
Abstract

In this paper we create an interactive sudoku solver system using propositional logic in Python. Sudoku is a logic puzzles in which players must fill in an $N \times N$ matrix, which contains some given entries, so that each row, column, and $n \times n$ submatrix contains each integer 1 through N exactly once. One of the famous methods to solving sudoku is constraint programming. This paper presents a process conducted in solving sudoku as propositional satisfiability problem approach in Python. We encode the sudoku rules in propositional logic. The encoding result is processed with SAT solver to find sudoku solution. Python was chosen because of its simplicity. The system generates interactive answers from user input. System functionality is tested with black-box testing. The system can meet all the requirements on the test plan. We also conduct performance testing to the system. Furthermore we found the amount of clauses required in SAT solver to find a solution from sudoku in each iteration. The system can found ≤ 100 solution from sudoku.

Keywords: Sudoku, Propositional satisfiability problem, Python, Constraint programming
