

## BONUS HOMEWORK #1

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**(max 3 points)** Few years ago, students were asked to implement Conway's Game of Life. You can find the rules of this game here:

[https://en.wikipedia.org/wiki/Conway%27s\\_Game\\_of\\_Life](https://en.wikipedia.org/wiki/Conway%27s_Game_of_Life).

One of the submitted solutions (with small modifications) looked like this:

<https://www.kubokovac.eu/ds/du/conway.cpp>

You can compile the source code using

```
g++ -Wall -Werror -pedantic -O3 -march=native conway.cpp -o conway
```

**Challenge:** Try to optimize and speed up the program as much as possible. However, do not change the algorithm used (do not invent new data structures) – we want the same approach, just better implemented.

Make sure to test that your implementation produces the same results as the given program. Measure the speedup and report the changes you made, explaining how much each contributed to the overall performance improvement. (The number of points awarded will be proportional to the achieved speedup.)