

Example 1

- Confusion matrix for the classes $\text{buys_computer} = \text{yes}$ and $\text{buys_computer} = \text{no}$, where an entry in row i and column j shows the number of tuples of class i that were labeled by the classifier as class j .

<i>Classes</i>	<i>yes</i>	<i>no</i>	<i>Total</i>	<i>Recognition (%)</i>
<i>yes</i>	6954	46	7000	99.34
<i>no</i>	412	2588	3000	86.27
Total	7366	2634	10,000	95.42

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$$(\text{overall}) \text{ accuracy} = (TP + TN) / (P + N)$$

$$\text{accuracy} = (6954 + 2588) / (7000 + 3000)$$

$$\text{accuracy} = (9542) / (10000) = 0.9542 = 95.42\%$$

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sensitivity (also called recall) = TP / P

$$\text{sensitivity} = 6954 / 7000 = 0.9934 = 99.34\%$$

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Total	7366	2634	10,000	95.42

precision (*buys_computer* = yes) = $TP / (TP + FP)$

precision (*buys_computer* = yes) = $6954 / (6954 + 412)$

precision (*buys_computer* = yes) = $6954 / 7366$

precision (*buys_computer* = yes) = 0.9441 = 94.41%

Example 2

- Confusion matrix for the classes $cancer = yes$ and $cancer = no$.

<i>Classes</i>	<i>yes</i>	<i>no</i>	<i>Total</i>	<i>Recognition (%)</i>
<i>yes</i>	90	210	300	30.30
<i>no</i>	140	9560	9700	98.56
Total	230	9770	10,000	96.50

Example 2

<i>Classes</i>	<i>yes</i>	<i>no</i>	<i>Total</i>	<i>Recognition (%)</i>
<i>yes</i>	90	210	300	30.30
<i>no</i>	140	9560	9700	98.56
Total	230	9770	10,000	96.50

(overall) accuracy = $(TP + TN) / (P + N)$

accuracy = $(90 + 9560) / (300 + 9700)$

accuracy = $(9650) / (10000) = 0.9650 = 96.50\%$

Example 2

<i>Classes</i>	<i>yes</i>	<i>no</i>	<i>Total</i>	<i>Recognition (%)</i>
<i>yes</i>	90	210	300	30.30
<i>no</i>	140	9560	9700	98.56
Total	230	9770	10,000	96.50

sensitivity (also called recall) = TP / P

$$\text{sensitivity} = 90 / 300 = 0.3 = 30.00\%$$

Example 2

<i>Classes</i>	<i>yes</i>	<i>no</i>	<i>Total</i>	<i>Recognition (%)</i>
<i>yes</i>	90	210	300	30.30
<i>no</i>	140	9560	9700	98.56
Total	230	9770	10,000	96.50

precision (*cancer = yes*) = $TP / (TP + FP)$

precision (*cancer = yes*) = $90 / (90 + 140)$

precision (*cancer = yes*) = $90 / 230$

precision (*cancer = yes*) = $0.3913 = 39.13\%$