

⇒ What is Model Evaluation?

Model Evaluation means:

checking how well your ML Model
is performing

• It tells you:

→ is the model correct or wrong?

→ How many mistakes is it making?

→ Should we improve it?

Now we use different metrics
depending on the problem.

→ What does "metrics" mean in
model evaluation?

Simple:

Metrics are formulas (mathematical
calculations) that measure how good or bad
your machine learning model is performing.

→ When you train a model, it
makes predictions.

Metrics tell you how correct,
how wrong, how close, or how accurate
those predictions are.

Think of metrics as scores for
your model.

\Rightarrow But why do we use different metrics?

Because every ML problem is different and one metric can not judge all problems.

\rightarrow Different problems \rightarrow Different type of output \rightarrow Different mistakes \rightarrow Different metrics.

\checkmark Accuracy :-

Def.: How many predictions are correct out of total predictions.

Formula:-

$$\text{Accuracy} = \frac{\text{correct predictions}}{\text{Total predictions}}$$

\rightarrow Python example... (Google Colab)

```
from sklearn.metrics import accuracy_score
```

```
y_true = [1, 0, 1, 1, 0] # actual values
```

```
y_pred = [1, 0, 1, 0, 0] # predicted values
```

```
acc = accuracy_score(y_true, y_pred)  
print("Accuracy", acc)
```

Note: Accuracy is calculated using the formula

$$\text{Accuracy} = \frac{\text{Number of correct predictions}}{\text{Total predictions}}$$

• 50

• Number of correct predictions = 4

• Total prediction = 5

$$\text{Accuracy} = \frac{4}{5} = 0.8 \rightarrow \text{output}$$