



SUDOKUH

MADE WITH **JAVA**

SUDOKUH is a simple Sudoku game for various sizes (2x2, 3x3, 4x4) and a Sudoku solver for normal Sudoku (in various sizes: 2x2, 3x3, 4x4), Str8ts and Killer (for 3x3).

SUDOKUH is created by [Luca Kellermann](#), [Fabian Heintl](#) and [Philipp Kremling](#).

Please note that you may have to set the environment variable `JAVA_HOME` to the location of your Java installation (e.g. `C:\Program Files\Java\jdk-16.0.2`) in order to run or build the program. For building you need at least Java 7, for running at least Java 16.

Getting started

To start the prebuilt SUDOKU application, run `final-build/bin/sudokuh` (Linux) or `final-build/bin/sudokuh.bat` (Windows). The start menu will automatically open. Here you can choose between the different categories: the Sudoku player, the Sudoku solver for a normal Sudoku, the Sudoku solver for Str8ts and the Sudoku solver for Killer. With clicking on one of the categories you'll get a menu in which you can choose between the three sizes (2x2, 3x3, 4x4). Clicking on "Start" will open a new menu in which you have the game overlay. In the start menu there also is a settings button. Clicking on this you'll get a new menu, and you can choose the theme (standard or dark mode), Auto Step (this means whether the next cell should automatically be selected when typing in a number), highlighting (this means whether possible conflicting cells for the currently chosen cell should be highlighted) and the tip limit (how many tips you want to have in the play mode). Clicking on the back button will bring you back to the home menu and the settings will automatically be saved.

Build yourself

To build SUDOKUH yourself, run `./gradlew build`. You will find scripts to run SUDOKU in `build/scripts`, ready to go distributions in `build/distributions` and test reports in `build/reports`. Run `./gradlew help` for more information.

The ingame menu

After selecting a category you will get to the ingame menu which in general has three elements: In the center you've got the Sudoku grid. When clicking on a cell you can choose this cell for input. If the highlighting option is activated you can also see all possible conflicting cells highlighted. You can also navigate in the Sudoku menu using the arrow keys on your keyboard.

On the right side there is the buttons menu: Here you have got all the buttons that are available for you: For every category that would be the numbers and a delete button. Each category has also got a few extra buttons (see below). Most of the buttons also can be used by typing an equivalent key on the keyboard (numbers for the numbers-buttons, back for the delete-button). If auto-step is enabled the next cell will automatically be selected after typing in a value.

On the top there is the information panel: in here you can see relevant information such as the playing time or whether the solution is correct or not (depends on the category).

On the right top corner there also is the home-button and the play-again-button. Clicking on the home-button will bring you back to the main menu. Clicking on the play-again-button will reopen the same game category with the same settings. In both cases all actions taken in the games will be deleted.

Categories

Play Sudoku

Caution: Choosing the 4x4-Sudoku for playing will take really long to generate! Please be aware of that.

When playing Sudoku the play time will be displayed in the information panel. As soon as the Sudoku is solved completely the timer will stop and the whole playing time is displayed. Clicking on the main menu button pauses the timer.

For playing there are a few extra buttons to use: At first the tip button: Clicking on it will show the correct number for the selected cell. The cell is now seen as predefined and can not be changed anymore. How many tips you have depends on the settings in the main menu (default: 3). As soon as you run out of tips the button changes to red and has no longer a function. (Keyboard equivalent: T)

Secondly there is the validate button: Clicking on it will force the program to check your solution, whether it is correct or not. The result will be shown for five seconds in the information panel, afterwards the playing time is displayed again. The validation process gets automatically initiated when typing in a number, so normally you don't have to click that button. (Keyboard equivalent: E)

Lastly there is the note button: Clicking on it will turn it green, symbolizing the note mode is active: When now typing in a number, it will be displayed small in the cell. Here you can type in any of the given numbers as a note for you: It won't affect the result. If you want to delete a set note, you can insert the same number: It gets removed from your notes. You can delete all the notes with the delete button and overwrite them with an input by turning the note mode off (clicking again on the note

button) and then typing in a number. (Keyboard equivalent: N)

Solve Sudoku

In this category you can type in an unsolved Sudoku and the algorithm will solve it for you. Therefore, you've got a solve button alongside the normal numbers buttons and the delete button. Clicking on it will fill the Sudoku with matching values. All inputs that were set by you will be displayed as predefined (but you can change them). When the Sudoku is unsolvable a text will be displayed in the information panel. (Keyboard equivalent: ENTER)

Solve Str8ts

Str8ts is a special variant of Sudoku: Here you don't have sub-grids and only one big field: So the only conditions are that the same number mustn't be in the same row or column. In addition to this there can be blocked cells (commonly displayed as black) which can't contain numbers or the predefined numbers in there cannot be changed. There can also only be seamless sequences of digits, i.e. streets, in horizontally or vertically connected white cells. For the separation between black and white cells there is a color change button: clicking on it will change the color of the currently chosen cell. Clicking it again will change it back. (Keyboard equivalent: F)

For solving the Str8ts there again is a solve button. Clicking on it will fill the Str8ts with matching values. When the Str8ts is unsolvable a text will be displayed in the information panel. (Keyboard equivalent: ENTER)

Solve Killer

Killer is also a special variant of Sudoku: Alongside the normal Sudoku rules you've also got sum fields in here: That means one or more cells are grouped together and are provided with a number. The sum of all the inserts of this group has to match this number. There are also grids in which you don't have given any cell values, but only the sums and groups (mostly difficulty hard).

Next to the normal numbers buttons and the delete button you've also got a link button. Clicking on it will turn it green signaling the link mode is activated: The currently clicked cell will automatically turn predefined. Now you can choose all neighbors of this cell and neighbors of these cells and so on to build a group. All group members have the predefined color. Clicking again on a group member will remove the cell from the group. You can not add cells to the group which are already in another group. When ready with choosing all group members, click again on the link button: You'll see a new window in which you can type in the sum of the group. Confirming this will display the group with the sum in the first chosen cell. (Keyboard equivalent: G)

If you want to cancel the linking process while on selecting cells please use the unlink button. (Keyboard equivalent: L)

To remove an entire group there is the unlink button. While you've selected a cell which is member of a group and you click this button, the entire group gets removed. (Keyboard equivalent: L)

If you only want to remove or add individual cells to a group (and don't want to remove it entirely) you can click the edit button while a cell which is member of a group is selected. Now the edit mode is activated: You can select or unselect cells for this group and when turning off the edit mode by clicking on the edit button again you can add a new sum to the group. You don't have to (un)select cells while in editing mode, you can also only use it to select a new sum. Please note: You can not have the link mode and the edit mode activated at the same time. (Keyboard equivalent: B)

For solving the Killer there again is a solve button. Clicking on it will fill the Killer with matching values. When the Killer is unsolvable a text will be displayed in the information panel. (Keyboard equivalent: ENTER)