Sudocu-R

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Rules of Sudocu-R:

The object of the game is to fill in all the missing values following certain rules. Once completed, the values are checked and if no rules were violated a score is given based on the time taken to complete the puzzle. There are basically only three rules of the game.

Blocks

The puzzle is made up of nine big blocks (black), each containing nine small blocks (blue). When completed each big block should contain all the numbers from 1 to 9.

6	8	3
9	4	2
1	5	7

Rows & Columns

There are nine blocks in each row and column. Every row and every column in the puzzle should contain all the numbers from 1 to 9.

6
9
1
2
7
5
8
4
3

6	8	3	2	5	4	1	9	7

Consequences

The consequences of these rules are that no big block, row or column should have two of the same numbers. With these constraints there is usually only one solution for every puzzle.

In some rare cases more than one solution for a given puzzle can arise. This happens when two missing values in a row is the same as two missing values in another row and the open blocks are in the same column. The figure below is such a case as 2 and 7 are missing in each row. It will not matter in which order they are inserted just as long as there is one of each in the two rows. Either solution will be viable and will be evaluated as such.

A similar situation can arise within columns. Even more rarely a situation with more than two solutions may arise.

The working of Suduco-R

Suduco-R work by generating values for each of the nine blocks randomly while also evaluating if they conform to the rules. This is why the generation of each puzzle take a small amount of time. The advantage is, however that every puzzle is unique or more precisely that you have a chance of 1 in 6670903752021072936960 to get the same puzzle twice (Felgenhauer and Jarvis, 2005). Furthermore the computer then randomly selects which of the numbers in each block should be shown (depending on the level settings, see the section on How to play).

I hope that the game itself is just as enjoyable is was the creation of this application.

How to play:

I tried to make game-play really easy and the whole application very user friendly. But here are some guidelines on the use of this application.

Starting a new game:

To start a new game select 'New' on the 'Game' menu. A unique puzzle will be generated once your request is confirmed. This may take a while as the application search through random generated puzzles to find a solvable one, but should not take longer than a minute (even on older computers). As soon as the puzzle is in the memory a notification appears. Click the 'OK' button to start (the timer is enabled only once 'OK' is pressed).

Solving the puzzle:

Inserting values

Your goal is to solve the puzzle by filling in the missing values (see the Rules section for more information). Do this by selecting the value to be used from the bottom panel (you can also scroll through the value options with the uses of the mouse wheel). Click on the empty space to insert the selected value. You can erase any mistakes in the same way with the erase button.

Guessing

If you are uncertain about a value but want to fill it in anyway click on the 'Just guessing' checkbox. Values that are now inserted will appear in a different colour to enable easy distinction between them and the numbers that you are certain of. Note that you cannot complete the game with any guessed valued present.

Submitting

Once all the values have been filled in (not counting the 'Just guessing' values), a submit button will appear. Click it to check if you solved the puzzle correctly. If not, you can retry by erasing some or all of the values and reinserting them. In some cases there are more than one viable solution for a given puzzle (see the Rules section for information on viable solutions). The application evaluates each solution using the rules of the game and will accept any of the viable solutions if presented.

Playing options:

Clear all

If necessary you can clear all the values you inserted by selecting 'Clear all' from the 'Options' menu to start anew with the current puzzle.

Solve

Click 'Solve' on the 'Options' menu to have the computer solve the puzzle for you.

Pause

To pause the game select 'Pause' from the 'Options' menu. This hides the puzzle but will also stop the timer until you resume your game.

Level

There are three levels to play the game at. Five of the nine values for each block will be shown on the Easy level, with four on Medium and only three on Hard. The values shown are determined randomly while the puzzle is generated.

Other options:

Sound

Click 'Sound' on the 'Game' menu to turn off all sounds.

Print

To print the current puzzle select 'Print' on the 'Game' menu. Note that all the values (including the guessed values) present on the puzzle at the time will be printed.

Best times

After play the time taken to solve a given puzzle is recorded. The best times is recorded with the player's name. You can view the best (for each level) by selecting 'Best times' on the 'Game' menu. To reset the scores press' Reset scores' while viewing the best times information.

For any further questions, comments or suggestions email me at:
friedgames@gmail.com

Registration:

If you want to obtain the full game you need to register your copy. Do so by going to:

www.friedgames.com/sudocu.htm

The cost of the game is $ 3.75 USD. Before payment you will need to obtain the registration code by running the game. Please make sure that the game worked on the computer for which you are going to get the registration key. Once payment is made the registration key will be sent to your email address immediately.

For more information contact me at: friedgames@gmail.com

References:

Felgenhauer, B. and Jarvis, F., 2005, Enumerating possible Sudoku grids, www.afjarvis.staff.shef.ac.uk/sudoku/