

Conway's game of Life exercise

The text of this exercise was originally created by Edwin Martin. It was modified by SPIN/ab
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The Game of Life is not your typical computer game. It is a 'cellular automaton', and was invented by Cambridge mathematician John Conway. This game became widely known when it was mentioned in an article published by Scientific American in 1970. It consists of a collection of cells which, based on a few mathematical rules, can live, die or multiply. Depending on the initial conditions, the cells form various patterns throughout the course of the game. More information is available in the Game of Life entry on Wikipedia.

The Rules

For a space that is 'populated':

Each cell with one or no neighbors dies, as if by loneliness.

Each cell with four or more neighbors dies, as if by overpopulation.

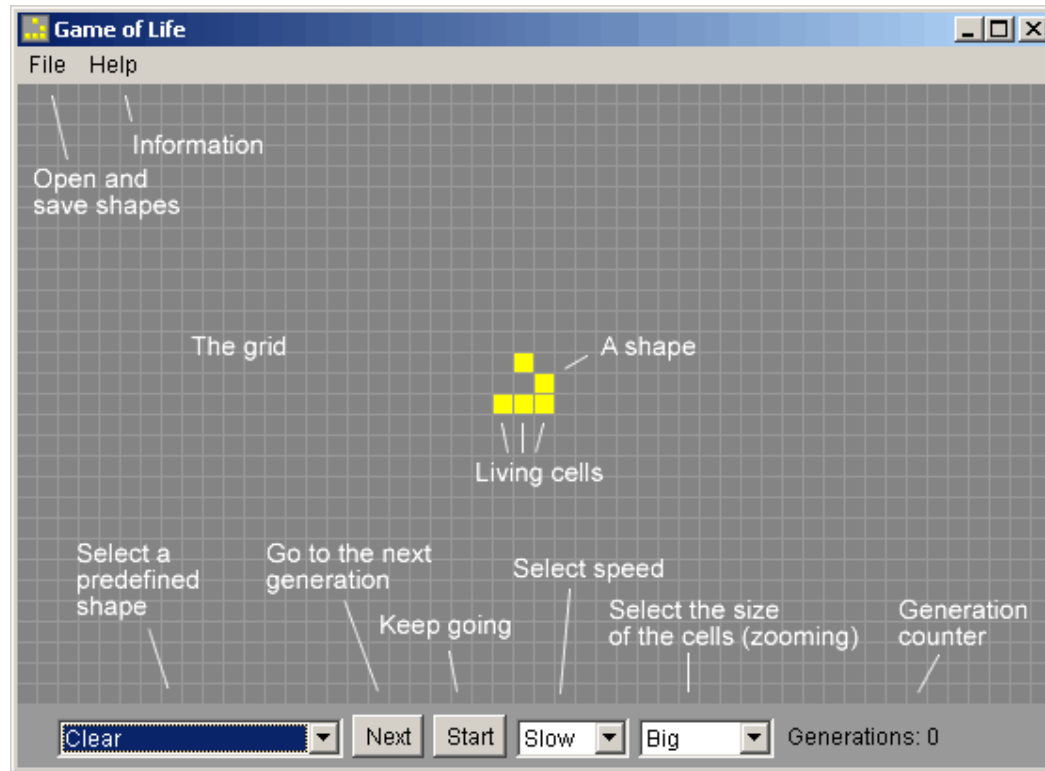
Each cell with two or three neighbors survives.

For a space that is 'empty' or 'unpopulated'

The Game

This game became widely known when it was mentioned in an article published by Scientific American in 1970. It consists of a collection of cells which, based on a few mathematical rules, can live, die or multiply. Depending on the initial conditions, the cells form various patterns throughout the course of the game.

The Controls



Choose a figure from the pull-down menu or make one yourself by clicking on the cells with a mouse. A new generation of cells (corresponding to one iteration of the rules) is initiated by the 'Next' button.

The 'Start' button advances the game by several generations. Game speed is regulated by the Slow-Fast-Hyper pull-down menu. With the Big-Medium-Small pull-down menu you can change the size of the cells, like you are zooming in or out of the grid.

You can open or save shapes from the File menu. You can also drag shape files from your harddisk or from a web page to the program. On Windows you can open a shape file (with the .cells file extension) by double clicking it.

The Game Online

The latest version, the Life Lexicon and other information can be found online:

<http://www.bitstorm.org/gameoflife/>

Exercise

Try to make your own simulation or experiment with the predefined ones.

Question

How many generations does your simulation last before it becomes stable or before it disappears?

Literature

Conway J. (1970). "Mathematical games." Scientific American, October, 120-127.

The License

The Game of Life is invented by John Conway.

This license is about this software (the program, documentation and graphics).

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