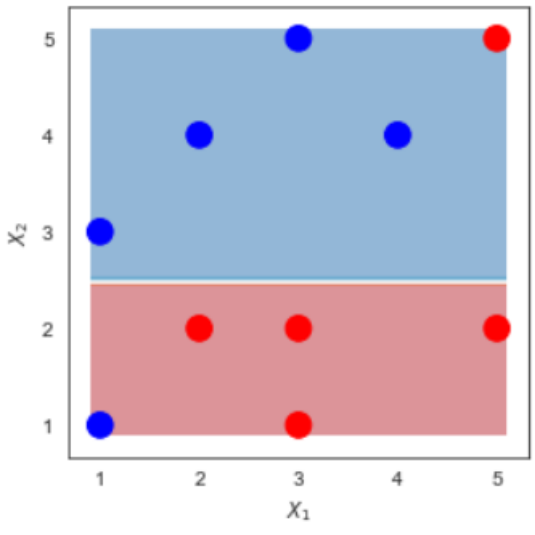
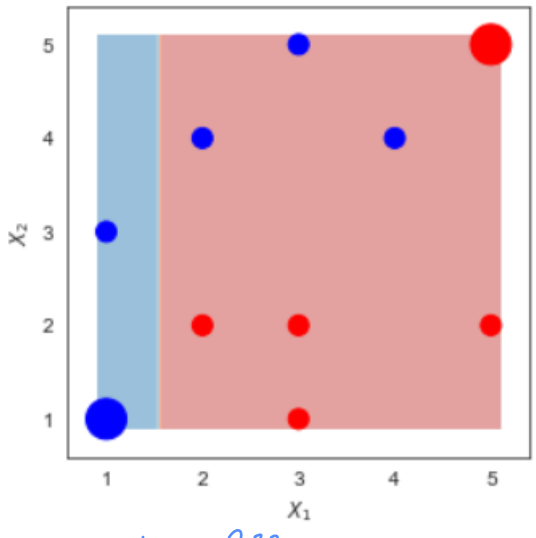
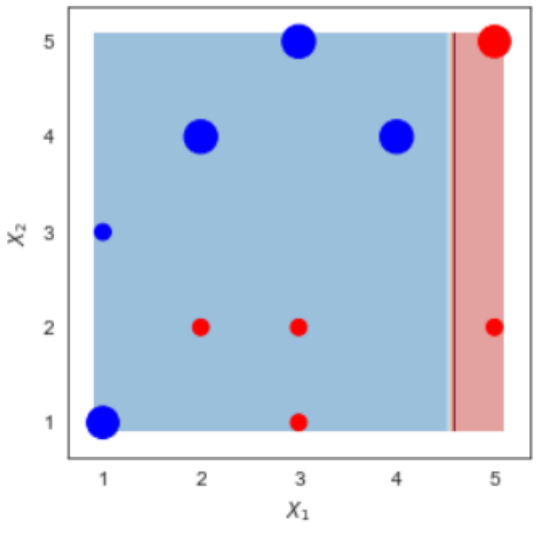
Combining three Stumps

- Let say we stop making new stumps here.
- We will combine the three stumps to make the final model







voting powers

$\alpha_1 = .693$

$\alpha_2 = .733$

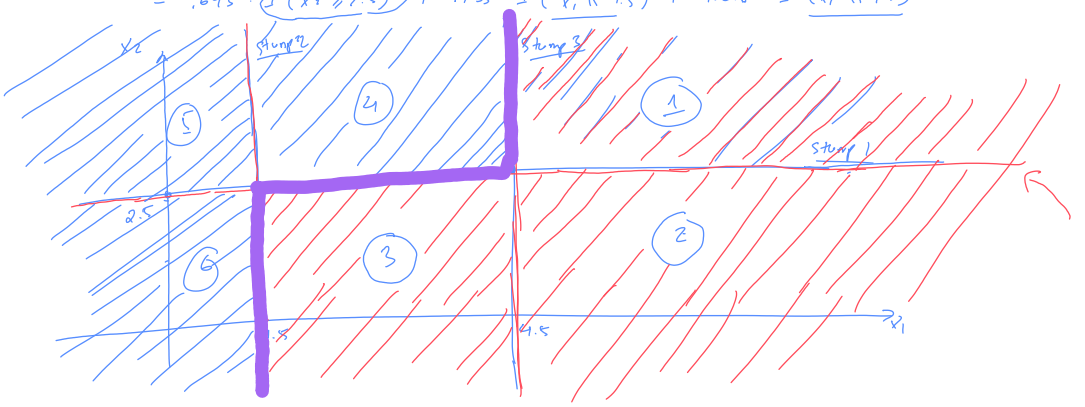
$\alpha_3 = 1.018$

combination $= \alpha_1 \cdot I(X_2 \geq 2.5) + \alpha_2 I(X_1 < 1.5) + \alpha_3 I(X_1 < 4.5)$

$= .693 \cdot I(X_2 \geq 2.5) + .733 \cdot I(X_1 < 1.5) + 1.018 \cdot I(X_1 < 4.5)$

$$C = \alpha_1 \cdot I(x_2 \geq 2.5) + \alpha_2 I(x_1 \leq 1.5) + \alpha_3 I(x_1 \leq 4.5)$$

$$= .693 \cdot I(x_2 \geq 2.5) + .733 \cdot I(x_1 \leq 1.5) + 1.018 \cdot I(x_1 \leq 4.5)$$



Prediction = Sign of C.

Region 1: $C = .693\ I(x_2 \geq 2.5) + .733 \cdot I(x_1 \leq 1.5) + 1.018\ I(x_1 \leq 4.5)$

$= .693 \times 1 + .733 \cdot (-1) + 1.018 \cdot (-1)$

$= .693 - .733 - 1.018 < 0$

$\Rightarrow$ sign $(C) = -1$

Region 2: $C = -.693 - .733 - 1.018 < 0 \Rightarrow$ sign $(C) = -1$

Region 3: $C = \ominus .693 \ominus .733 \oplus 1.018 < 0$

Combining three Stumps