

⇒ Precision

Precision means exactness or accuracy of hitting the target.

it measures how exact the positive predictions are.

simple in ML

out of all instances my model predicted as positive, how many were actually correct.

so it is about the exactness of the positive predictions.

The closer this value is to 100% the more precise your model is when it says something is positive.

example.

Imagine a spam email filter.

- Model says: This email is spam.
- Precision = How often the emails the model marked as spam are actually spam.
 - High precision \rightarrow few false alarms (barely marks a good email as spam).
 - Low precision \rightarrow Many false alarms (marks good emails as spam often)

So, it is called the precision because it measures the exactness of your positive predictions.

just like hitting the exact target in particular whole.

\Rightarrow Difference b/w the accuracy and precision:-

Precision: let's assume your true value is π and there are some multiple students

who get values like 3.4, 3.5 and 3.6 means they values have their own relation, but not related to true value.

accuracy: when our value comes to nearby

π then it is called accuracy, means in accuracy the answer comes related to true value.

→

Precision vs Accuracy

Precision :- Focus on consistency of predictions.

- True value 4 (Forex)

- Predictions :- 3.4, 3.5, 3.6, all predictions are close to each other, ex very consistent, even if not exactly 4.

High precision, model gives similar results every time.

- Accuracy :-

Focus on closeness to the true value.

- True value 4.

- Predictions :- 3.9, 4.0, 4.1 → these are close to the true value, so accuracy is high.

→ Precision :- Formula

$$\text{Precision} = \frac{\text{TP}}{\text{TP} + \text{FP}} = \frac{2}{2+0} = 1.0$$