

y-actual	y-pred	Sample
1	1 TP	0
0	0 FN	1
1	1 TP	2
1	1 TP	3
1	1 TP	4
0	1 FP	5
0	1 FP	6
1	0 TN	7
1	0 TN	8
0	0 FN	9

$y\text{-actual} = 0 \Rightarrow \text{False}$   
 $y\text{-actual} = 1 \Rightarrow \text{True}$

$y\text{-pred} = 0 \Rightarrow \text{Negative}$   
 $y\text{-pred} = 1 \Rightarrow \text{Positive}$

	Predicted 0	Predicted 1
actual 0	False Negative	False Positive
actual 1	True Negative	True Positive

## Confusion Matrix

	Predicted 0	Predicted 1
actual 0	2 FN	2 FP
actual 1	2 TN	4 TP
		<del>4 FP</del>

```
# from sklearn.metrics import confusion_matrix, classification_report
```

```
# y_actual = [1, 0, 1, 1, 1, 0, 0, 1, 1, 0]  
# y_pred = [1, 0, 1, 1, 1, 1, 1, 0, 0, 0]
```

```
# cm = confusion_matrix(y_actual, y_pred)
```

$$\text{Accuracy} = \frac{\text{True Positive} + \text{True Negative}}{\text{True Positive} + \text{True Neg.} + \text{False Posit.} + \text{False Neg.}} =$$

$$= \frac{2+4}{2+4+2+2} = \frac{6}{10} = 0,6 = 60\%$$

$$\text{Precision} = \frac{TP}{TP+FP} = \frac{4}{4+2} = \frac{4}{6} \approx 0,66$$

$$\text{Recall} = \frac{TP}{TP+FN} = \frac{4}{4+2} \approx 0,66$$

$$\text{F1-score} = \frac{2 \cdot \text{Precision} \cdot \text{recall}}{\text{Precision} + \text{recall}} =$$

$$= \frac{2 \cdot 0,66 \cdot 0,66}{0,66 + 0,66} = \frac{2 \cdot 0,66 \cdot 0,66}{0,66 + 0,66} = \frac{0,8712}{1,32}$$

$$= 0,66$$