

Mm imi VM 9

measure the reduction

- we need to a metric to
- High entropy, high level of disorder.
- High level of uncertainty.

$$Entropy(D) = 0.88$$

$$Entropy(D) = -\frac{1}{3} \log_2 \left(\frac{1}{3}\right) - \frac{1}{3} \log_2 \left(\frac{1}{3}\right) - \frac{1}{3} \log_2 \left(\frac{1}{3}\right) =$$

30 are +
70 are -

classes!
+ odd -

A data set D, has 100 instances, two

Example

classes

- c is the # of

can

probability of a

- p_i is the

$$E(S) = \sum_{i=1}^c -p_i \log_2 p_i$$

Entropy: A measure of uncertainty.
" of disorder.

2

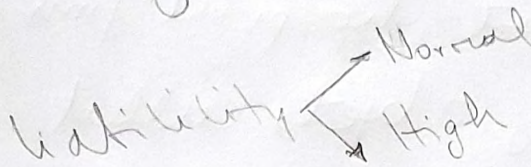
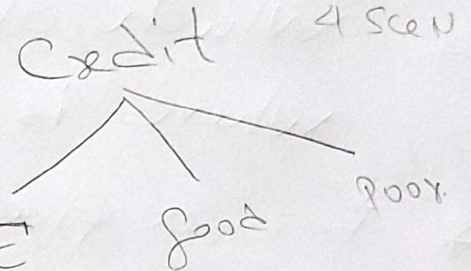
liability.
Normal
3
4
0

High
1
2
4

Credit
Excellent
good
poor

@@@86875EE

Nestle's Aden.



	Credit	liability.	N: 3 H: 1
1	Exc	N	
2	Ex	N	
3	Ex	N	
4	Ex	H	
5	Good	N	
6	Good	N	
7	Good	N	
8	Good	H	
9	Good	H	
10	Good		
11			
12			

(3)

$$\underbrace{\text{Entropy (Liability)}}_{\text{Whole Data Set}} = -\frac{7}{14} \log_2\left(\frac{7}{14}\right) - \frac{7}{14} \log_2\left(\frac{7}{14}\right)$$

$$\text{Entropy (Parent)} = -\frac{1}{2} \log_2\left(\frac{7}{14}\right) - \frac{1}{2} \log_2\left(\frac{7}{14}\right) = 1$$

$$\text{Entropy (Credit = Excellent)} = -\frac{3}{4} \log_2\left(\frac{3}{4}\right) - \frac{1}{4} \log_2\left(\frac{1}{4}\right)$$

$$\boxed{\text{Entropy (Credit = Excellent)} = 0.811}$$

$$\text{Entropy (Credit = Good)} = 0.918$$

$$\text{Entropy (Cr = poor)} = -0 \log_2(0) - \frac{4}{4} \log_2\left(\frac{4}{4}\right)$$

$$\text{Entropy (Liability | Credit)} = \frac{4}{14} \times 0.811 +$$

$$\boxed{\text{Entropy (Credit)} = 0.625}$$

$\frac{6}{14} \times 0.918 + \frac{4}{14}$