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Final Project Requirements Specification

CS172 -2

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1. Problem Definition
   1. I intend to build a program which will solve a Sudoku puzzle input by the user as well as generate a Sudoku puzzle for a user to solve. The program will use file i/o to accomplish this.
2. Requirements:
   1. The system is required to take a Sudoku puzzle from a text file, solve it, and print it back out in a text file.
   2. A 9x9 grid of integers form 1-9 are required for input, 0’s indicate blank spaces:

3 0 6 | 5 0 8 | 4 0 0

5 2 0 | 0 0 0 | 0 0 0

0 8 7 | 0 0 0 | 0 3 1

------+-------+------

0 0 3 | 0 1 0 | 0 8 0

9 0 0 | 8 6 3 | 0 0 5

0 5 0 | 0 9 0 | 6 0 0

------+-------+------

1 3 0 | 0 0 0 | 2 5 0

0 0 0 | 0 0 0 | 0 7 4

0 0 5 | 2 0 6 | 3 0 0

* 1. A 9x9 grid of integers of the form above will be output.
  2. It will use console output to prompt the user to navigate to the file to input the Sudoku problem and then tell the user the file location of the solution.

1. Project Design:
   1. UML

|  |
| --- |
| Class Sudoku |
| -grid[][]:int  -size:int  -solved\_grid[][]:int |
| +print\_board():void  +solve\_game(grid[][]:int):void  +isEmpty(grid[][]:int, i:int, j:int):bool  +check\_row(grid[][]:int, i:int, j:int):bool  +check\_col(grid[][]:int, i:int, j:int):bool  +check\_box(grid[][]:int, i:int, j:int, k:int):bool  +check\_grid(grid[][]:int, i:int, j:int, k:int):bool |