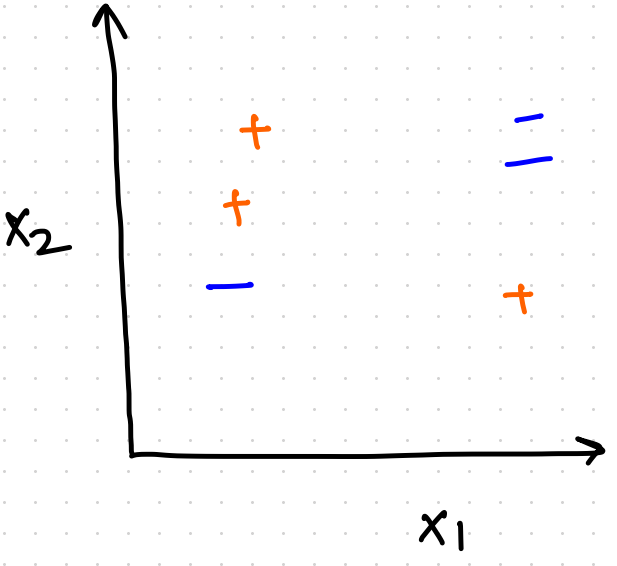
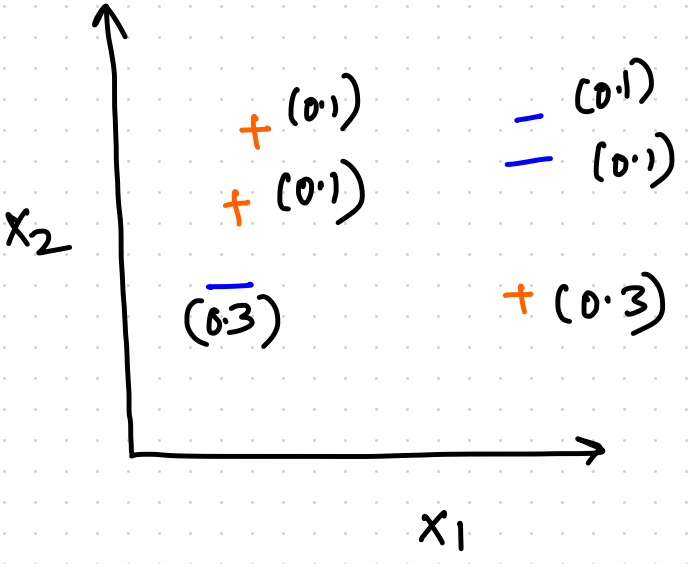
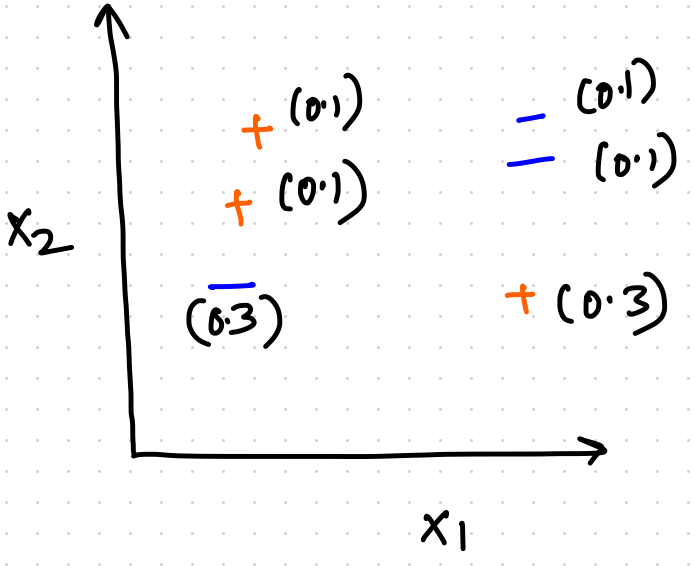
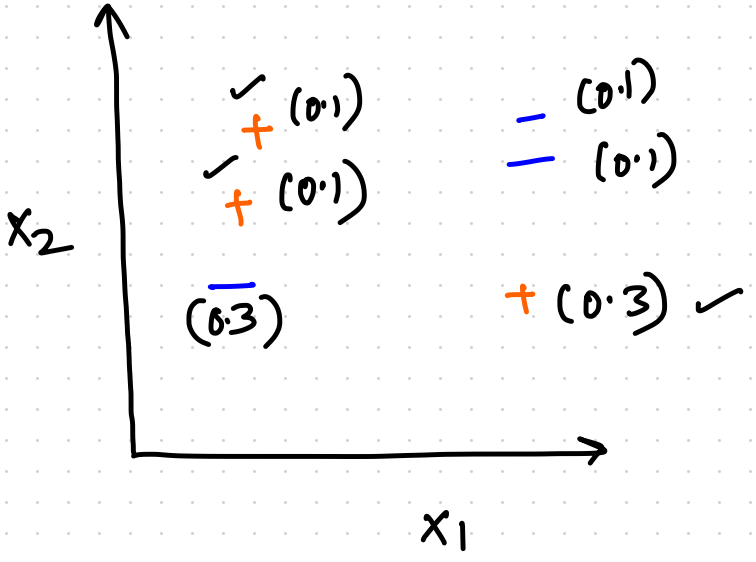

x_2
x_1


+ (0.1)
+ (0.1)
− (0.1)
− (0.1)
(0.3)
+ (0.3)
x_2
x_1



ENTROPY $= -p(+)\log_2 p(+) - p(-)\log_2 p(-)$

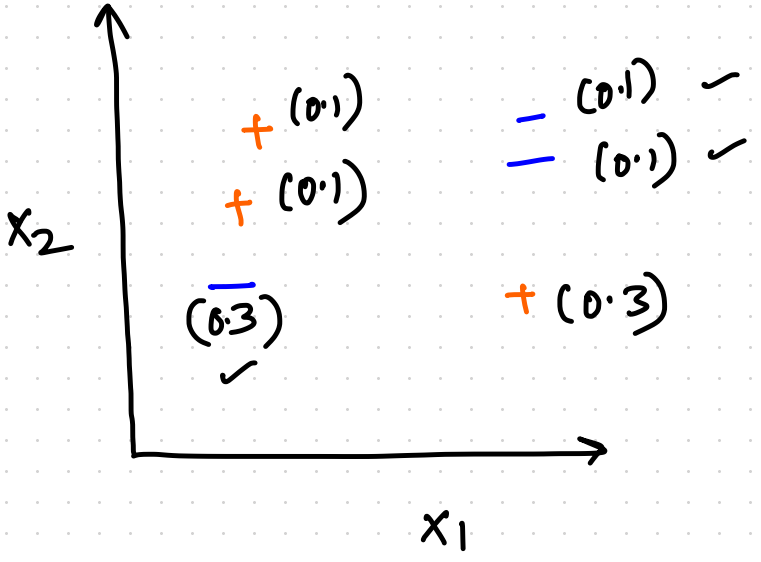
p_+



$$\text{ENTROPY} = -p(+)\log_2 p(+) - p(-)\log_2 p(-)$$

$$p_+ = \frac{0.1 + 0.1 + 0.3}{1} = 0.5$$

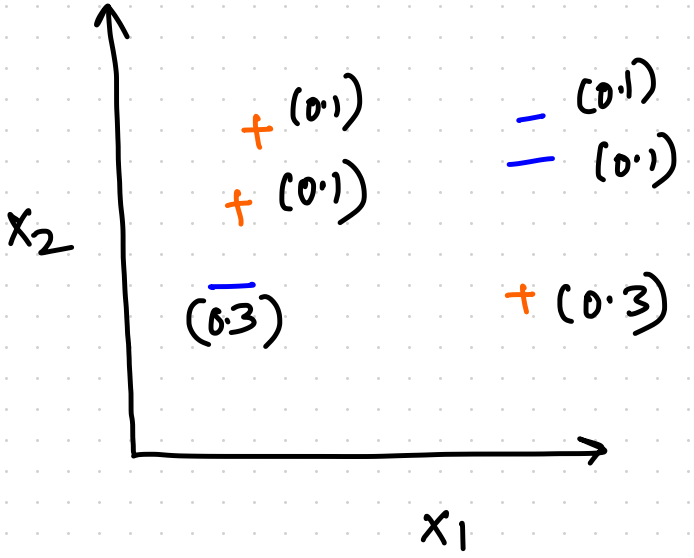
$$p_- =$$



$$\text{ENTROPY} = -p(+)\log_2 p(+) - p(-)\log_2 p(-)$$

$$p_+ = \frac{0.1 + 0.1 + 0.3}{1} = 0.5$$

$$p_- = \frac{0.3 + 0.1 + 0.1}{1} = 0.5$$



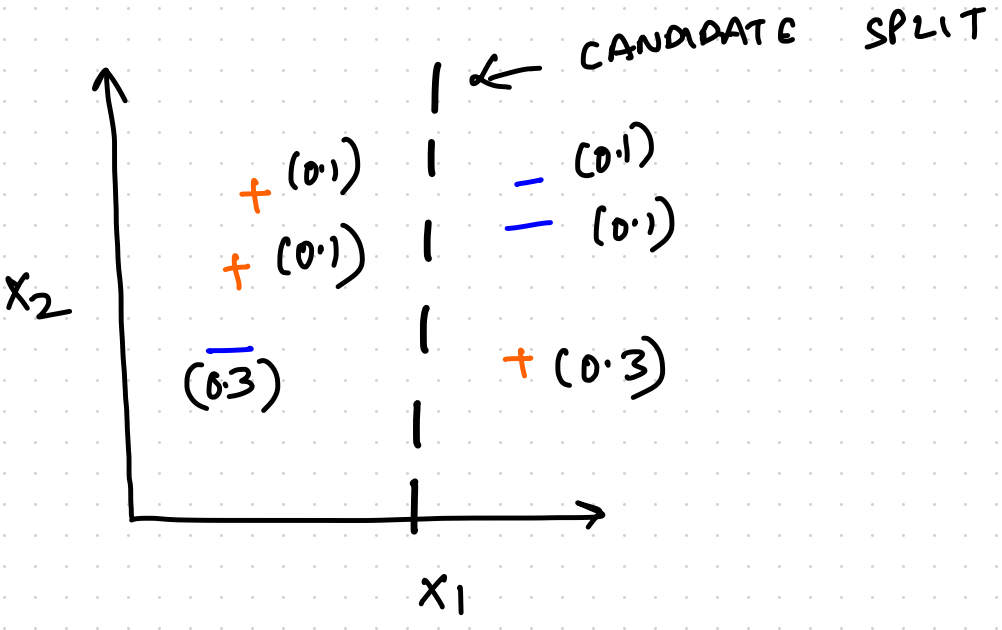
$$\text{ENTROPY} = -p(+)\log_2 p(+) - p(-)\log_2 p(-)$$

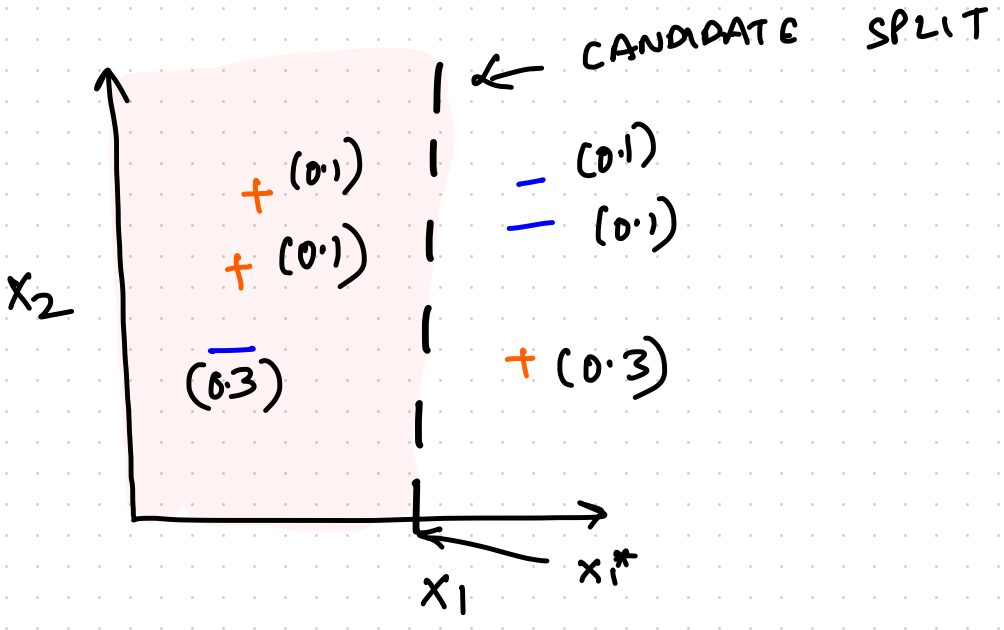
$$p_+ = \frac{0.1 + 0.1 + 0.3}{1} = 0.5$$

$$p_- = \frac{0.3 + 0.1 + 0.1}{1} = 0.5$$

ENTROPY $= E_S$

$$-\frac{1}{2}\log_2\left(\frac{1}{2}\right) - \frac{1}{2}\log_2\left(\frac{1}{2}\right) = \underline{1}$$

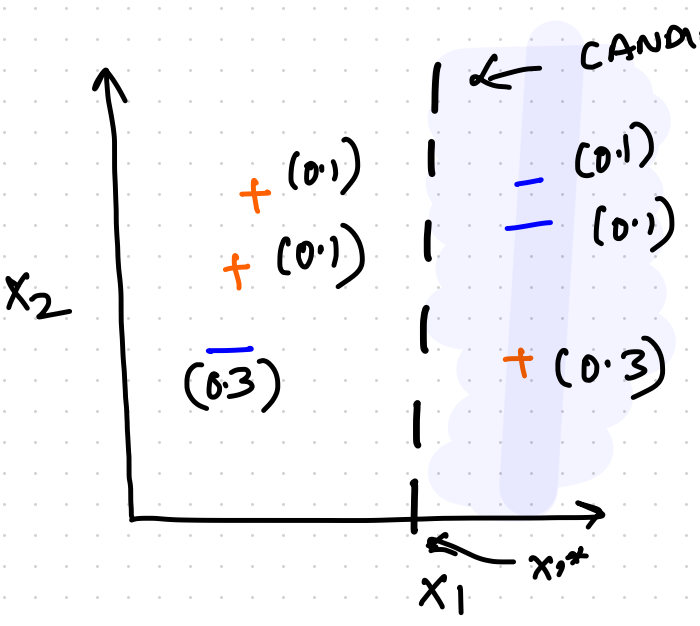

CANDIDATE SPLIT
+ (0.1)
+ (0.1)
− (0.3)
− (0.1)
− (0.1)
+ (0.3)
X_2
X_1



ENTROPY OF $X_1 \leq x_1^*$ = $E_S(X_1 \leq x_1^*)$

$$p+ = \frac{0.1 + 0.1}{0.1 + 0.1 + 0.3} = \frac{.2}{.5}$$

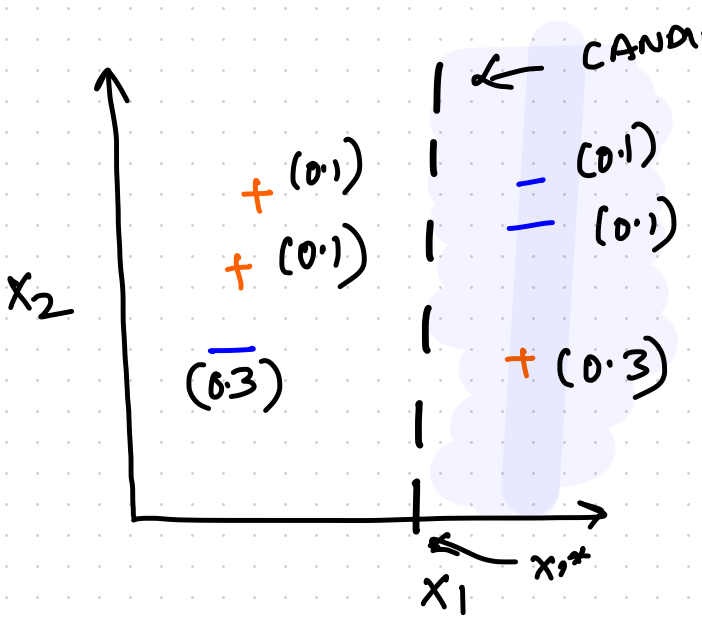
$$p- = \frac{.3}{.5}$$



Entropy of $X_1 > x_1^*$ = $E_S(X_1 > x_1^*)$

$p_+ = \frac{.3}{.5}$

$p_- = \frac{.2}{.5}$



$$IG(x_1 = x_1^*) = E_S - \frac{(0.5)}{1} E_S(x_1 < x_1^*) - \frac{(0.5)}{1} E_S(x_1 \geq x_1^*)$$