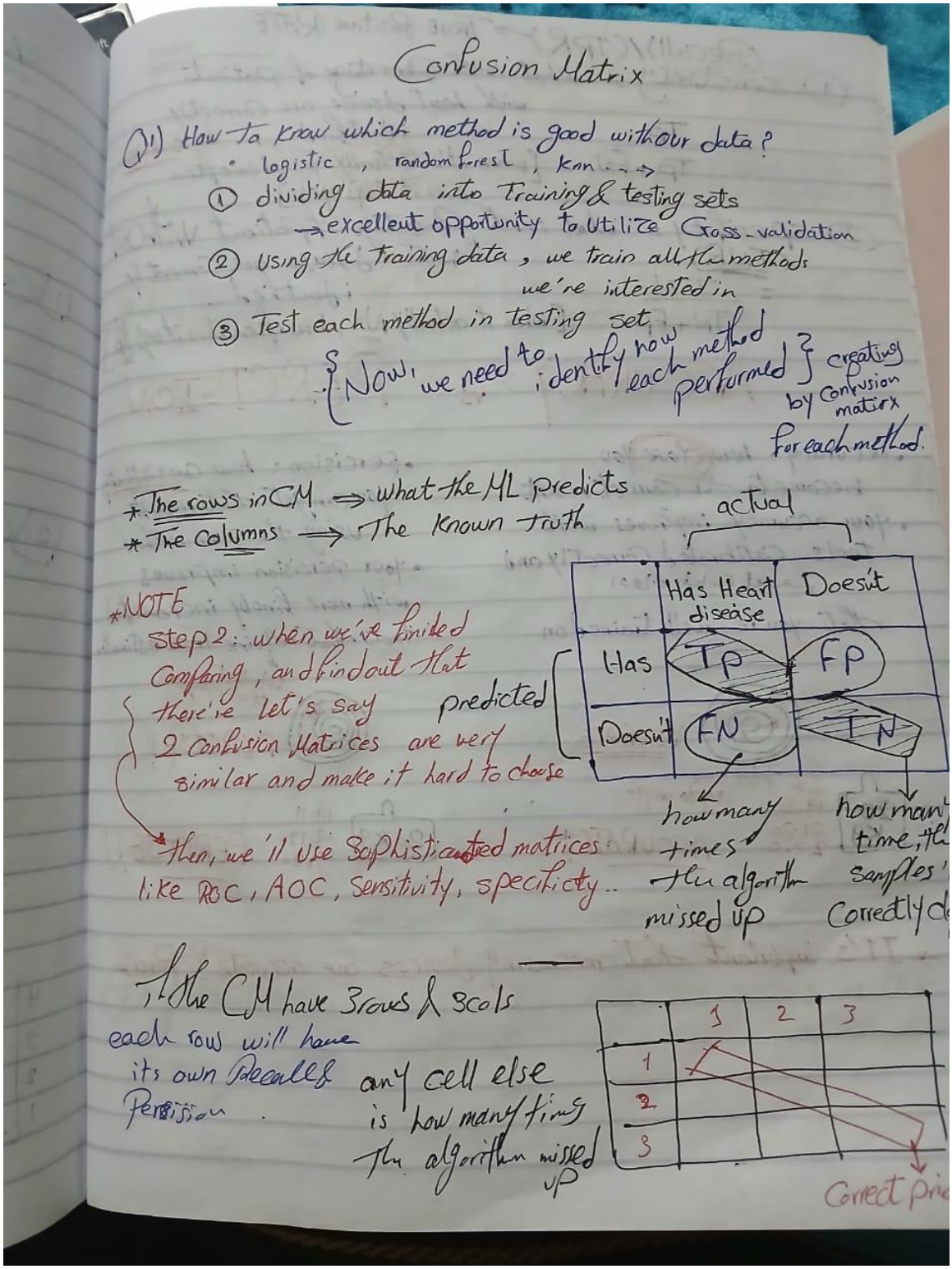
Confusion Matrix



(Recall) / (TPR) → TRUE Positive RATE

① sensitivity :- what is the Percentage of Patients with heart disease are correctly identified for the column

$= \frac{TP}{TP+FN}$ [when it's actually Yes, how often does it says yes]

② specifity (TNR) :- what is the Percentage of Patient without heart disease are correctly identified..

$= \frac{TN}{TN+FP}$ [when it actually No, how often does it say No]

ACCURACY vs PERCISION

- accuracy : how close you become to the correct result
- your accuracy improves with tools calibrated correctly and that you're well trained on

ACCURATE

each time i try to weigh

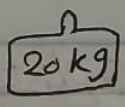
19.20
21.30
22.0

ACCURATE!

- percision : how consistent you can get that result using the same method
- your percision improves with more finely increments tools that require less estimation

hit that spot every shot

PERCISE!



19.11
19.13
19.20

PERCISE!

* It's important that mesauring devices are accurate & percise

③ Accuracy : Overall, how often is the classifier correct??

$$\frac{TP + TN}{TP+TN+FP+FN} = 1 - \text{Miss classification Rate}$$

④ Miss classification Rate : overall, how often is the classifier wrong!

$$\frac{FN+FP}{FN+FP+TP+TN}$$

↳ should be low

⑤ FPR "False Positive Rate" : Overall, when it's actually No, how often does it Predict yes!

$$\frac{FP}{FP+TN}$$

so, it should be low to be a good model.

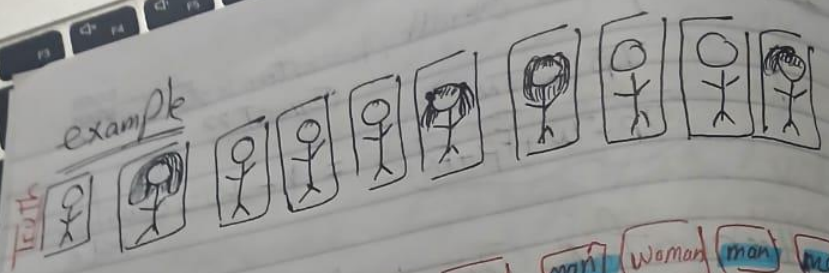
⑥ Precision - when it predicts yes (for the row), how often it's actually yes

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

⑦ prevalence : how often yes occurs in our sample

$$\frac{TP+FN}{TP+FN+TN+FP}$$

example



Truth

Prediction: man | man | man | woman | man | woman | man | woman | man | man

→ 7 are a man Perdiction
- 4 of them are Correct → Tp = 4
- 3 are wrong → Fp = 3

→ 3 are a Not a man Perdiction
- 1 is right TN = 1
- 2 are wrong FN = 2

actuall

Perdiction	man	not a man
man	4	3
NoT	2	1

* accuracy = $\frac{Tp+TN}{Tp+TN+Fp+FN}$

$= \frac{5}{10} = 50\%$

* Persicion = $\frac{TP}{TP+Fp} = \frac{4}{7} = 57\%$

* Recall = $\frac{TP}{TP+FN} = \frac{4}{6} = 67\%$

* F1 =

balance measur

Percis