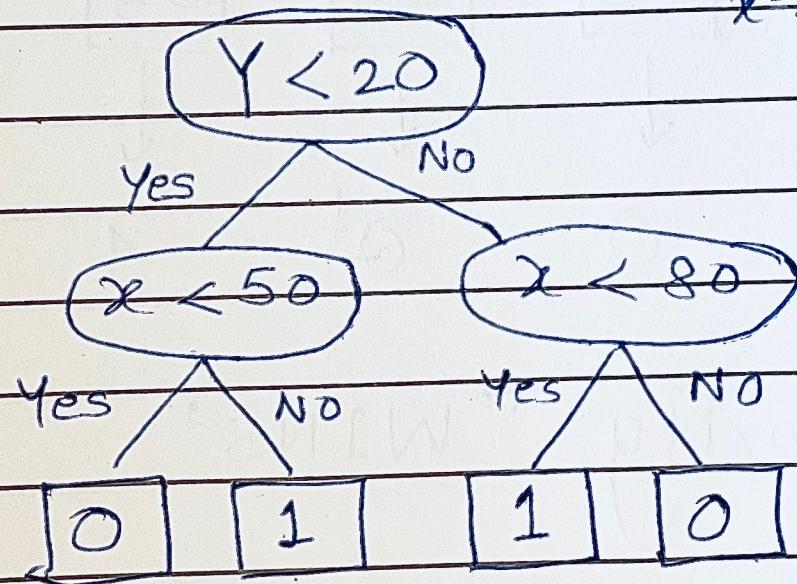
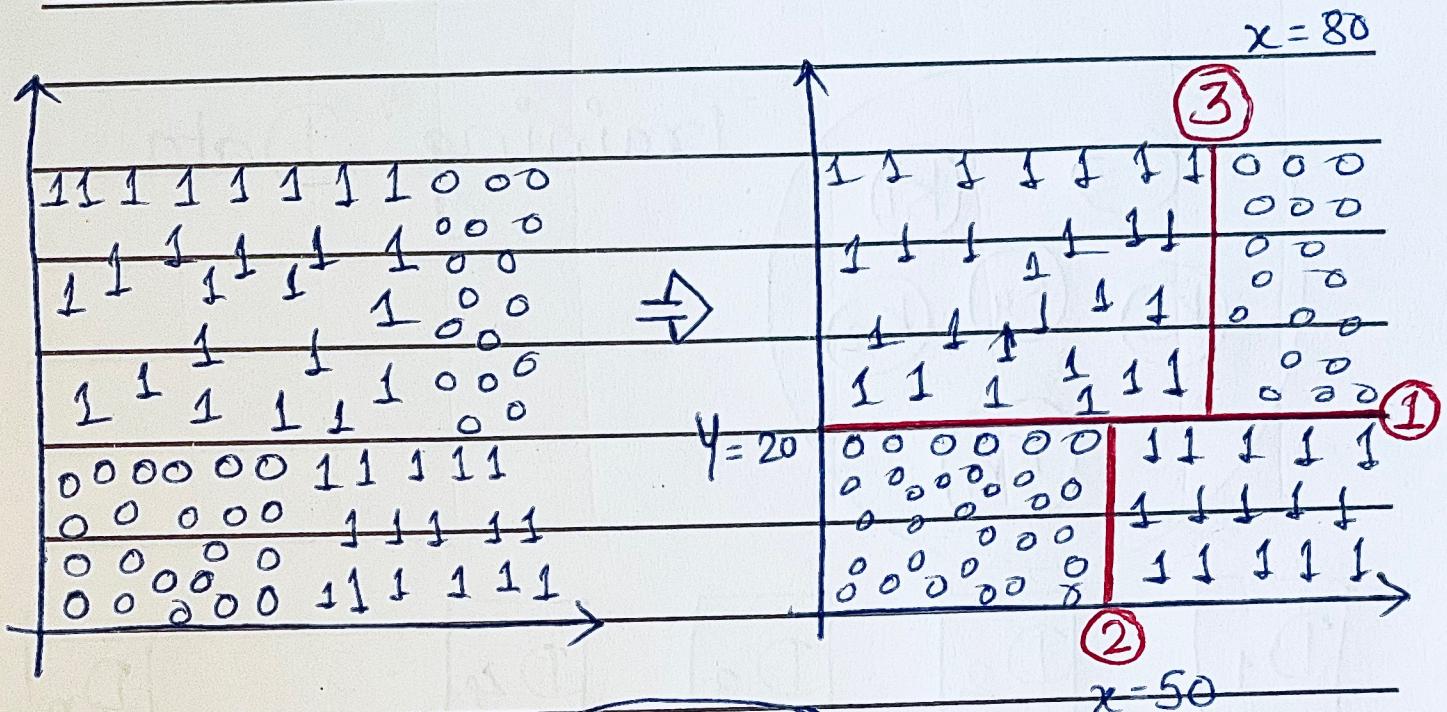
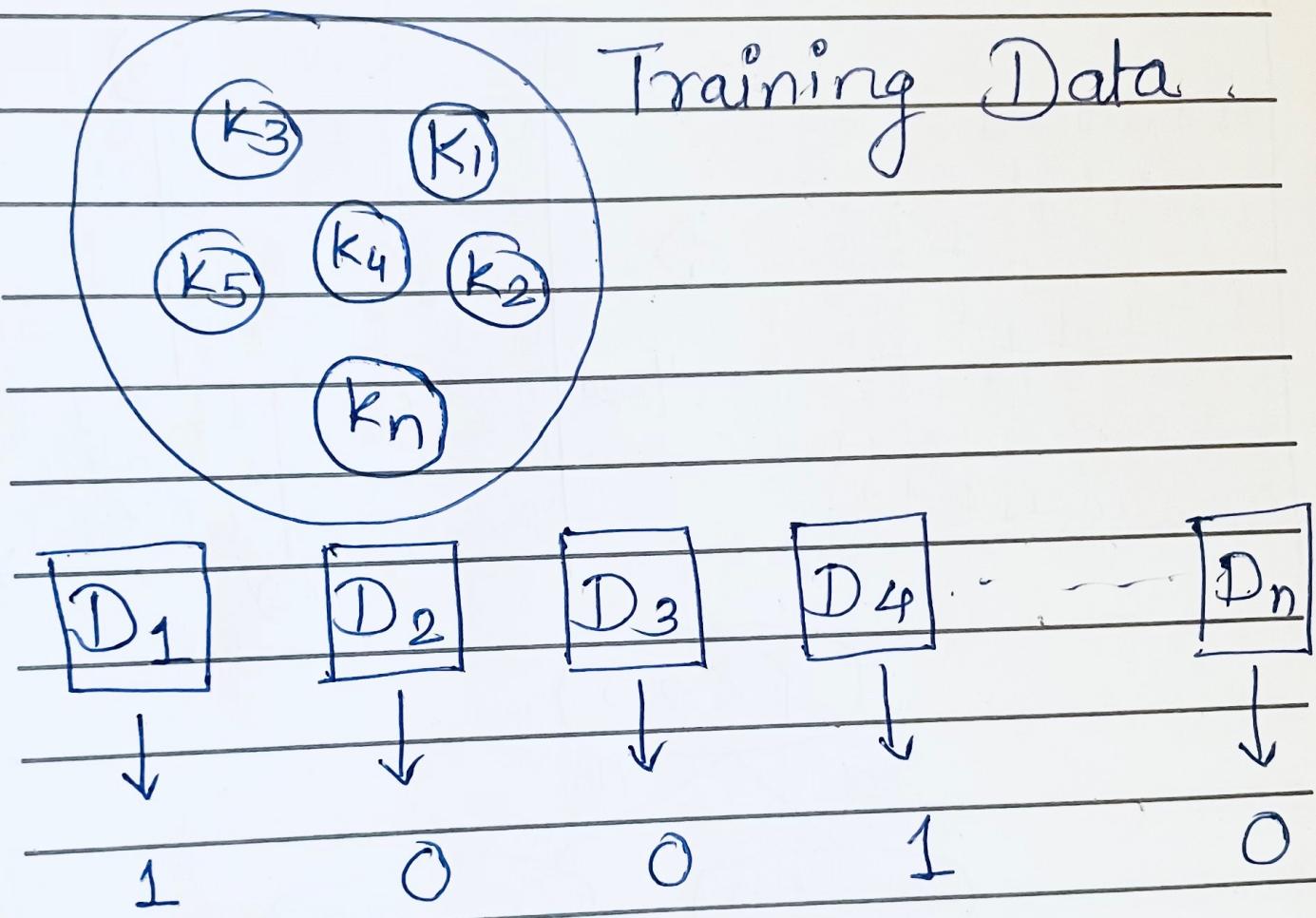


## DTC



Test : (52, 22)

RFC



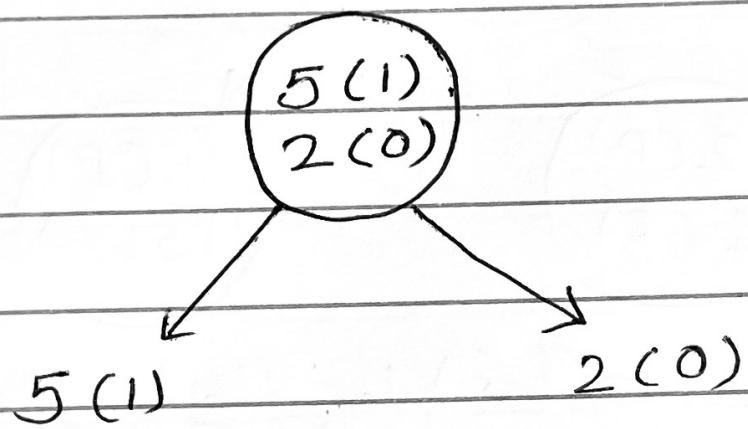
Majority "WINS"

## Entropy

$$E = -P_{(+)} \log_2 P_{(+)} - P_{(-)} \log_2 P_{(-)}$$

probability of  
+ve class

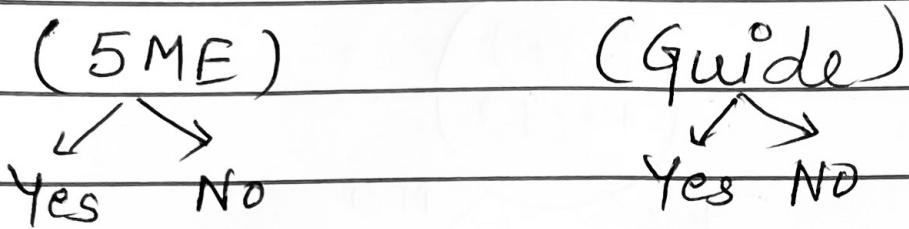
probability of  
-ve class



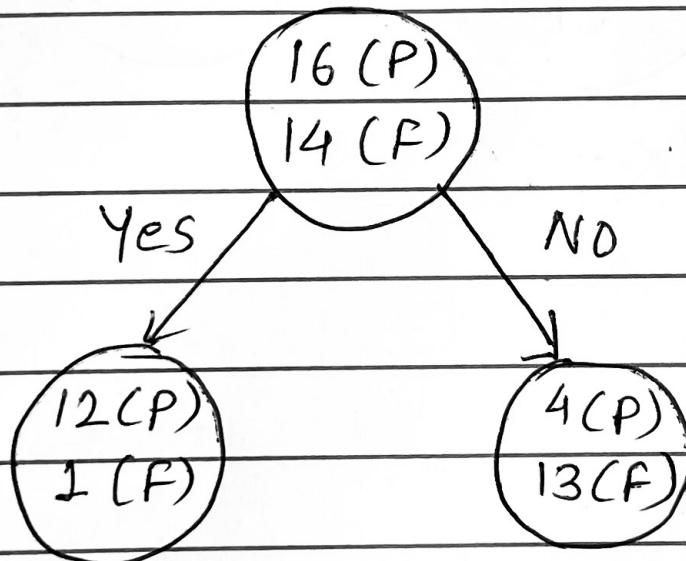
$$\rightarrow -\left(\frac{5}{7}\right) \log_2 \left(\frac{5}{7}\right) - \left(\frac{2}{7}\right) \log_2 \left(\frac{2}{7}\right)$$

$$= 0.85$$

2 features



1) 5ME



$$E(\text{Parent}) = -\left(\frac{16}{30}\right) \log_2\left(\frac{16}{30}\right) - \left(\frac{14}{30}\right) \log_2\left(\frac{14}{30}\right)$$


---


$$= 0.99$$

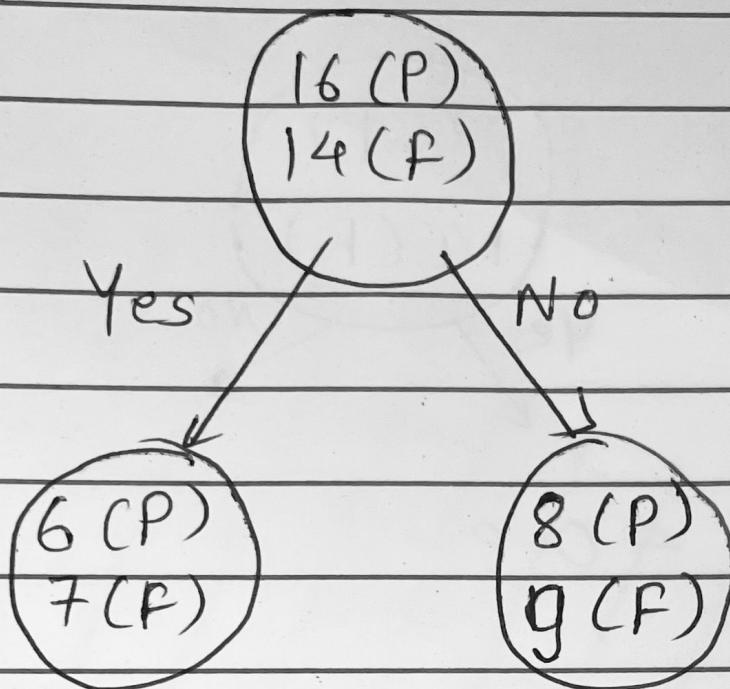
$$E(\text{Parent} | \text{5ME} = \text{Yes}) = 0.39$$

$$E(\text{Parent} | 5ME = \text{No}) = 0.79$$

$$\rightarrow \frac{13}{30} \times 0.39 + \frac{17}{30} \times 0.79 = 0.62$$

$$\rightarrow \frac{0.99 - 0.62}{= 0.37} \text{ I.G}$$

2) Guide



$$E(\text{Parent}) = 0.99$$

$$E(\text{Parent} | \text{Guide} = \text{Yes}) = 0.994$$

$$E(\text{Parent} | \text{Guide} = \text{No}) = -0.817 \quad 0.996$$

$$\rightarrow \frac{13}{30} \times 0.994 + \frac{17}{30} \times 0.996$$

$$= 0.43 + 0.56$$

$$= 0.99$$

$$\rightarrow 0.99 - 0.89 = 0.00 \quad IG$$

∴

$$0.37 > 0.00$$