**Bacteria Generations**

Maria made a simulation based off a bacterium that follow these strict rules:

1. Any live cell with fewer than two live neighbors dies. (underpopulation)
2. Any live cell with two or three live neighbors lives on to the next generation. (stable)
3. Any live cell with more than three live neighbors dies. (overpopulation)
4. Any dead cell with exactly three live neighbors becomes a live cell. (reproduction)

Given an **NxN** grid, can you recreate the next generation of her simulation? The 0’s represent a dead cell and the 1’s represent a living cell. Cells outside of the array can be assumed to be dead. Cells that would be born out of the matrix can be ignored as well.

**Input:** The first line of input contains **N**, the dimension of the grid. The following **N** lines contain the grid of space-separated 0’s and 1’s.

**Output:** Output the next generation.

**Example Input:**

5

0 1 0 0 1

0 1 1 0 1

0 1 0 0 1

0 1 0 1 0

1 0 0 0 1

**Example Output:**

1 1 1 1 0

0 1 1 0 1

0 1 0 0 1

1 1 1 1 1

0 0 0 0 0