

Sudoku verifier

Sudoku is a game with few simple rules, where the goal is to place nine sets of positive digits (1...9) into the cells of a fixed grid structure (i.e. board).

The Sudoku board (or global grid) consists of a 3x3 arrangement of sub-grids, and each sub-grid is a 3x3 arrangement of cells. This yields a 9x9 arrangement of cells on the Sudoku board.

A valid Sudoku solution should conform to the following rules:

R1: A cell in a Sudoku game can only store positive digits, i.e. 1...9.

R2: All digits appear only once in a sub-grid, i.e. they cannot repeat.

R3: A digit can appear only once in the rows of the global grid.

R4: A digit can appear only once in the columns of the global grid.

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- The program should read the candidate solution from a string variable, which should be exactly 81 characters long, i.e. first 9 are the first row, second 9 are the second row etc.
 - Write and document tests using boundary value analysis and the template provided, at least for methods `verify`, `duplicateChecker` and `lengthChecker`.
 - Using parameterized tests is optional.
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Program returns integer code based on the validity of the provided Sudoku solution:

Return 1 = solution contains characters which are not a number.

Return 0 = solution is valid Sudoku solution.

Return -1 = solution is violating R1

Return -2 = solution is violating R2

Return -3 = solution is violating R3

Return -4 = solution is violating R4

A correct Sudoku string:

4173698256321589479587243168254371697915864323469127582896435715732916841 64875293

An incorrect Sudoku string:

1234567899123456788912345677891234566789123455678912344567891233456789122 34567891