

Sudoku Mania

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About The User Guide

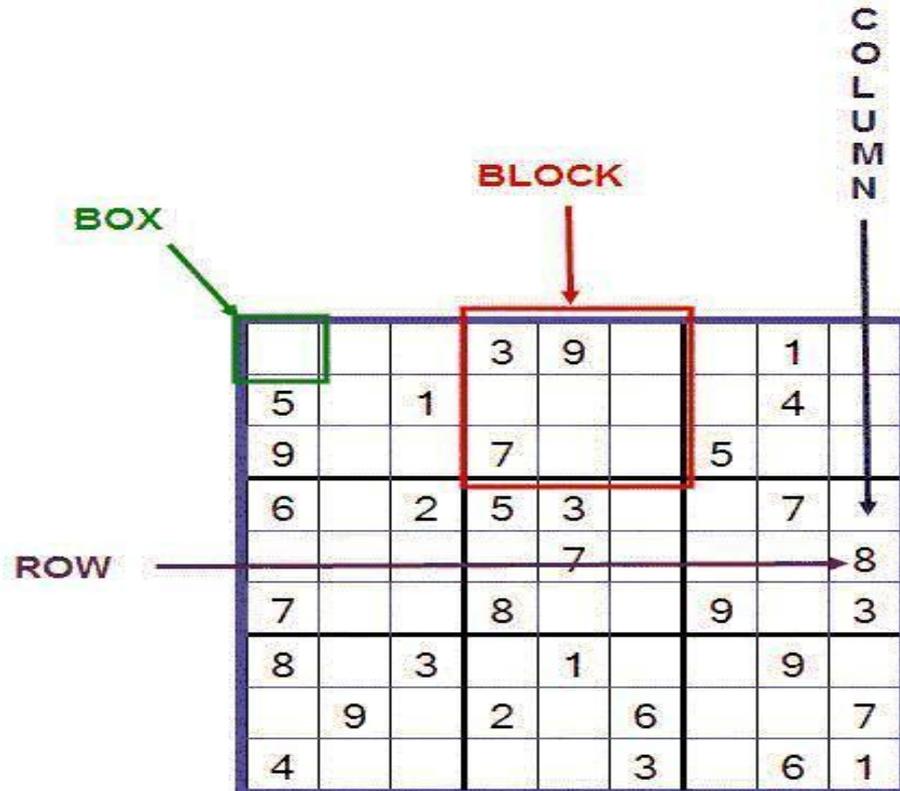
This whole program is designed to be intuitively obvious for someone acquainted with the basics of using a computer. It is for those new to the puzzle called Sudoku that this manual exists. For the rest, you can safely skip reading this any further.

Introduction

Sudoku puzzles are popular all over the world so much that one can find a Sudoku puzzle in half of the newspapers published .This program is designed both to create a Sudoku puzzle and to solve it. Sudoku is basically a puzzle game which tests the logical capabilities of the solver. Sudoku, today, has developed to much complicated levels like the diabolical Sudoku which can have more than one possible solution. Making a Sudoku solver or a generator requires a good understanding of the basic logic involved in deciphering the puzzle and also a good understanding of the programming language involved.

Sudoku Rules of Play

- A standard Sudoku puzzle consists of a grid of 9 blocks. Each block contains 9 boxes arranged in 3 rows and 3 columns. Consider this example of an actual Sudoku puzzle:



- There is only one valid solution to each Sudoku puzzle. The only way the puzzle can be considered solved correctly is when all 81 boxes contain numbers and the other Sudoku rules have been followed.
- When you start a game of Sudoku, some blocks will be pre-filled for you. You cannot change these numbers in the course of the game.
- Each column must contain all of the numbers 1 through 9 and no two numbers in the same column of a Sudoku puzzle can be the same.
- Each row must contain all of the numbers 1 through 9 and no two numbers in the same row of a Sudoku puzzle can be the same.
- Each block must contain all of the numbers 1 through 9 and no two numbers in the same block of a Sudoku puzzle can be the same.

Sudoku Solution When the rules are applied, the solved Sudoku puzzle appears as shown:

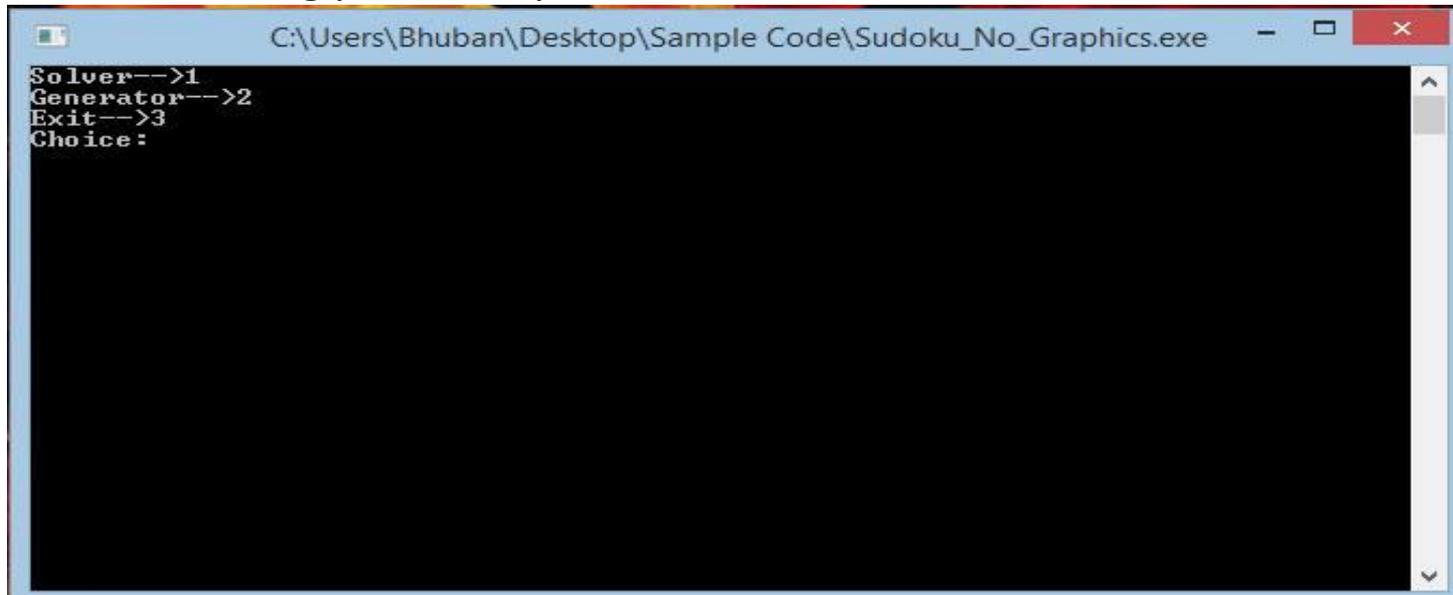
2	4	8	3	9	5	7	1	6
5	7	1	6	2	8	3	4	9
9	3	6	7	4	1	5	8	2
6	8	2	5	3	9	1	7	4
3	5	9	1	7	4	6	2	8
7	1	4	8	6	2	9	5	3
8	6	3	4	1	7	2	9	5
1	9	5	2	8	6	4	3	7
4	2	7	9	5	3	8	6	1

Playing

In the beginning of the program user will be provided with three options:

- Solver
- Generator
- Exit

As the following picture depicts:



```
C:\Users\Bhuban\Desktop\Sample Code\Sudoku_No_Graphics.exe  
Solver-->1  
Generator-->2  
Exit-->3  
Choice:
```

The user chooses one of them by pressing

1. for Solver
2. for Generator
3. To Exit the Game

- If the user give input as 1.

User will be asked to enter a grid row by row and then solver automatically solve that Sudoku and user will be provided with the solution of grid he enter.

Following 3 pictures shows the same:

```
"C:\Users\Saaransh\Desktop\Prog\11_8_Sudoku Solver\Sample Code\Sudoku_N... - [ ] [X]
Solver-->1
Generator-->2
Exit-->3
Choice:
1

Enter the grid row-by-row

    28 7
    3   8
    8 1 4
    4   7 6
    8 756 4
    5 7   1
    9 8 6
    8   9
    2 54

The given input is:-

           cols
    1 2 3   4 5 6   7 8 9
    | | |   | | |   | | |
```

"C:\Users\Saaransh\Desktop\Prog\11_8_Sudoku Solver\Sample Code\Sudoku_N...

The given input is:-

```
      cols
      1 2 3   4 5 6   7 8 9
      | | |   | | |   | | |
rows  1--   |   2 8 |   7
      2--   | 3   |   8
      3--   | 8   | 1   | 4
      ---+---+---
      4--   | 4   |   7 6
      5--   | 8   | 7 5 6 | 4
      6-- 5 7 |   |   | 1
      ---+---+---
      7-- 9   | 8   | 6
      8-- 8   |   9 |
      9-- 2   | 5 4 |
```

solving...

"C:\Users\Saaransh\Desktop\Prog\11_8_Sudoku Solver\Sample Code\Sudoku_N...

Solution:

```
      cols
      1 2 3   4 5 6   7 8 9
      | | |   | | |   | | |
rows
1--   6 9 3 | 4 2 8 | 5 7 1
2--   4 7 1 | 3 9 5 | 2 6 8
3--   2 5 8 | 6 7 1 | 3 9 4
-----
4--   3 4 9 | 1 8 2 | 7 5 6
5--   1 8 2 | 7 5 6 | 9 4 3
6--   5 6 7 | 9 3 4 | 8 1 2
-----
7--   9 3 4 | 8 1 7 | 6 2 5
8--   8 1 5 | 2 6 9 | 4 3 7
9--   7 2 6 | 5 4 3 | 1 8 9
```

Solver-->1
Generator-->2
Exit-->3
Choice:

- If user give input as 2.

The user will get choice to select the level of puzzle and to resume a paused game. For this the options will be

- Easy
- Medium
- Hard
- Resume a paused

which the user can select according to their interests and skills. After selecting level of puzzle, the following window will appear

```

"C:\Users\Saaransh\Desktop\Prog\11_8_Sudoku Solver\Sample Code\Sudoku_N...
Easy--> 1
Medium-->2
Hard-->3
Resume a paused game-->4

Choice:2

      cols
      1 2 3   4 5 6   7 8 9
      | | |   | | |   | | |
rows  | | |   | | |   | | |
1--   | 1'6' | | 9' | |
2--   | 8'  | | 1'  | | 9'
3--   | 4'9' | | 5'  | | 3'1'
-----|-----
4--   | 5'2'9' | | 6' 4' | | 9'
5--   | 8'  | | 6' 4' | | 9'
6--   | 8'2'1' | | 8'2'1'
-----|-----
7--   | 6'4' | | 9' | | 7'8'
8--   | 9'  | | 6'8' | | 9'3'4'
9--   | 9'  | | 6'8' | | 9'3'4'

```

The user has to solve it by entering row and column in which he wants to put any entry.

In case the user wants to pause and save the game press x in place of row.

The following picture depicts the case when user wants to put 9 in 6th row and 4th column:

```
"C:\Users\Saaransh\Desktop\Prog\11_8_Sudoku Solver\Sample Code\Sudoku_N... - □ ×
Enter Box you want to put number in: (or press 'x' in place of 'row' to pause and save the current game)
(alternatively, press 's' in place of 'row' if you are bored and want the solution)
Row:6
Column:4
Enter number to be put:9

      cols
      1 2 3 4 5 6 7 8 9
      | | | | | | | | |
rows
1--  | 1'6' | 9' |
2--  | 8'  | 1'  | 9'
3--  | 4'9' | 5'  | 3'1'
-----
4--  | 5'2'9' |  |
5--  | 8'  | 6' 4' | 9'
6--  | 9'  | 8'2'1'
-----
7--  | 6'4' | 9' | 7'8'
8--  | 9'  | 6'8' | 4'
9--  |  | 9'3' |
```

- The user has to give input as 3 if he want to exit the game.

KEEP ENJOYING KEEP PLAYING