Classification test

Accuracy, Recall and Precision

▶ **Binary Classification:** Positive or Negative

▶ **Possible Classification Outcomes:**

TN True Negatives
TP True Positives
FN False Negatives
FP False Positives

Number of cases: **100,000**

Actual State	Predicted Negative	Predicted Positive
Negative	TN **97750**	FP **150**
Positive	FN **330**	TP **1770**

Accuracy, Recall and Precision

Accuracy:

Proportion of correct classifications (**true positives and negatives**) from **overall** number of cases.

$$\text{Accuracy} = \frac{TP + TN}{TP + TN + FP + FN}$$

$$\text{Accuracy} = \frac{97,750 + 1,770}{100,000} = 0.9952$$

Precision:

Proportion of correct positive classifications (**true positives**) from cases that are **predicted as positive**.

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

Recall:

Proportion of correct positive classifications (**true positives**) from cases that are **actually positive**.

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

$$\text{Recall} = \frac{1770}{1770 + 330} = 0.8428$$