CP468 Assignment 2 Sudoku as a CSP

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(1) Problem Statement

The well-known 9 × 9 Sudoku Puzzle is described (for instance) at:
`https://en.wikipedia.org/wiki/Sudoku`

(2) CSP representation

Consider the Sudoku representation as a CSP seen in class.
Describe all constraints as binary constraints.

(3) Implementation

Implement the AC-3 algorithms seen in class, to enforce arc-consistency to an arbitrary Sudoku puzzle.
Devise a functional and suitable input format for your code to accept an arbitrary Sudoku puzzle as an input (e.g. from a text file).
Your code should keep track and report the length of the queue at each step of the AC-3 algorithm.
At the end of the execution of the AC-3, algorithm, your code should report whether the equivalent arc-consistent CSP found, also happens to be solved or not.
If the puzzle is solved, then report the solution.
If the puzzle is not solved, implement an additional algorithm from the ones seen in class, to solve it entirely and report the solution.

(4) Demonstration

Each group is required to conduct a demonstration of their code, with particular Sudoku problems, provided by the course instructor, at the time of the demonstration. Demonstrations will be held on Thursday November 9, all day long, please book an appointment with the course instructor.

(5) Marking Scheme

constraints handling: 20 marks, AC-3 implementation: 25 marks, Sudoku input format: 15 marks, additional implementation: 20 marks, code readability and documentation: 20 marks

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What to submit by the due date

See the course outline for the general submission and file naming convention requirements.

Late submission policy

Late submissions will not be accepted and will be marked with 0.