Dory's Microbes

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Problem Submissions Discussions

Dory has decided to start a microbe farm (kind of like an ant farm, but for Fish). Her microbes can be modeled by a bounded n x n grid where some of the microbes are dead (0), and others are alive (1). Every microbes interacts with its eight neighbors (except for those on the boundaries - they have fewer), which are the microbes that are horizontally, vertically, or diagonally adjacent. Every minute, each microbe either comes to life or dies based on the following rules that are applied instantaneously:

1. Any live microbes with fewer than two live neighbors dies.
2. Any live microbes with two or three live neighbors lives on.
3. Any live microbes with more than three live neighbors dies.
4. Any dead microbes with exactly three live neighbors becomes a live microbes.

Dory would like to know how many microbes are alive after k minutes.

https://drive.google.com/open?id=0BxxolsFkwnDqRmpFN0lzZG1rN2s

Input Format

The first line will contain two integers separated by a space. The first number will be n, the size of the n x n grid, and the second number will be k, the number of minutes into the future that Dory would like to investigate.

The next n lines will contain n digit binary numbers representing whether microbes are alive (1) or dead (0), with each digit separated by a space.

Constraints

1 <= n <= 100 1 <= k <= 100

Output Format

The number of microbes that are alive after k minutes.

Sample Input 0

```
4 3
1 1 0 0
1 1 0 0
0 0 1 1
0 0 1 1
```

Sample Output 0

```
6
```

Sample Input 1

```
3 2
1 0 0
0 0 1
0 1 0
```

Sample Output 1

```
0
```