
Task

Implement Conway's Game of Life: https://de.wikipedia.org/wiki/Conways_Spiel_des_Lebens

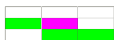
The universe of the Game of Life is an infinite two-dimensional orthogonal grid of square cells, each of which is in one of two possible states, alive or dead, or "populated" or "unpopulated". Every cell interacts with its eight neighbours, which are the cells that are horizontally, vertically, or diagonally adjacent.

For each iteration of the game, a cell's fate is decided based on these 4 rules:

Rule 1 Any live cell with fewer than two live neighbours dies, as if caused by underpopulation.



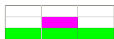
Rule 2 Any live cell with two or three live neighbours lives on to the next generation.



Rule 3 Any live cell with more than three live neighbours dies, as if by overpopulation.



Rule 4 Any dead cell with exactly three live neighbours becomes a live cell, as if by reproduction.



The initial pattern constitutes the seed of the system. The first generation is created by applying the above rules simultaneously to every cell in the seed—births and deaths occur simultaneously, and the discrete moment at which this happens is sometimes called a tick (in other words, each generation is a pure function of the preceding one). The rules continue to be applied repeatedly to create further generations.

1. Constraints

- Field size is unlimited
- Use of arrays and collection classes (List, Vector, ...) is **not** allowed
