Prof. Dr. Christoph Bockisch
MSc Steffen Dick
Fachbereich Mathematik und Informatik
AG Programmiersprachen und -werkzeuge

Philipps Universität Marburg

Tutorial exercises
Objektorientierte Programmierung: Wintersemester 2021/2022
Nr. 7

Task 7.1: Count Su-Dooku

A Sudoku consists of a 9x9 matrix with the numbers between 1 and 9 as content. Every number is only allowed to occur once per row and per column. Furthermore, the matrix is divided into smaller 3x3 matrices in which every number can only occur once as well.

5	3	4	6	7	8	9	1	2
6	7	2	1	9	5	3	4	8
1	9	8	3	4	2	5	6	7
8	5	9	7	6	1	4	2	3
4	2	6	8	5	3	7	9	1
7	1	3	9	2	4	8	5	6
9	6	1	5	3	7	2	8	4
2	8	7	4	1	9	6	3	5
3	4	5	2	8	6	1	7	9

Take the example to the left as an example for a correct Sudoku.

a) Implement a class *Sudoku* with a field of the type *Integer[][]* und a useful constructor.

   Be mindful of the naming of your field.

b) Implement a method `void setNumber(Integer number, int x, int y)` that writes *number* at coordinates (x | y) in your Sudoku.

c) Implement a method `boolean isCorrect()` that returns `true` if the Sudoku was solved correctly.

d) Write a main-method that creates a new instance of *Sudoku* that is only filled with the not framed numbers from the example.

   Fill your *Sudoku* then with the red framed numbers from the example using *setNumber* and then check if the *Sudoku* was solved correctly.