This will be your final test for the semester

Program an implementation of Conway's Game of Life, that uses OpenMP to parallelize the calculations.

The game is played on its own, with cells arranged in a matrix. The cells can be alive or dead. At every iteration of the game, the cells can remain as they are, die or be born, following these rules:
(https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life)

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

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

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

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

After thousands of iterations, some interesting patterns may appear in the simulation.

Your program should get two input values from the user: The number of iterations of the simulation to compute, and the name of the file that contains the initial setup of the cells.

Attached are a few input files you can use for testing. You can also create your own files. The format of the files is the following:

- The first line contains the size of the matrix, first rows and then columns
- The following lines contains the cells arranged as a matrix. A value of 0 means a dead cell, and a value of 1 is a live cell

Your program must simulate what happens in every iteration and store the current state in an image. I suggest you write in the PGM format (similar to the one we saw during the semester, but with only one greyscale value per pixel) http://netpbm.sourceforge.net/doc/pgm.html. You can use other formats if you prefer. In the end you should have as many images as the number of iterations simulated.

You can split your program into separate library files, for the manipulation of the matrices, images, etc.

As usual, write clean and efficient code. Make it legible and add comments. Upload a single .zip file with all your source code and any interesting test files you create.

Good luck!

sample_1.txt
pulsar.txt
bichitos.txt