Evaluation of classifier:

	height	Weigth	B.P.Sys	B.P dis	Heart disease(y)	
1	62	70	120	80	Not	No
2	72	90	110	70	Not	Yes
3	74	80	130	70	Not	Not
4	65	120	150	90	Yes	Yes
5	67	100	140	85	Yes	Not
6	64	110	130	90	Not	Yes
7	69	150	170	100	Yes	Yes
8	75	170	100	95	Yes	No
9	66	100	95	80	Yes	Yes
8						

checked by doctor ↓ predicted ↑

Gold label:/Gold Standard/Target/Ground Truth.

TP:→ The model predict as heart disease and the patient has heart disease.

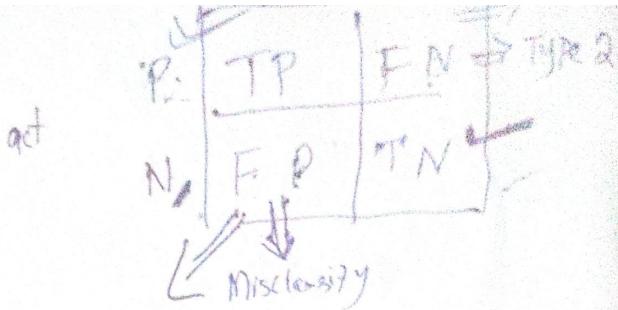
FP:→ The model predict as heart disease but in actual he has not heart dise

TN:→ The model predict as he has not heart disease but in actual he has

FN:→ The model predict as he has not heart dieze but In actual has has not heart disease

FP (I)

FN (II) → Misclassification.



Recall → out of the actual Positive cases how many did the model correctly identify as +ive

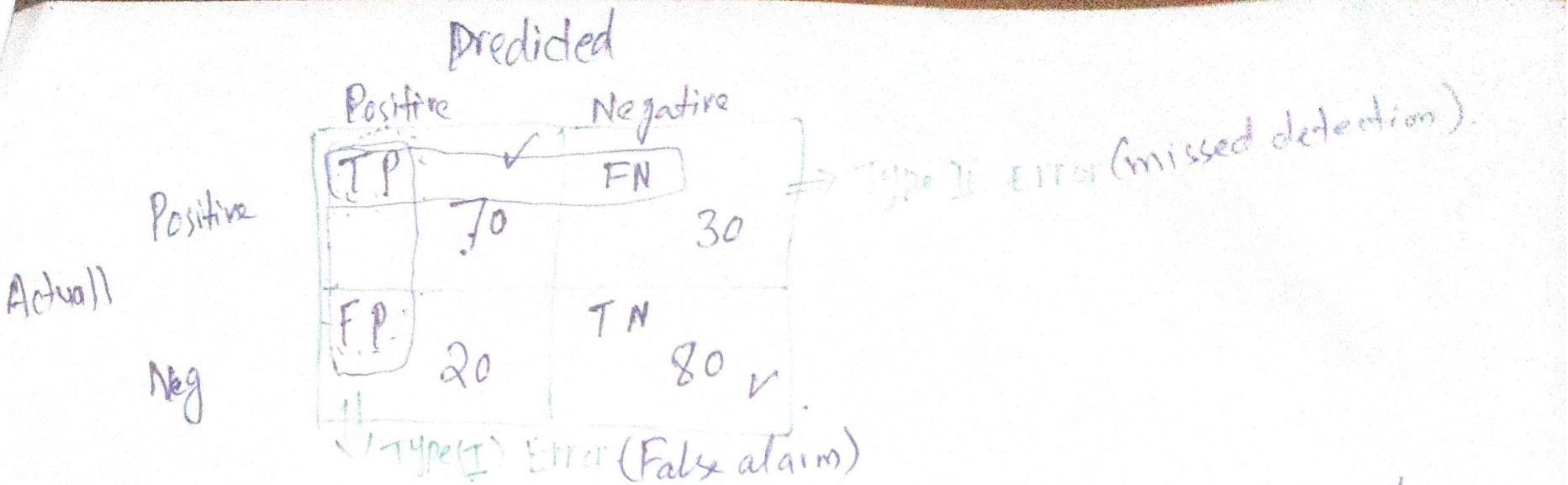
$$R = \frac{TP}{TP + FN} \Rightarrow$$

P = out of all cases the model predicted as positive how many we actually Positive.

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

$$F_1 = \frac{2 * P * Recall}{Precision + Recall} \Rightarrow \text{Harmonic Mean of precision \& Recall}$$

$$\frac{1}{P} + \frac{1}{R} = \frac{}{R \cdot}$$



Precision: $P = \frac{TP}{TP+FP} = \frac{70}{70+20} = \frac{70}{90} = 0.778 = 77.8\%$

Recall:

$$\text{Recall: } \frac{TP}{TP+FN} = \frac{70}{70+30} = \frac{70}{100} = 0.7 \Rightarrow 70\%$$

Accuracy:

$$\frac{TP+TN}{TP+TN+FP+FN} \Rightarrow \frac{70+80}{70+30+20+80} = \frac{150}{200} = 0.75 = 75\%$$

F_1:

$$F_1 = \frac{2PR}{P+R} = \frac{2(.778)(.7)}{(.778)+(.7)} = \frac{2(.5446)}{1.478} = .736$$