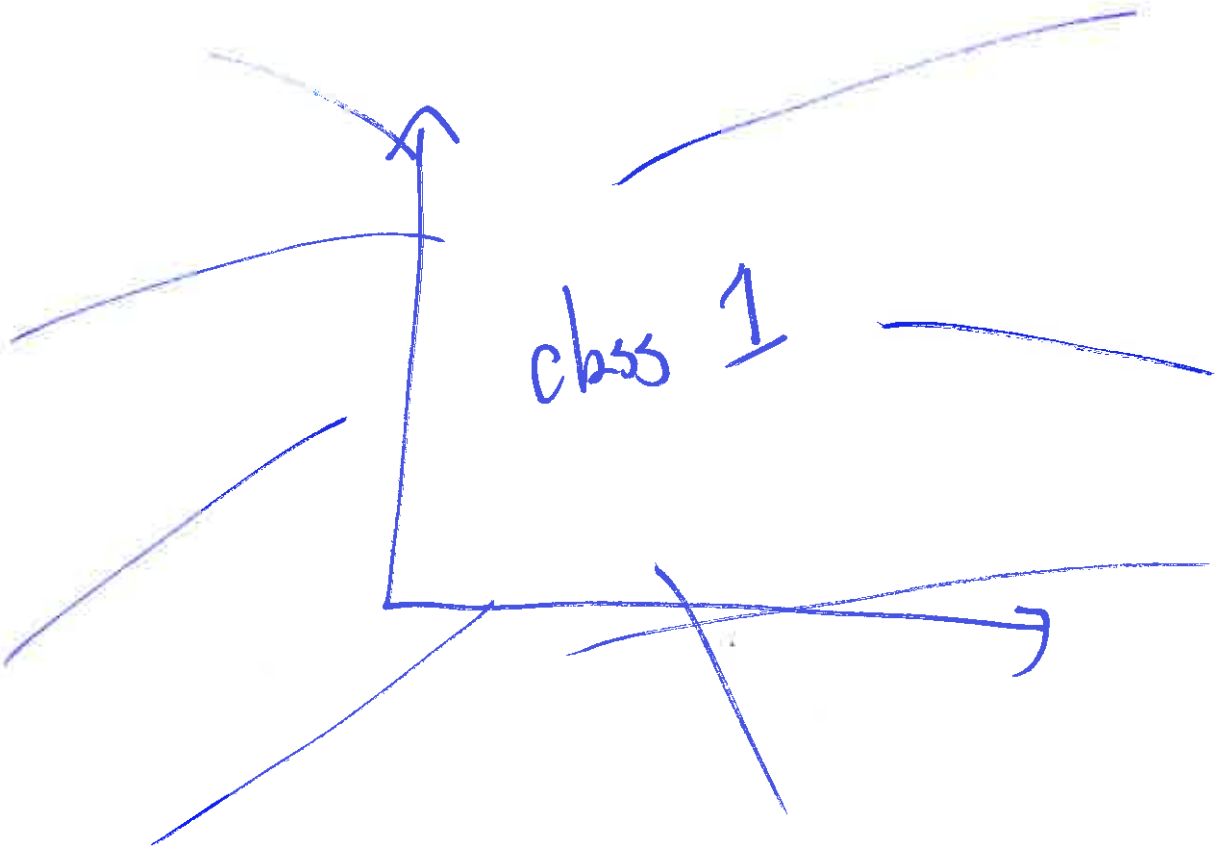
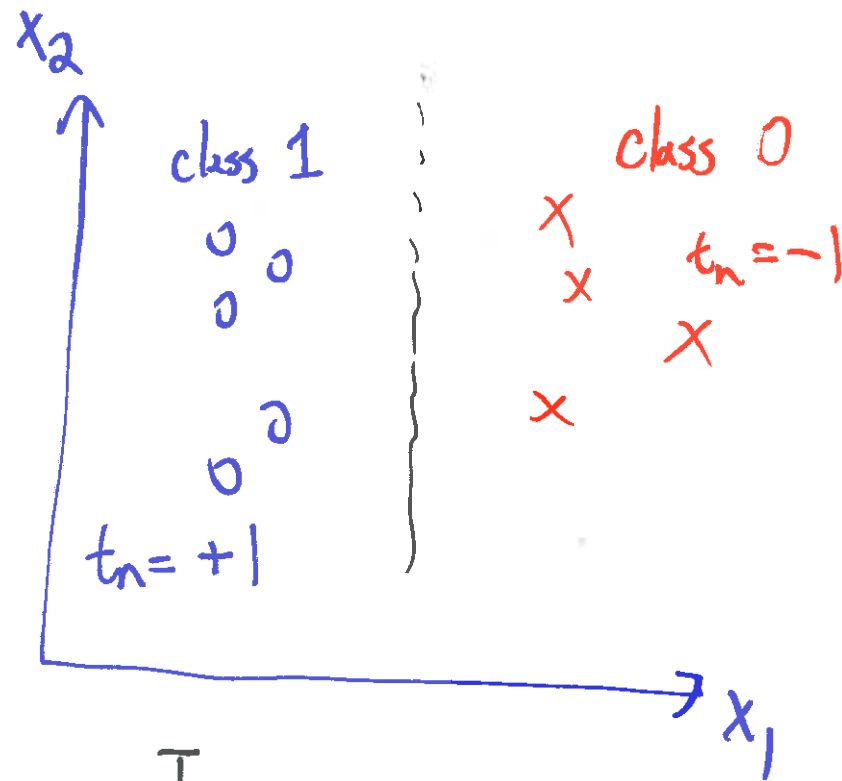


$$ax_1 + bx_2 = 0$$

$$ax_1 + bx_2 = c$$

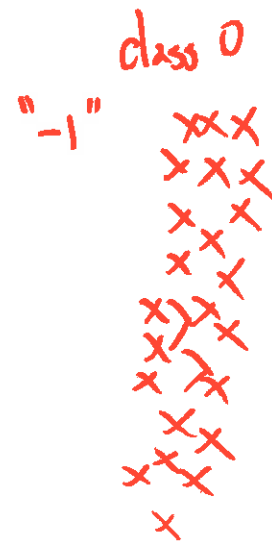
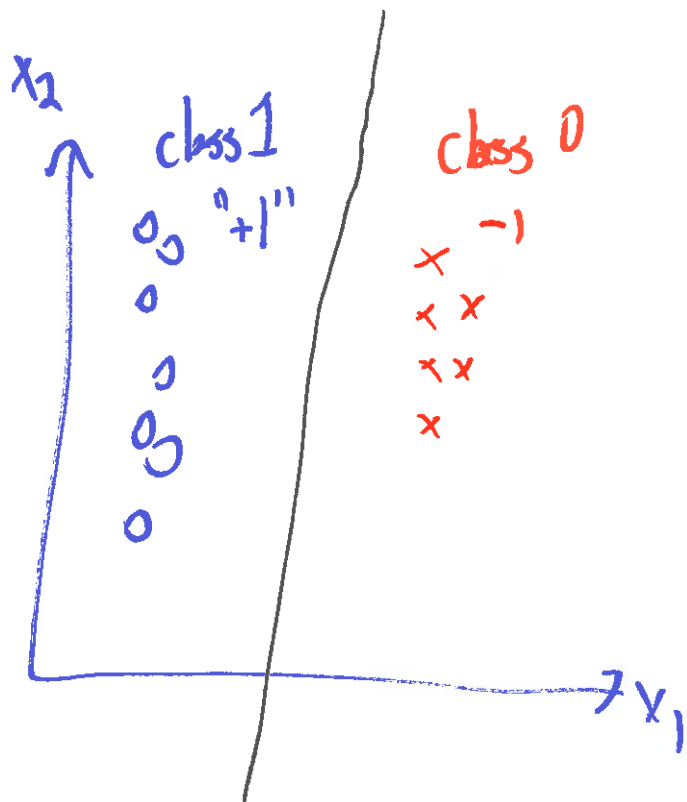
$$x_2 = \underbrace{m}_{\text{slope}} x_1 + \underbrace{b}_{\text{intercept}}$$





$w^T x$
 if $w_0 + w_1 x_1 + w_2 x_2 > 0$ then
 return "class 1"
 else
 return "class 0"

plane in 3D

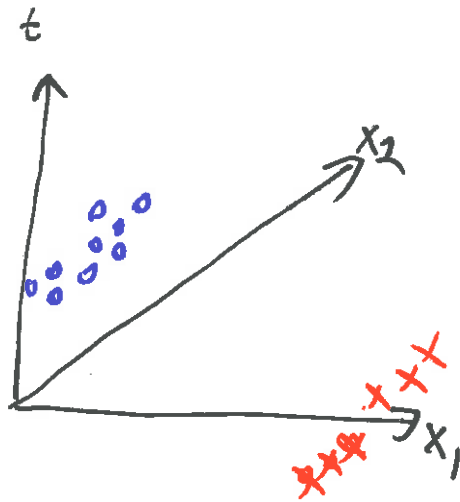


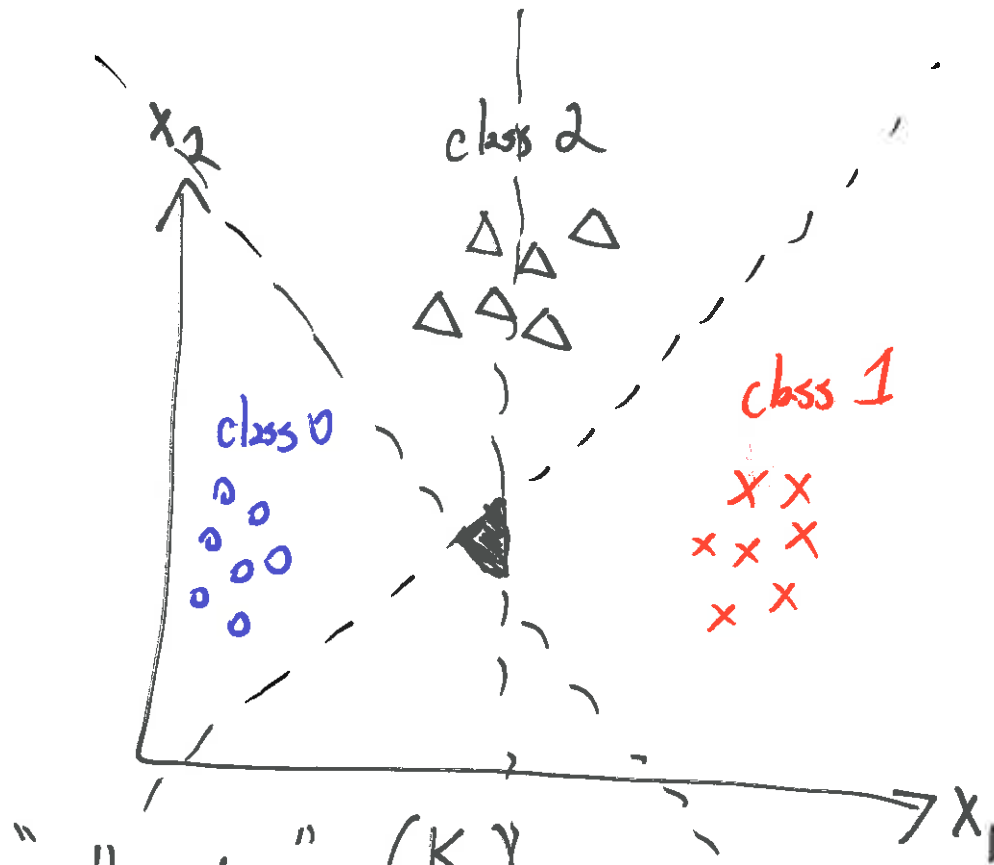
$$\vec{w} = (w_0, w_1, w_2)$$

$$E(w) = \sum_{n=1}^N \{t_n - w^T x\}^2$$

$t_n = -1$ if "class 0"

$t_n = +1$ if "class 1"





"all pairs" $\binom{K}{2}$

class 0 vs. class 1

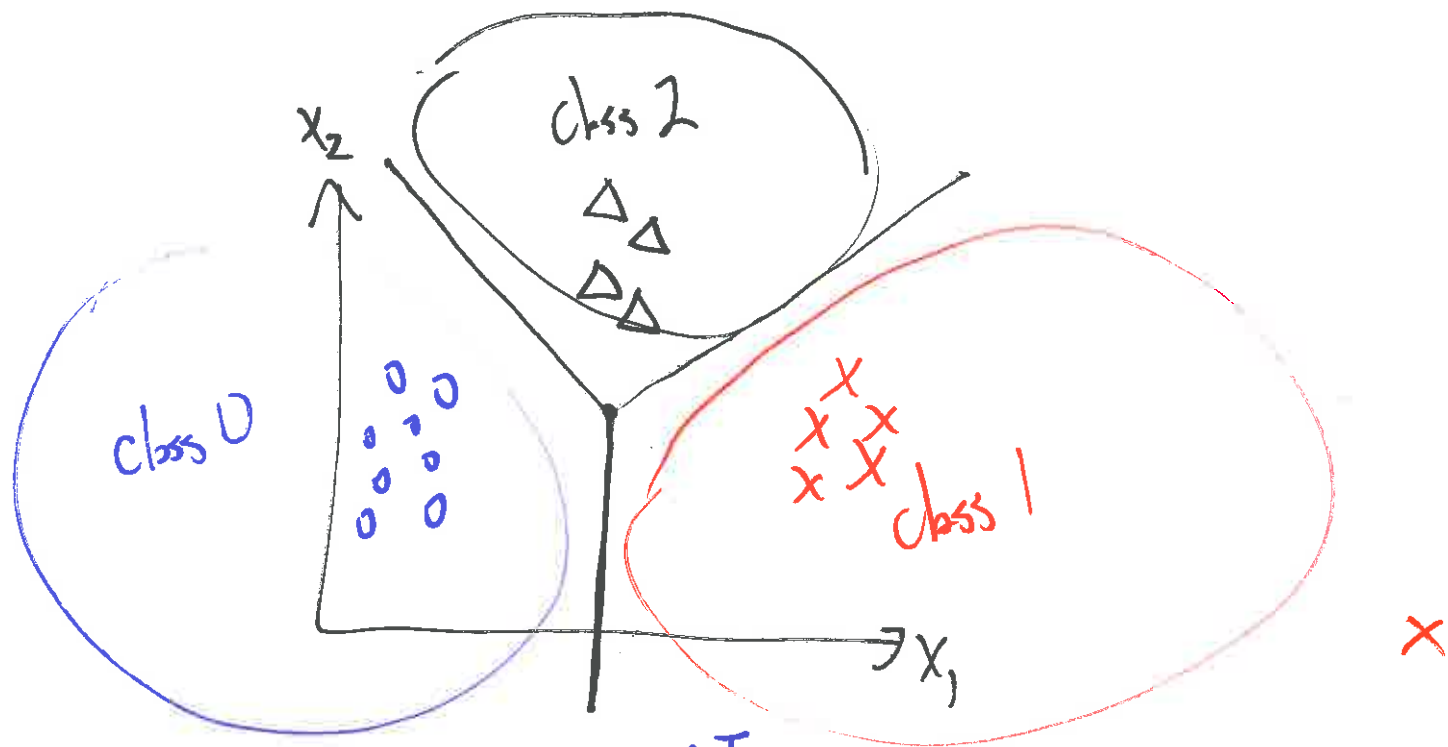
class 0 vs. class 2

"one vs. the rest"

class 0 vs. class 1 \wedge class 2

class 1 vs. class 0 \wedge class 2

⋮



$$y_0(x) = w^{(0)T} x$$

$$y_1(x) = w^{(1)T} x$$

$$y_2(x) = w^{(2)T} x$$

$$\arg \max_k y_k(x)$$

