Design Patterns

Computer Science *3rd year*

Le Mans Université

Conway's Game Of Life

User Manual

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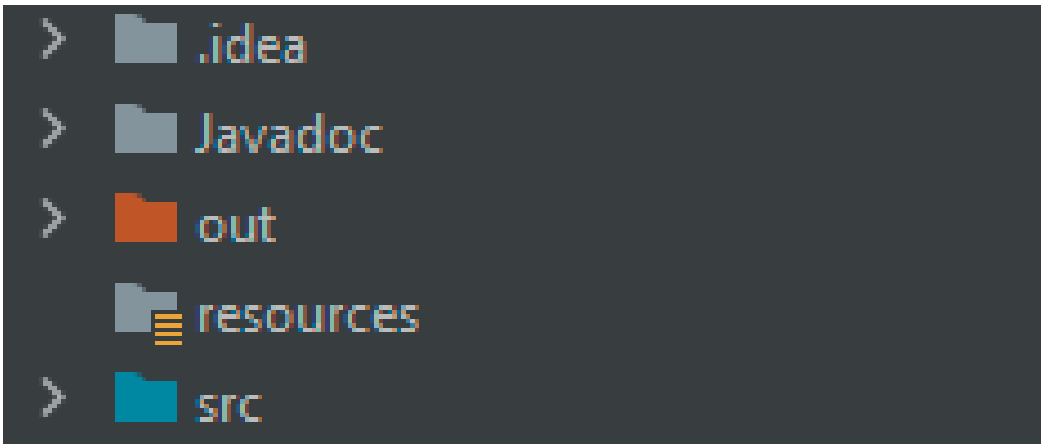
Contents

1 Project Structure



Visual representation of the structure

1.1 Contents of archive

Firstly, let's take a look at the archive and it's structure. As it is visible on the picture above, it contains 5 different folders:

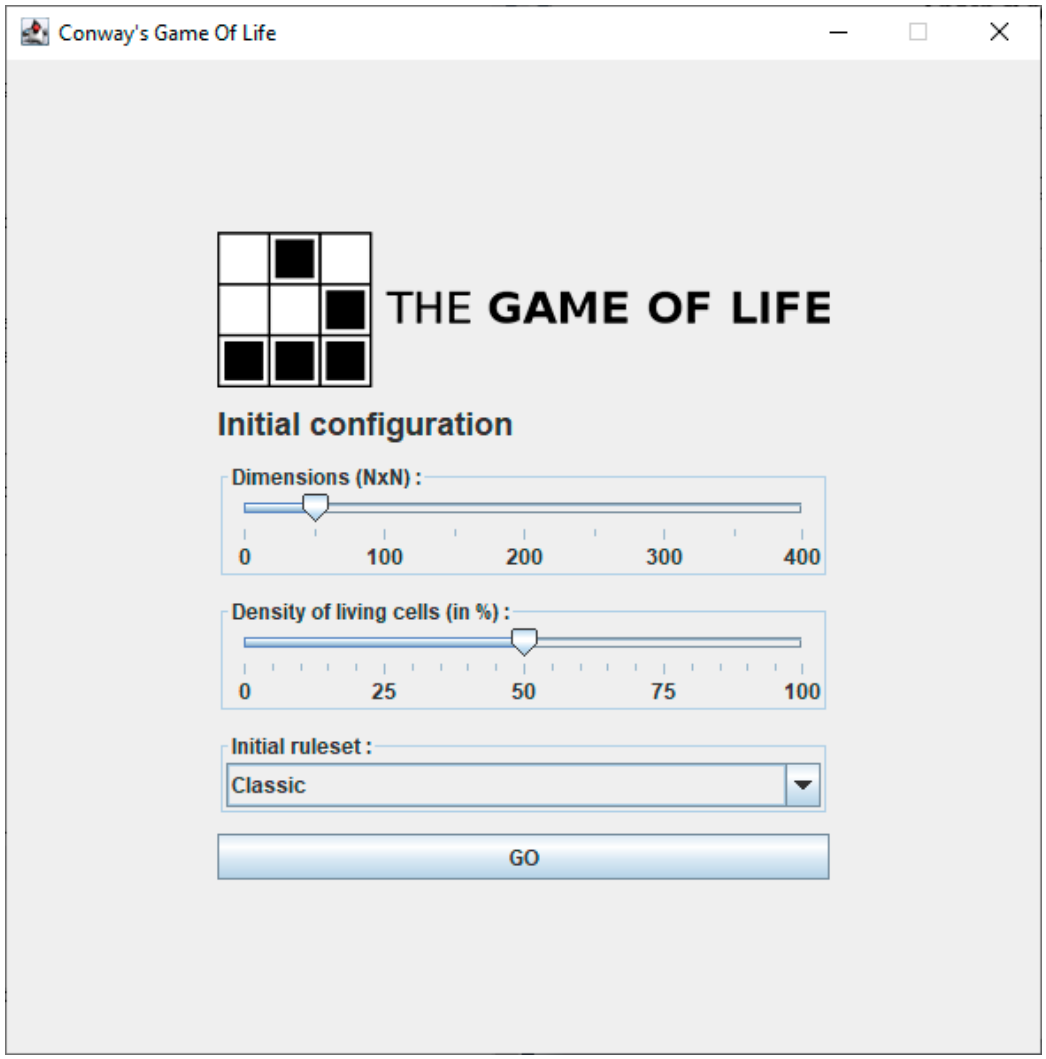
- **.idea** - contains files relative to the Intellij IDE. If you are not using Intellij's Idea, you can pretty much forget about it.
- **Javadoc** - as the name suggests, contains the entirety of documentation of the project.
- **out** - contains compilation output of the project.
- **resources** - contains different resources of the project (mainly icons).
- **src** - contains source code of the project separated in different packages.

1.2 Starting up the game

The game is started by executing the JAR file called **GameOfLife** and located in the root of the archive.

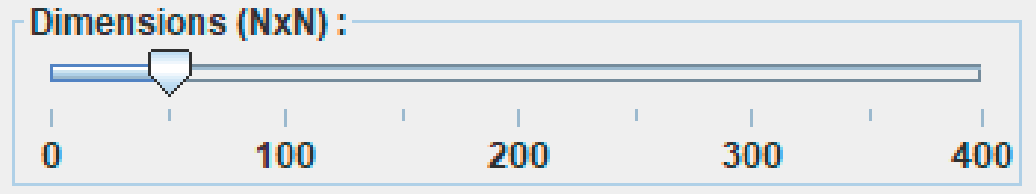
2 Main Menu

When the game is first started, the main menu opens up that allows user to change some initial settings of the game:

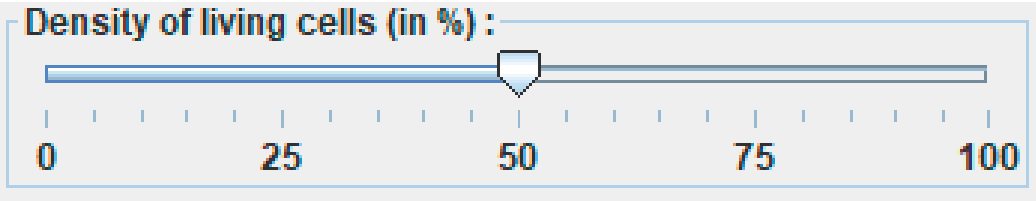


Main Menu window

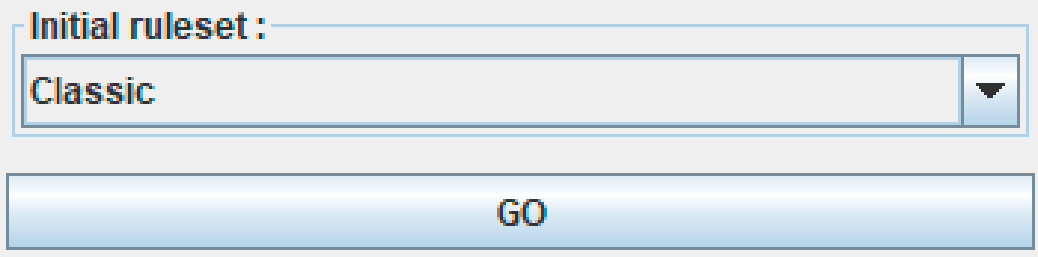
As it can be seen on the picture, there are 2 different sliders and 1 list, each of them have different purpose:



This slider allows user to set the dimensions of the grid on which the game will take place. The maxim size is fixed to be 400x400 for optimization reasons, but it can be easily altered in the file JeuDeLaVieUI l.642 simply by changing sliders value.
The default size of the grid is set to 50x50.



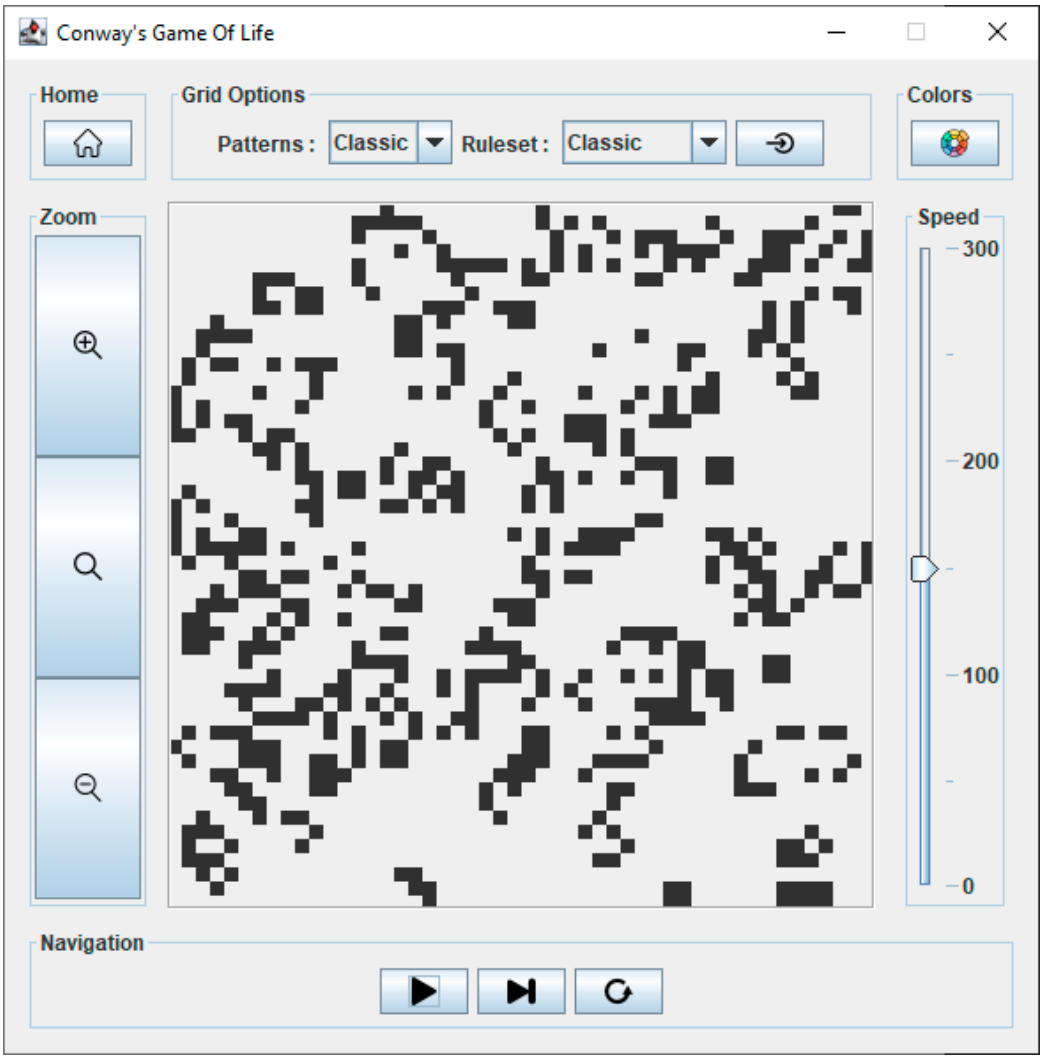
This slider allows user to percentage of living cells in the grid.
The default density is set to 50%.



This is the list of rulesets (represented in the code by different Visitors). There are currently 3 types of rulesets: Classic, DayNight and HighLife. Default rulesets are set to Classic.
Finally, when user hits the "GO" button, the game applies changes and starts the simulation.

3 Simulation

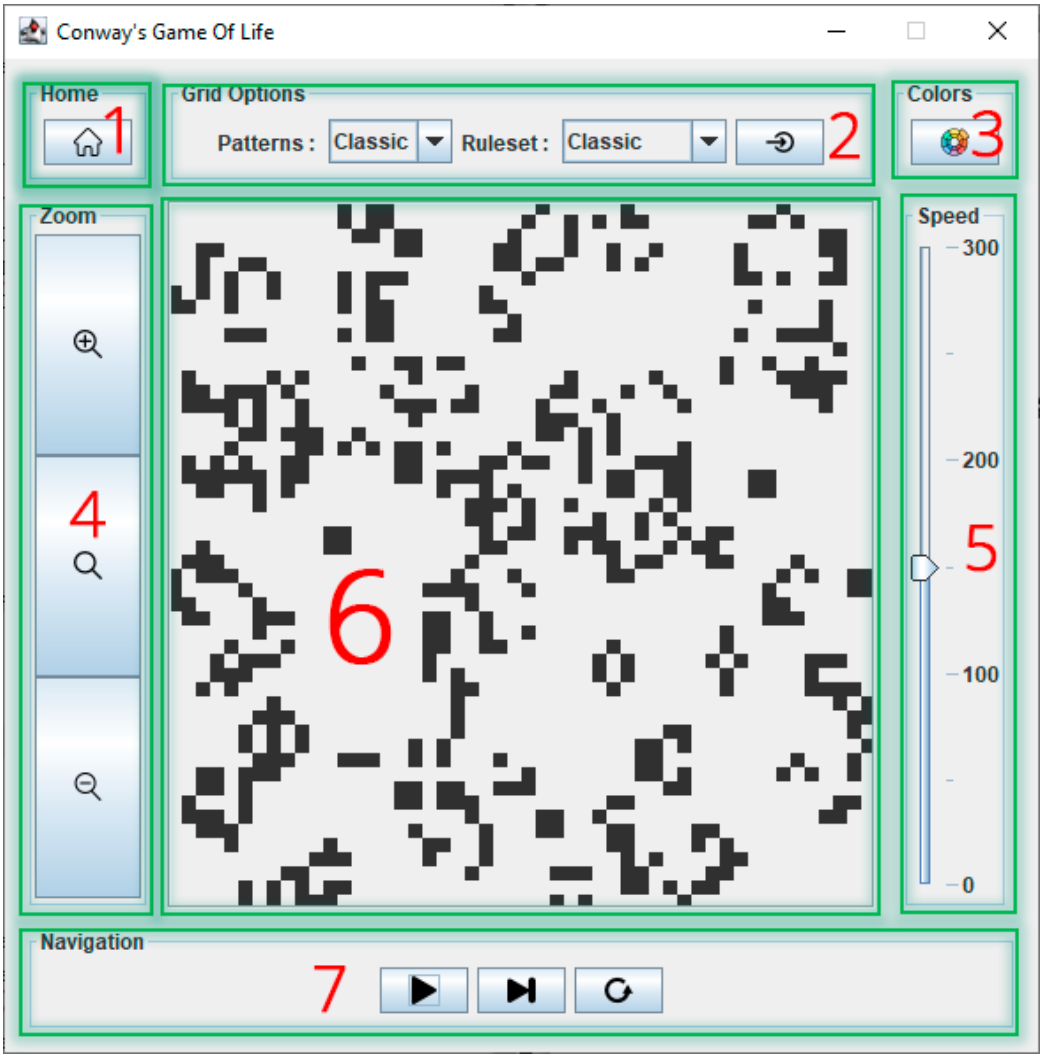
When user starts the simulation, a new frame with different panels is displayed:



Main Panel with simulation in the middle.

3.1 Panels and their purpose

There are in total 7 panels (parent-container excluded). Each of them have different purpose and functionalities:



Main Panel with simulation in the middle.

Now, let's see each one of them one by one:

- 1st panel contains Home button. By clicking on it you will simply return to the main menu. You can go back and forward at any given moment.

- 2nd panel contains two lists:
  - Patterns - contains a list of patterns (figures) that can be displayed on the grid when applying changes. For each of them to work correctly user must be using corresponding rules:
    - Classic - random grid.
    - Snails - pattern for Day & Night ruleset.
    - Replicators - pattern for HighLife ruleset.
    - Glider Gun - pattern for Classic ruleset.
  - Rulesets - contains 3 types of rulesets that can be changed anytime.

  And one button that applies selected options. For example, if you want to change current rulesets, you can simply choose them in the ruleset and hit apply button (the one on the left from the big red 2).

- 3rd panel contains color picker. It allows user to change the color of the cells on the display (black by default).

- 4th panel allows user to zoom-in, zoom-out or reset zoom.
  Tip: User also can zoom-in and out by using mousewheel.

- 5th panel contains a slider that regulates speed of the simulation.

- 6th panel contains the graphical representation of the evolution in the grid of cells.

- 7th panel contains 3 buttons:
  - Play/pause button that allows user to, well, pause and continue the simulation.
  - Step button, that moves the simulation forwar by 1 generation.
  - Reset button that re-initializes the grid (it basically restarts the game with current settings).