XOR solving

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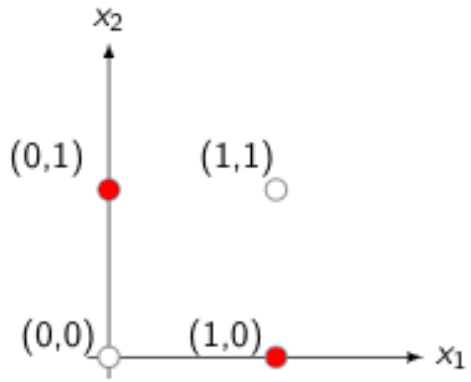

x_1	x_2	y
0	0	0
0	1	1
1	0	1
1	1	0

We will work with Keras library (tensorflow backend). In order to have reproducible results, include at the top of your code:

```
import numpy
numpy.random.seed(123)
from tensorflow import set_random_seed
set_random_seed(123)
```

1 Data set

Build a data set for the XOR problem.

2 Model building

With sequential API, create a model of architecture:

- 1 layer of 4 fully connected units with hyperbolic tangent activation
- an appropriate output layer

hint do not forget to specify the input shape

3 Model fitting

Fit your model with 64 epochs of batches of size 4.

4 Model predictions

Give the resubstitution results (probability and classes), the confusion matrix from `keras.metrics.confusion_matrix()`. Then try to change learning rate to 5% and observe results.

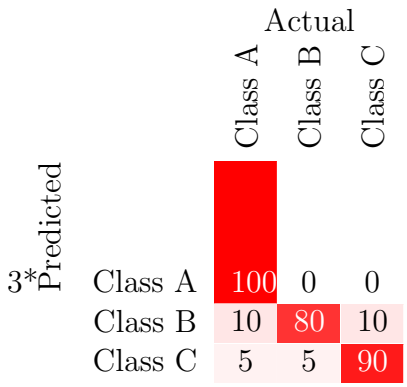

Figure 1: Example of confusion matrix for interpretation