



Sudoku Solver Manual

Installation Instructions

Year%203/Final%20Project/SudokuSolverFinalSubmission/SudokuSolver/tags/SudokuSolver/src

Download Classes:

Copy code to directory

Move to the saved directory:

1. Create a folder classes within the src folder to export the classes
 2. `javac -d classes *.java` to compile to java files into the classes folder
 3. `java -cp classes src.SudokuSolver`
 4. Within the FileStore class change the "locationPreset" to the current directory where the pre-set XML file is stored.
- Run the program

Jar File Download:

Select the SudokuSolver.Jar file and run with a program. E.g. Jar launcher

Rules

Sudoku is a puzzle game with a grid size of 9x9 of cells containing 9 3x3 sub-grids. There values that can be placed within a cell are 1-9.

Each row, column and sub-grid can only contain one instance of each number. If you need help use the Hint button.

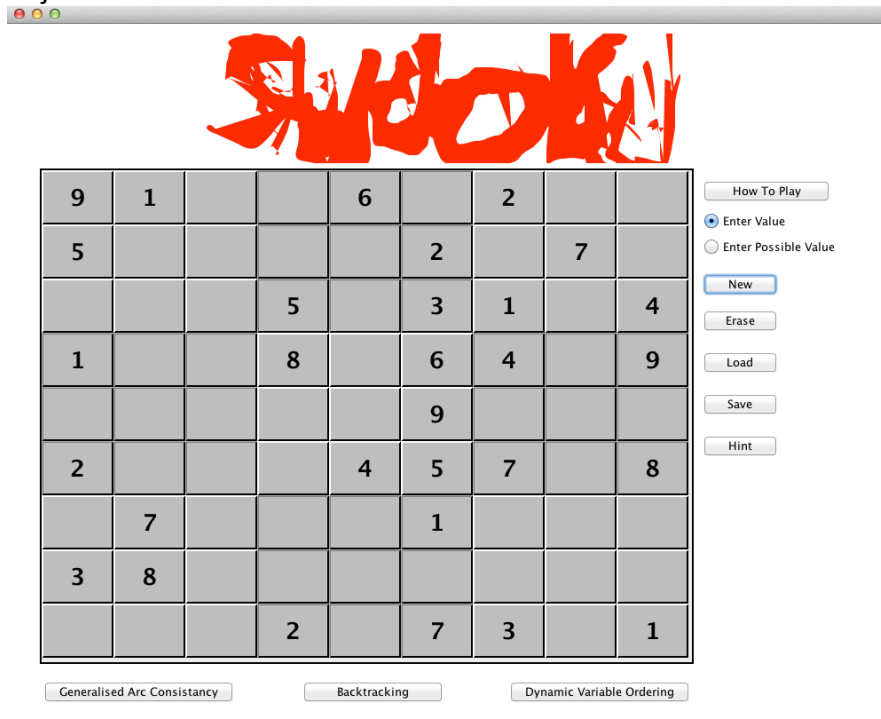
If you want to solve the Sudoku use the solve buttons named with the different algorithms.

User interface

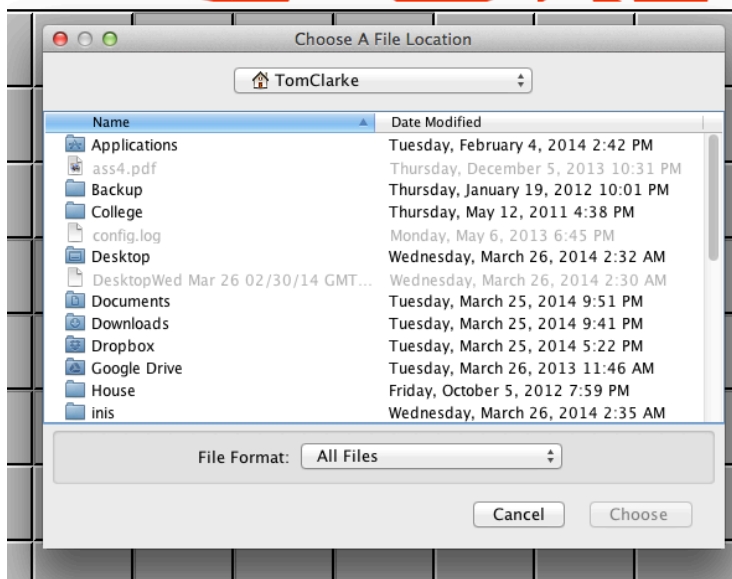
Splash Screen – a loading screen that is shown before the program is run. There is a progress bar to indicate the time it will take to load.



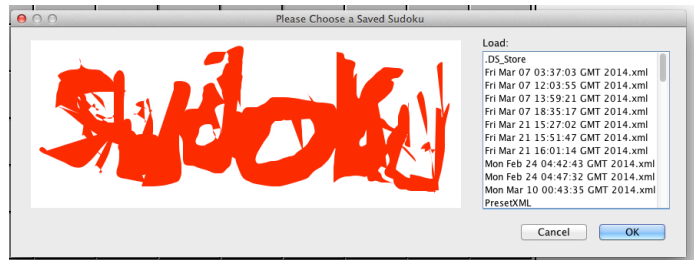
Main Menu – This contains the Sudoku Grid with the values that are displayed. For descriptions of what the buttons do, there is a caption when the mouse is over that object.



File Chooser – Allows a directory to be selected to save or load the boards.



Loading Menu – gives a list of the saved files within a directory that are named by the date they were created. These can then be selected and loaded to the board within the main menu.



Functions

Add user input to grid

To do this click on a cell with the mouse to select it, then using the keyboard press the desired number to use it as value, then select the cell again to assign the number to that cell. If necessary it is possible to change the value by selecting a number on the keyboard and clicking the cell again to assign it.

New

Populates the grid with a randomised pre-set board. This is a possible board.

Load

Displays a window to select a saved board from the folder they are stored in. This is then populates the board.

Save

Saves the current board, including user inputs, to the saved folder where it can then be retrieved by the load button.

Erase

Deletes all of the current values from the board.

Help

Provides a description of the Sudoku Puzzle for the user.

Solving Methods

There are 3 methods that will solve the board.

Backtracking

Searches all of the possible values for every cell on the board until the correct values are found.

Dynamic Variable Ordering

Does the same as backtracking but uses the most constrained variable first.

Generalised Arc Consistency

Reduces the possible values of each cell by deleting the values it cannot be.

Hint

Uses the Dynamic Variable Ordering algorithm but only produces one value, this provides a help function that then shows the next best value.

Possible Value

Gives a temporary value to the cell that the user can insert a number if they are unsure and it will not be considered.