## Lecture-4 (Performance Measures)

iday, 11 August 2023 4:30 PM	Predicted			Pr
		+	( - <u>)</u>	
A 1	+	TP	FN	_
Actual		FP	TN	¥.
		1	<u> </u>	

- O<P<1, O<R<1

   Precision is undefined: TP+FP=O

  → Classifier predicts everything as —
- · Recall is undefined: TP+FN=0 - Samples are from - days only
- P=1 > TP = 1 > TP=TP+FP > FP=0
- · R=1 => FN=0
- P+R F1-score =  $\frac{2PR}{P+R} = \frac{TP}{TP+\frac{1}{2}(FA+FN)}$

(	MultiClass	Classi	fication-	Performa
	1	Uvgent	Actual Normal	Spain
	Urgent	8	10	1
,	Normal	5	60	50
	Spam	3	30	200
	<u> </u>	1.1.	٠ ١	1

unce	Measures	
1	Confusion	matix
	1-VS-	rest

Urgent | Not Urgent | Purgent = 
$$\frac{8}{8+11}$$
 =  $\frac{8}{17}$ 

Purgent | Rurgent =  $\frac{8}{8+11}$  =  $\frac{8}{17}$ 

Not Urgent | 8 | 340 | Rurgent =  $\frac{8}{8+8}$  =  $\frac{8}{16}$ 

$$P_{\text{Urgent}} = \frac{8}{8+11} = \frac{8}{17}$$

$$P_{\text{Urgent}} = \frac{8}{8+8} = \frac{8}{16}$$

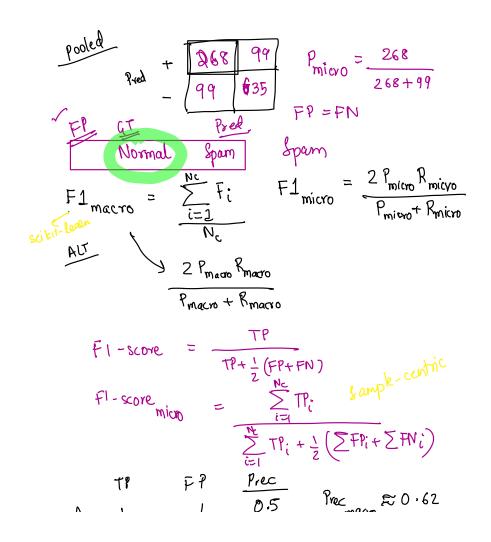
Actual 
$$\frac{209}{\text{Span}}$$
 Not span  $\frac{209}{\text{Span}}$   $\frac{200}{233}$   $\frac{2}{\text{Span}}$   $\frac{200}{251}$   $\frac{2}{\text{Span}}$   $\frac{200}{251}$   $\frac{2}{\text{Span}}$   $\frac{2}{\text{Span}}$ 

$$\frac{1}{8} p_{com} = \frac{200}{233}$$

$$\frac{1}{8} p_{com} = \frac{200}{251}$$

$$= 0.88$$

	Actual Not Nort				
	\	Mooney	Not Money		
9	Noonal	(LO)	55		
E d	Not Noom	40	<b>2</b> 12		



2 of 3

3 of 3