Lab Exercise 1: Sudoku

Submit your solution until **Nov 15, 23:59** via Moodle.

Description of the Task

Encode the rules of a 4×4-Sudoku in propositional logic. The rules are as follows: Given a 4×4 grid, fill each of the small fields with one of the numbers $1, 2, 3, 4$ such that (1) no number occurs twice in a row, (2) no number occurs twice in a column, and (3) that no number occurs twice any 2×2 grid.
Example:

4	2	3	1
3	1	4	2
2	4	1	3
1	3	2	4

Hint: Graph Coloring

Recommendation: The encoding is quite huge and you might want to consider writing a small program that generates the encoding.

Submission

Upload a zip-file containing the following files (XX are the last two digits of your matriculation number):

- encodingXX.boole: encoding of the Sudoku rules in limboole format (it should be directly processable by limboole)
- sudokuXX.boole: the same encoding as in encodingXX.boole and the values set as in the Sudoku `SudokuXX` from sudokus.pdf. Does it have a solution?

- descriptionXX.txt: a short description of your encoding (number of variables, number of constraints/clauses, meaning of variable names, meaning of constraints). The file should also contain a link to a short video (about 5 minutes max.) in which you explain your solution. Nothing fancy is expected here. Begin the video by showing your face and your student ID. If your solution is explained properly, no further interview/presentation is necessary. An easy way to do a video is using Zoom cloud recording with screen sharing.