Conway’s Game of Life

Rules:

The universe is a finite two-dimensional grid of square cells (square matrix). Each cell has 2 possible states, alive or dead. Every cell interacts with its neighbors, which are the cells that are horizontally, vertically, or diagonally adjacent. Therefore, a cell can have up to eight neighbors. At each step in time, the following transitions occur:

1. Any live cell with fewer than two live neighbors dies, as if caused by under-population.
2. Any live cell with two or three live neighbors lives on to the next generation.
3. Any live cell with more than three live neighbors dies, as if by over-population.
4. Any dead cell with exactly three live neighbors becomes a live cell, as if by reproduction.

Code Sample

Write a program that accepts a file path as its argument, which contains the initial set cells, and outputs the next state of the universe based on the rules above. The file will contain only 0s and 1s. 1 means alive, 0 means dead. Treat out of bounds neighbors as dead.

Examples

Input	Expected Output
010 111 010	111 101 111
101 010 101	010 101 010
0110 1001 0110 0000	0110 1001 0110 0000
00000 01110 01110 01110 00000	00100 01010 10001 01010 00100

Your code sample will be judged on multiple criteria including:

- ❏ How easy it is to run
- ❏ How readable it is, and
- ❏ How modular it is in its solution