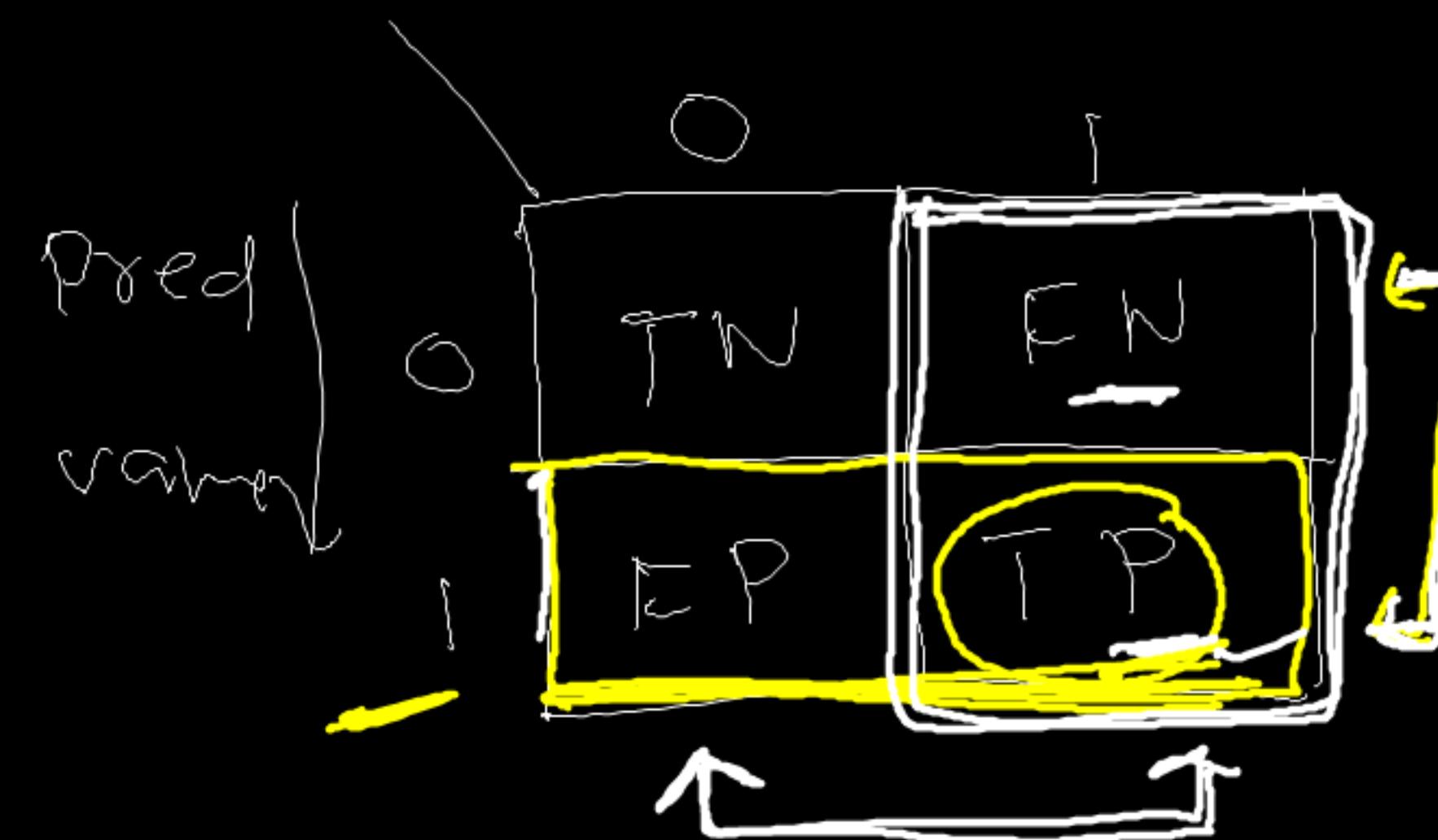


Actual value



Precision

$$= \frac{TP}{TP + FP}$$

of all the points the model

1000

declared | Predicted to be (+)ve , what  
%age of them are actually positive

0	1
0	800
1	50
850 (150) - Act.	

$$\frac{50}{100} = 50\%$$

# Recall / Sensitivity

$$\text{Recall} = \frac{\text{TP}}{\text{FN} + \text{TP}}$$

of all the actually (+)ve points, how much %age

of them are actually predicted (+)ve

$$\text{Specificity} = 1 - \text{Sensitivity}$$

100  $\times$   $\frac{90}{100}$   $\frac{+ve}{-ve}$

$$\boxed{F_1 - \text{Score} / F_1 - \text{Steps}} = 2 * \frac{\text{Precision} * \text{Recall}}{\text{Precision} + \text{Recall}}$$

The idea comes to set  
 $f_1$ -Score from harmonic mean - 12th class

Kattle competition  
 it is used very frequently

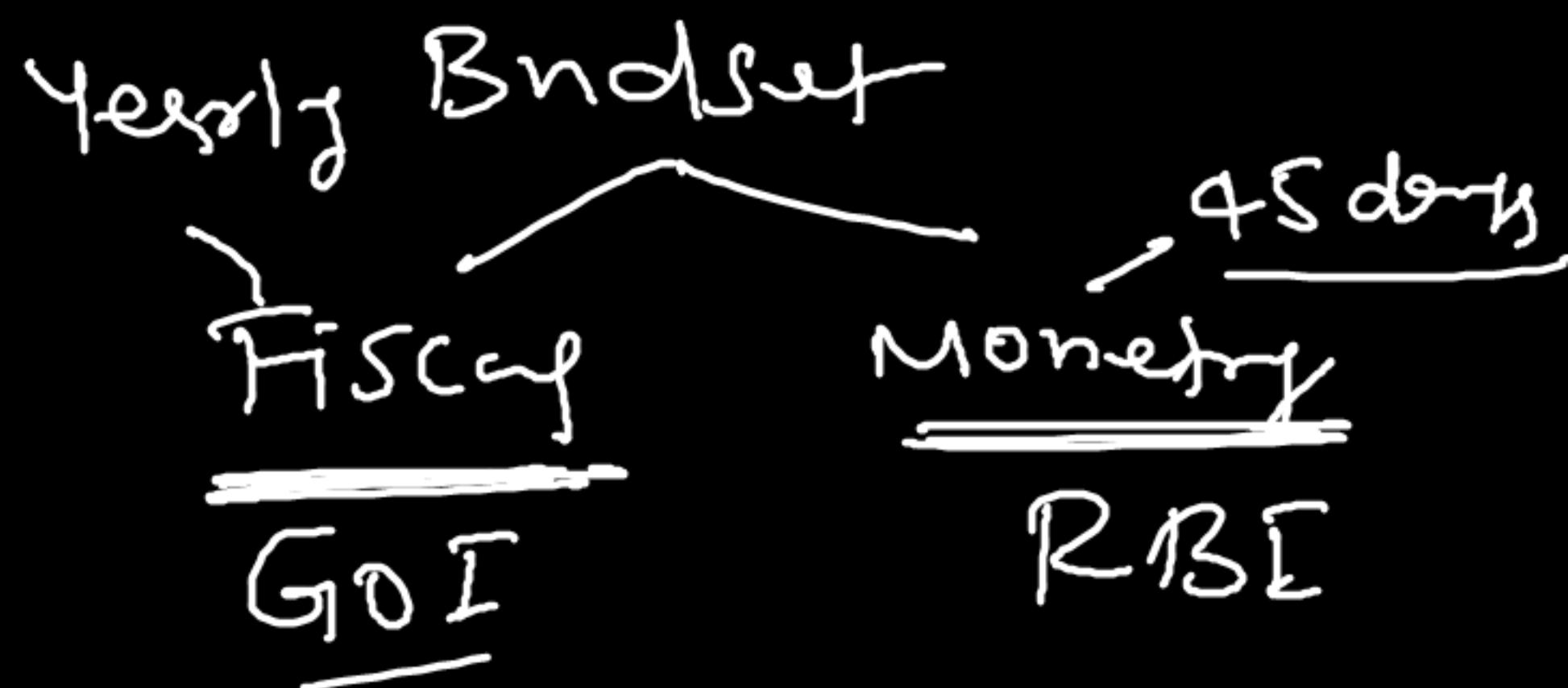
$$F_1 = \frac{2}{\frac{1}{\text{Precision}} + \frac{1}{\text{Recall}}} = \text{Avg}(\text{inv Recall}, \text{inv Precision})$$

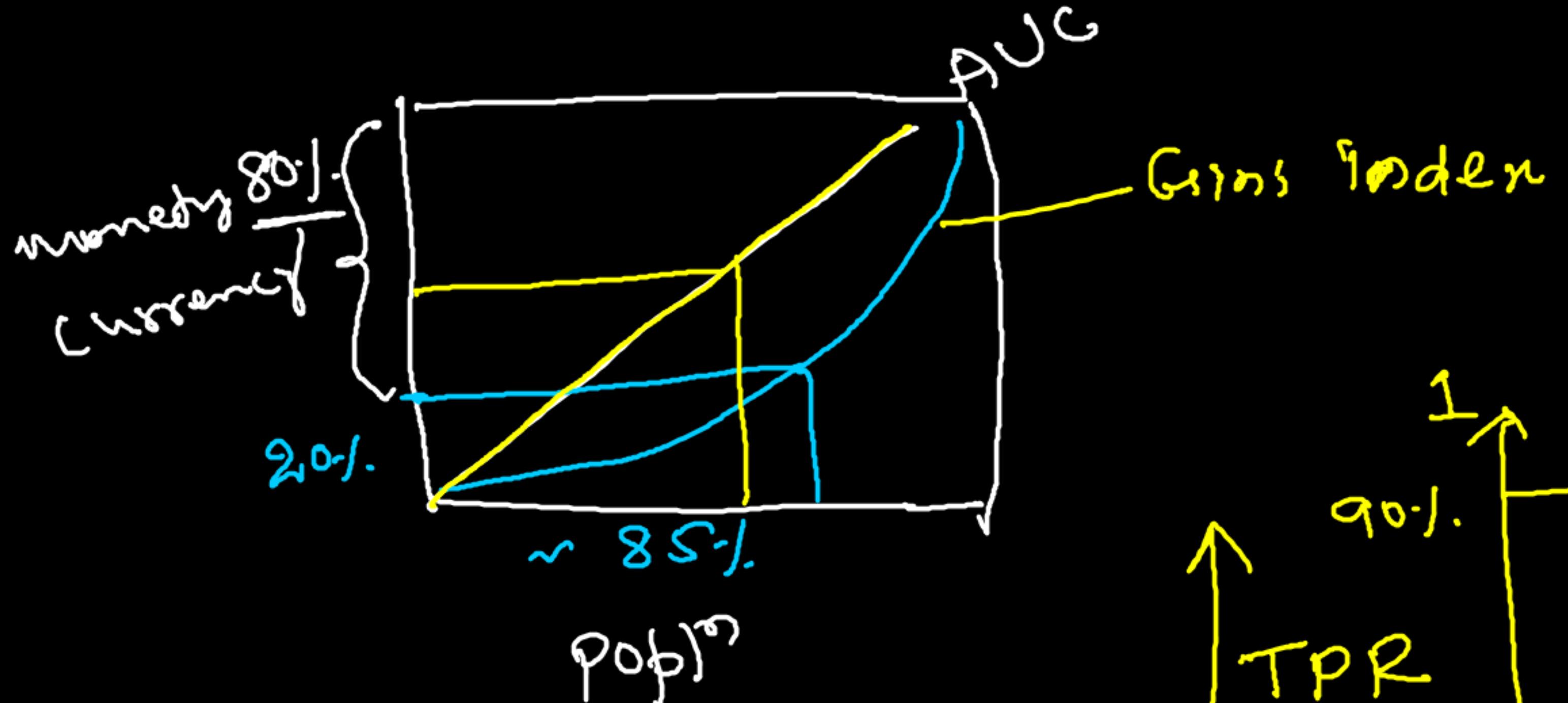
NOTE :- Precision & Recall are more interpretable and can be express in simple English. however, F1-Score is little complex to explain in English.

ROC - Receiver Operating Characteristic curve

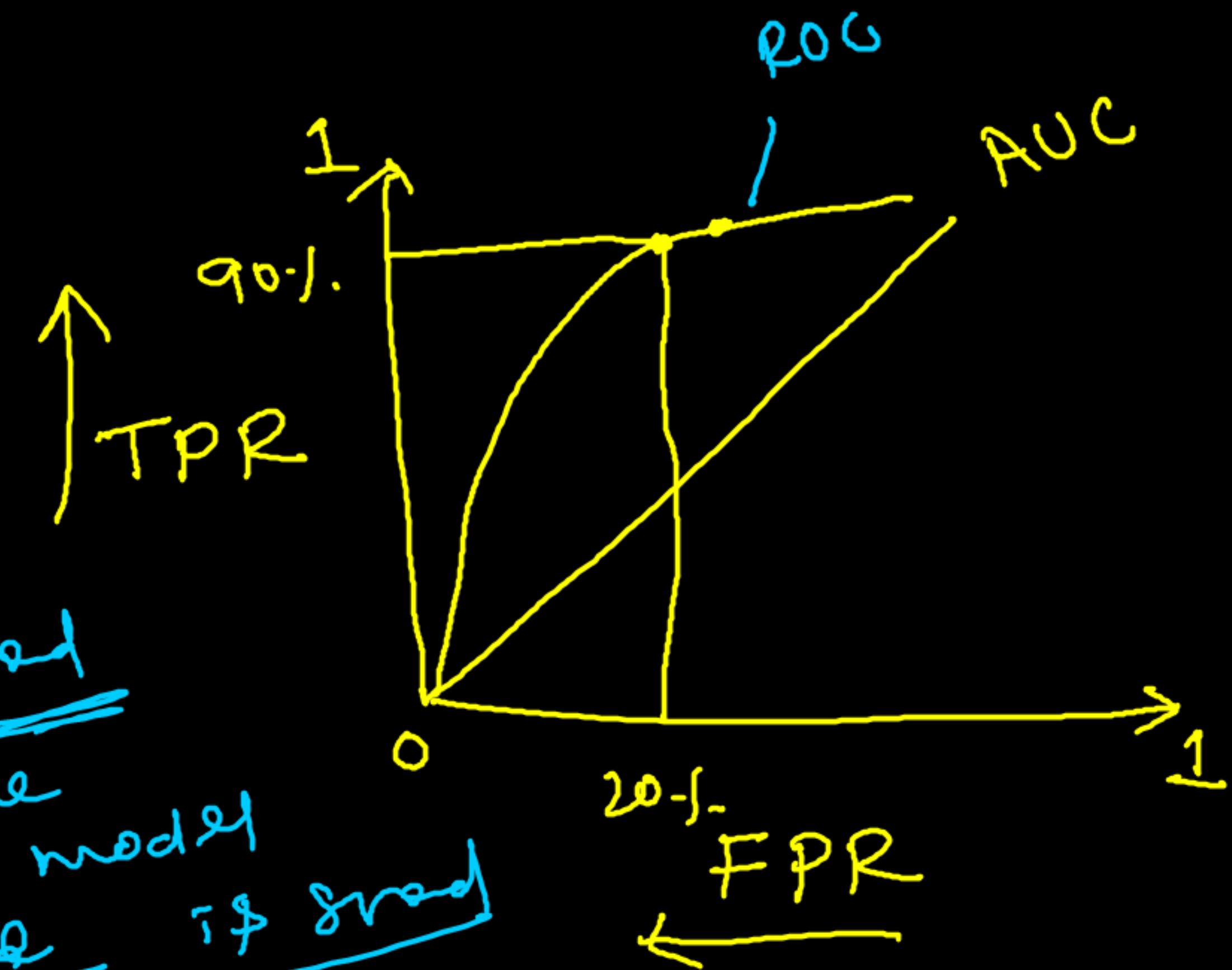
AUC — Area under curve

↳ electronic & radio engineers during World War II  
as how good their missile were working.

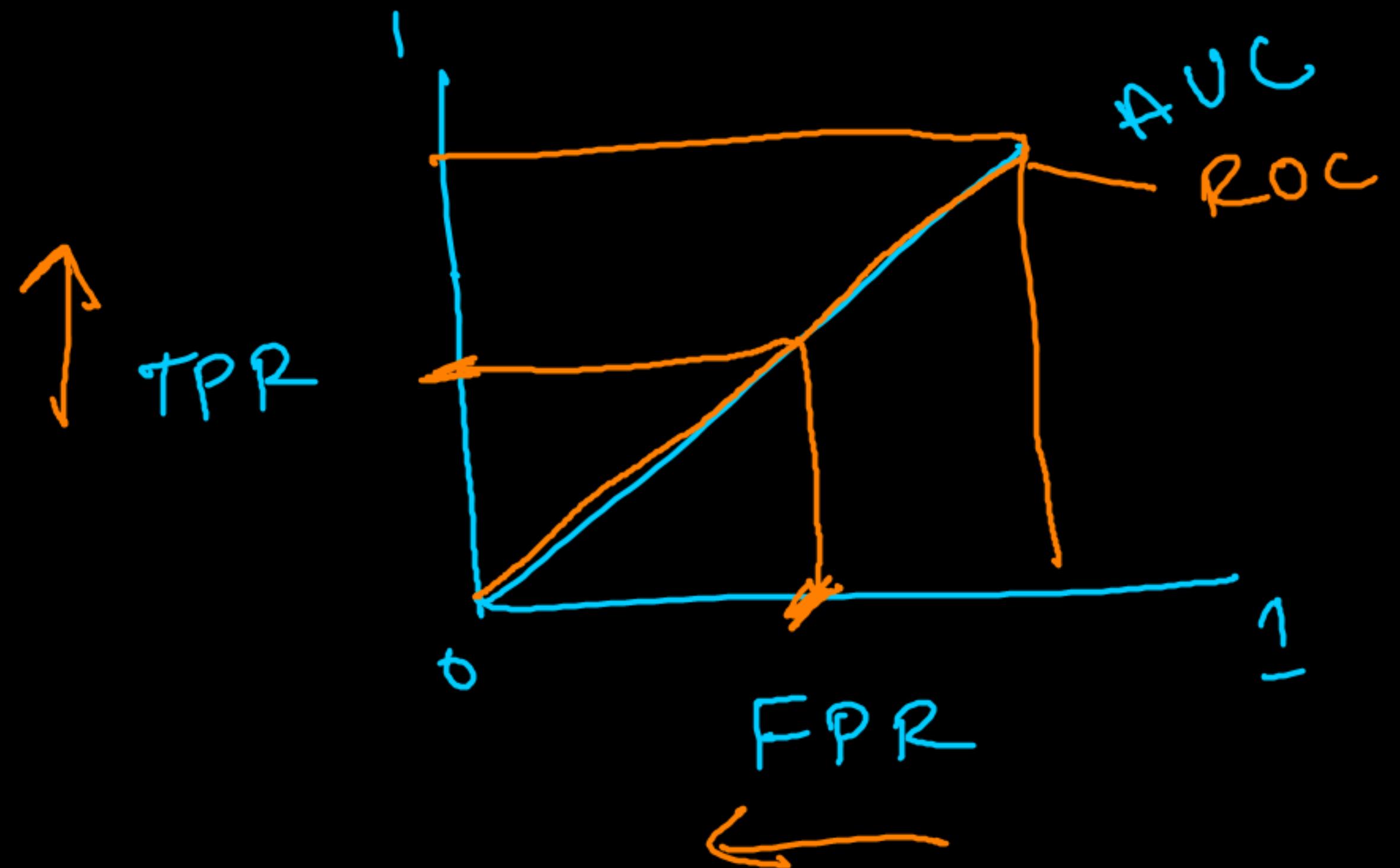




CASE I :- Good  
 ROC upper line  
 model is good  
 AUC line



Case II - improvement is required - okey - okey monkey



case III :- worst model  
- Reject ~~the~~

