

Decision tree

$$\sum_{i=1}^m -p_i \log_2 p_i$$

$$= \left(-\frac{5}{14} \times \log_2 \frac{5}{14} \right) + \left(-\frac{9}{14} \times \log_2 \frac{9}{14} \right)$$

$$= 0.94 \text{ bits}$$

$$\left(\frac{5}{14} \times \left(-\frac{3}{5} \times \log_2 \frac{3}{5} + \left(-\frac{2}{5} \times \log_2 \frac{2}{5} \right) \right) + \right.$$

$$\left. \frac{4}{14} \times \left(\left(-\frac{4}{4} \times \log_2 \frac{4}{4} \right) + \left(-\frac{0}{4} \times \log_2 \frac{0}{4} \right) \right) + \right.$$

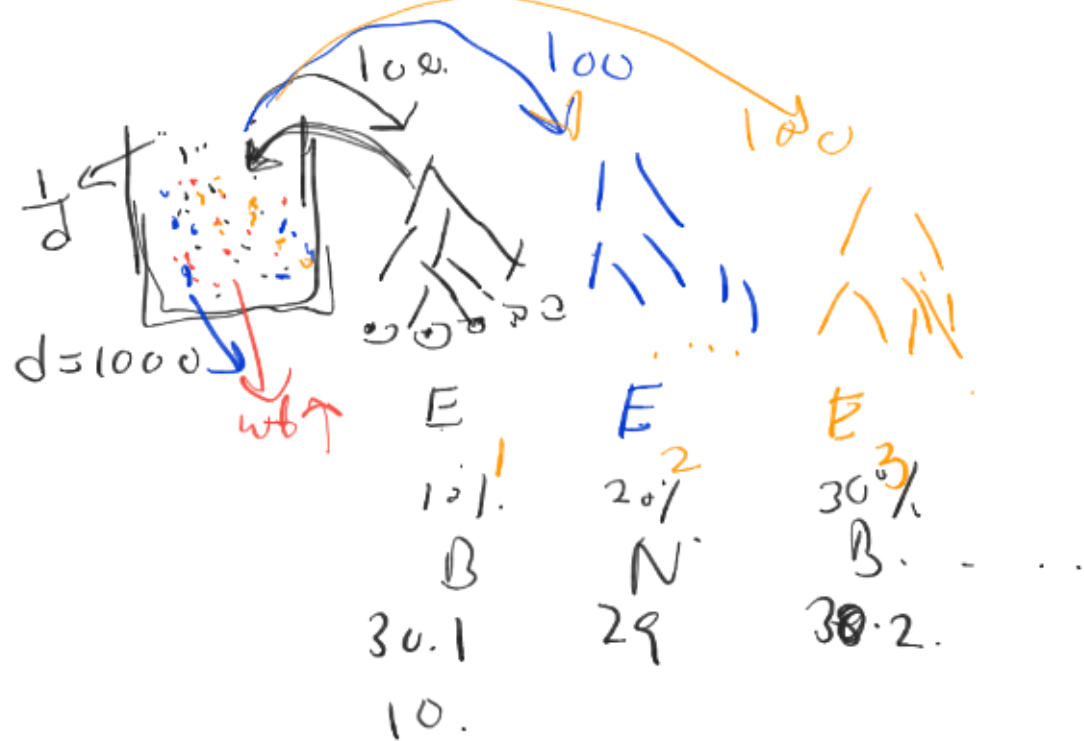
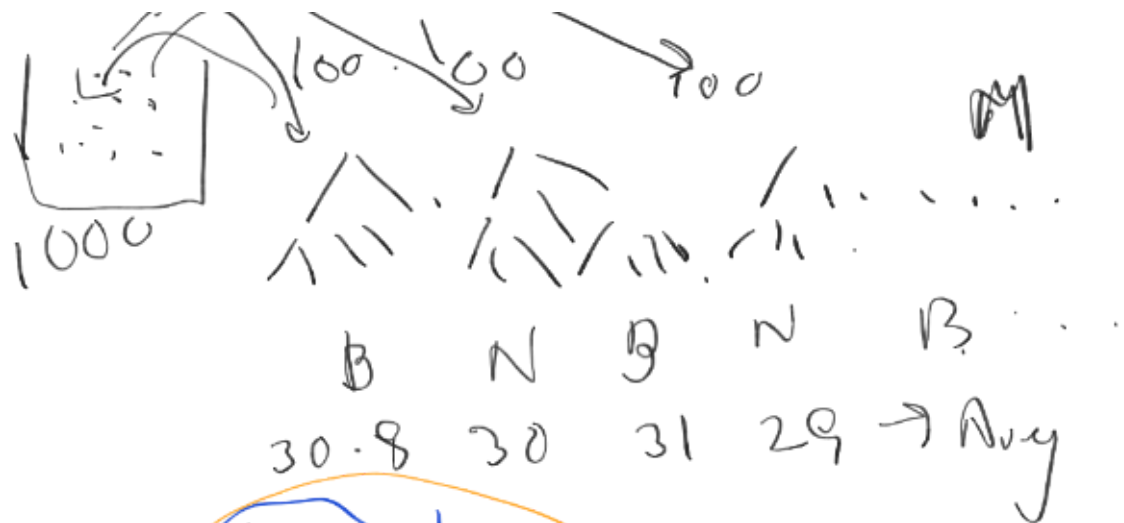
$$\left. + \frac{5}{14} \times \left(\left(-\frac{3}{5} \times \log_2 \frac{3}{5} \right) + \left(-\frac{2}{5} \times \log_2 \frac{2}{5} \right) \right) \right)$$

$$= 0.694 \text{ bits.}$$

$$\text{Gain}_{\text{age}} = 0.94 - 0.694 \text{ bits}$$

$$= 0.246 \text{ bits}$$





$$\frac{1}{1000} \times 10.1$$

0.01

$$0.2$$

$$\frac{1}{1000} \times \left(\frac{0.2}{1-0.2} \right)$$

$$\frac{1}{1000} \times \frac{0.2}{0.8}$$

$$= \frac{1}{1000} \times 0.25$$

if it → correctly classified samples

$$M_1 = 0.11$$

$$M_2 = 0.3 \uparrow$$

$$\frac{1-0.1}{0.1}$$

9 ↑

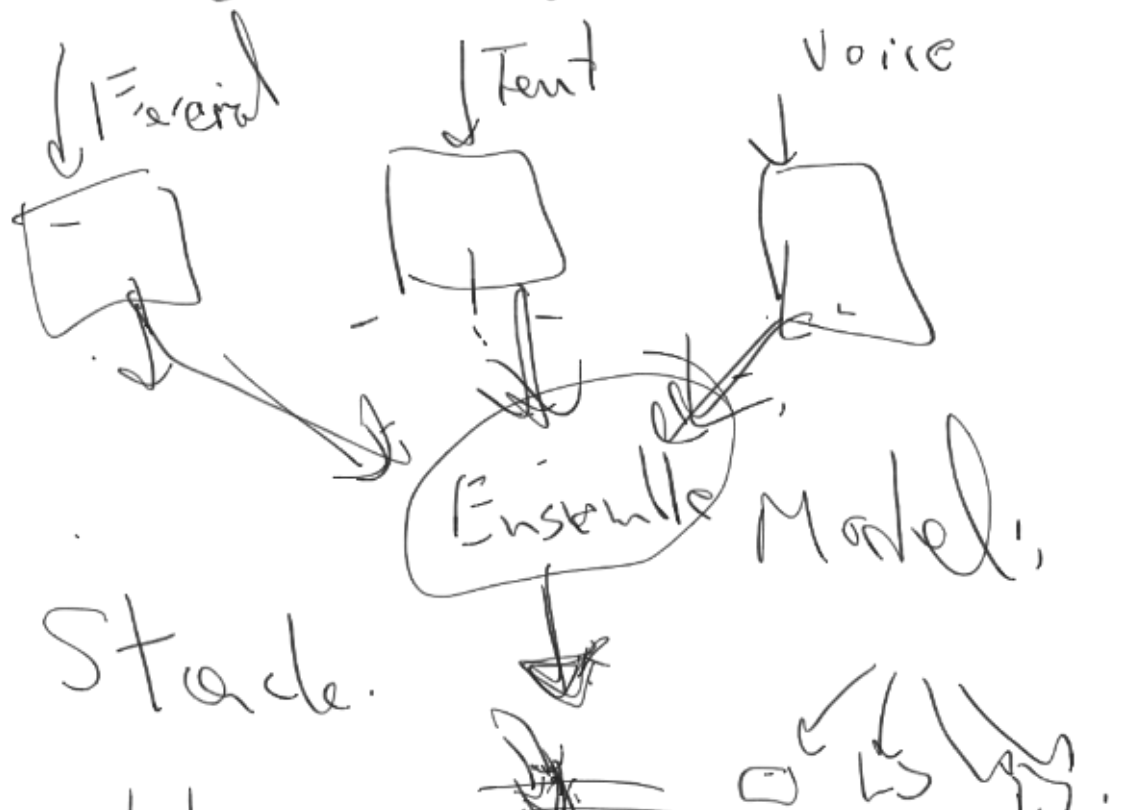
$$\frac{1-0.3}{0.3}$$

2... ↓

M_1	M_2	M_3	M_4	M_5
B	B	N	<u>N</u>	B
1	2	5	7	2
	5		12	
30.1	30	29		28

$$30.1 \times 1 + 30 \times 2 + 29 \dots$$

Sum of weight.





time series predictions

XGB - Extreme Gradient boost

Kaggle