COSC 1430 FINAL PROJECT –
OPTION 1 Sudoku Solver

Sudoku Puzzles

Sudoku is a popular puzzle where you fill in numbers on a grid, trying to keep certain conditions true. To learn more about how Sudoku works, check out http://www.sudoku.com. You'll find a sample puzzle and an explanation of the rules.

Write a program that reads a file containing an unfinished Sudoku puzzle, then solve it and display the results to the screen. The input should simply contain the numbers in the puzzle delimited by spaces on each line. For example, this puzzle:

1) You are given a 9x9 grid, with some squares filled in with positive integers in between 1 and 9, inclusive.
2) Your goal is to complete the grid with positive integers in between 1 and 9, inclusive, so that each row, column and mini 3x3 square that is designated contain each integer in the range 1 through 9 exactly once.

Below is an example of a Sudoku puzzle:

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

As input, your program should read a file in the following format:

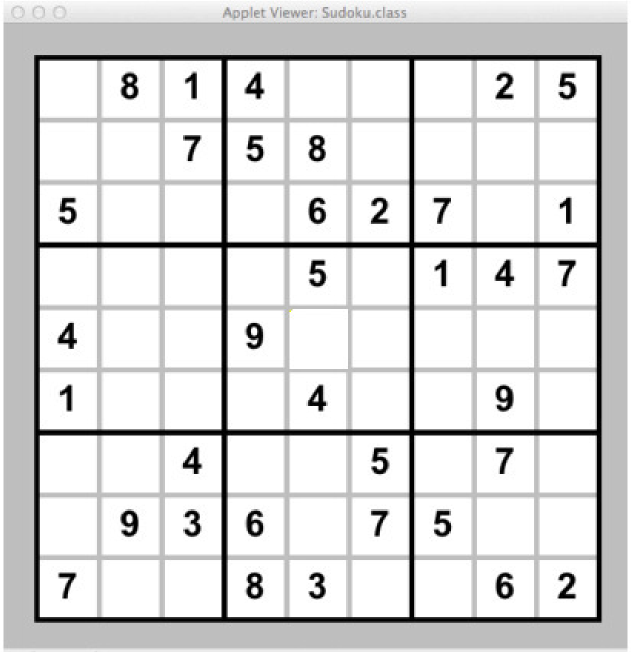
```
0    8    0    1    4    0    0    2    5
                    8    0    0
                    6    2    7
                    5    0    1
                    0    0    0
                    4    0    0
                    0    5    0
                    0    7    5
```

7 0 0 8 3 0 0 6 2

The Sudoku game will operate as follows:

a) The code will initialize the Sudoku board with values from an input file.
b) The user moves around the grid using arrow keys. The usercan then check if the "guesses" are correct by entering the letter "c". Correct grid answers willturn the color green and cannot be changed from then on.
c) Incorrect grid answers will stay blueand can be changed by the user.
d) User can give up; in that case solution should be displayed.
e)If user wins, winning message will be displayed, with the time used to finish a game.

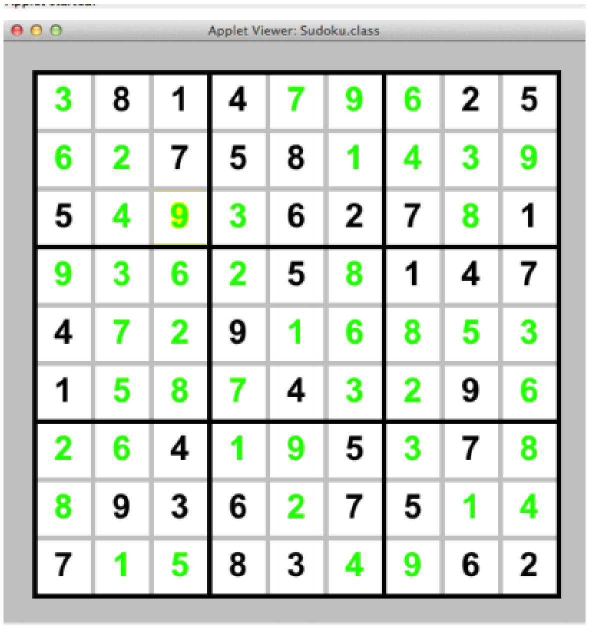
A sample starting board.



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

Completed game.

Here is the puzzle solved:



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

Options Available (You can use them if you would like):

i) You can make it as user interactive as you would like.

ii) You can maintain multiple input files, and select random input file every time you start a new game.

iii) You can design game with various level, Easy, Medium, and Hard.

iv) Please note, you can generate your own input file, but make sure your input has a unique solution.

More Information:
If you want to read more about Sudoku, here are a few links:

[1] The Daily Sudoku has examples and explanations
[2] Wikipedia on Sudoku
[3] Sudoku Puzzles with many problems of different difficulties:
[4] learn more about how Sudoku works, check out http://www.sudoku.com

Important:

Please note that all term projects are open-ended questions. In other words, you are free to add any functionally and improve the user interfaces.