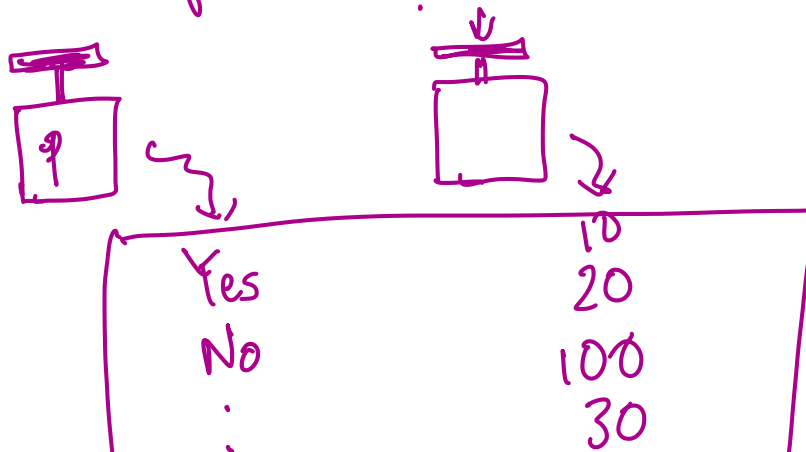


# Lecture 5 (Probability, Information)

Monday, 14 August 2023 5:01 PM

Yes	Normal	Red			
No	Spam	Blue			
	Urgent	Green			
		Yellow			
			# of mins spent @ prof	Branch	# of lectures or attend
classes					Grade in SMAI
Yes				CSE	
				CSE	
				⋮	
				CSE	

What does it mean for a feature/attribute to be "informative"?



$$I = 0$$

$$p(\text{Branch} = \text{CSE}) = 1$$



A R.V

" taking a particular value.  
Information from a R.V  $X$  is related to its probability

$$I(X=x) \propto I(x) \propto \frac{1}{p(x)}$$

[c]  $I(\text{Branch} = \text{CSE}, \text{Rain} = \text{Yes})$   
 $= I(\text{Branch} = \text{CSE}) + I(\text{Rain} = \text{Yes})$

$$I(x) = \log\left(\frac{1}{p(x)}\right) \quad \text{Information}$$

