



Questions

00d : 02h : 31m : 10s

1. Virus Transmission ()

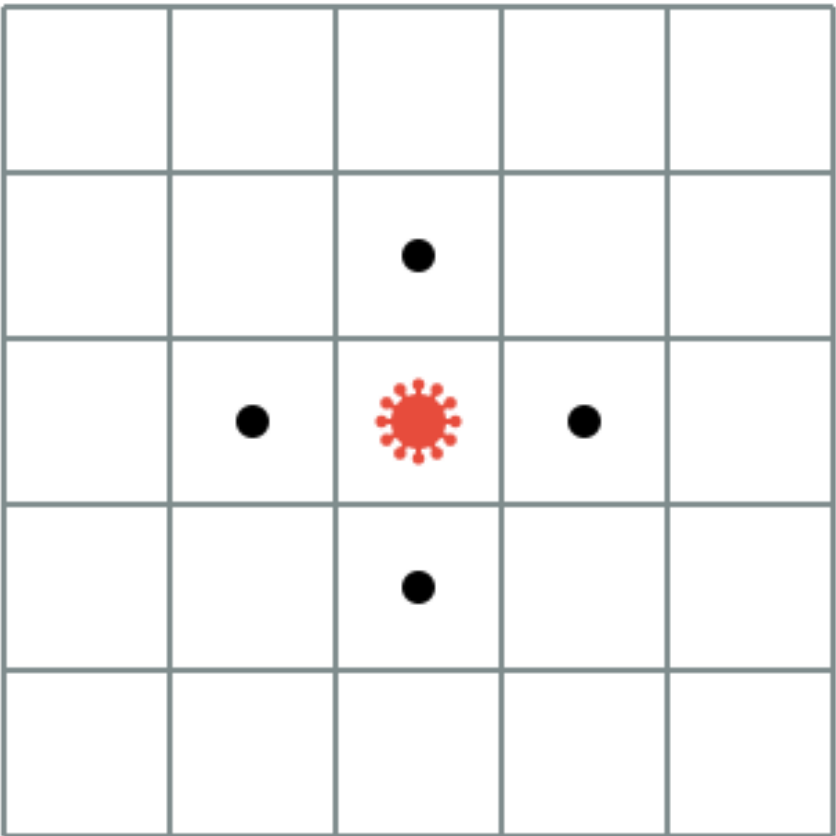
- Note:
- You can do multiple submissions.

- Your highest score will be considered

### Virus Transmission

You're given a rectangular petri dish divided into **m** rows, **n** columns, each subdivision containing cells or left empty. Cells can be infected ( **0** ), weak ( **1** ), strong ( **2** ) or empty ( **\_** ). An infected cell can infect adjacent healthy (both weak and strong) cells. Once adjacent to the infected, it takes a day for a weak cell to get infected and be able to transmit the virus, and two days for a strong one. The objective is to find the number of days required to infect all weak and strong cells.

A subdivision can have a maximum of 4 adjacent subdivisions as show below. Infected cell is shown in red and it's adjacent 4 cells are shown by black dots.



### Input Format

The first line contains and integer **t** denoting the number of test cases. The second line consists of two space separated integers **m** and **n** . The next **m** rows each contain **n** characters.

### Output Format

For each test case output the number of days required. If it's not possible to turn all healthy cells to infected, output **-1** . If there are no healthy cells output **0** .

### Sample Input

```
4
4 5
02_20
21212
_121_
__2__
3 3
_1_
101
_1_
2 3
1_2
_0_
1 2
0_
```

### Sample Output

```
8
1
-1
0
```

### Explanation

For test case

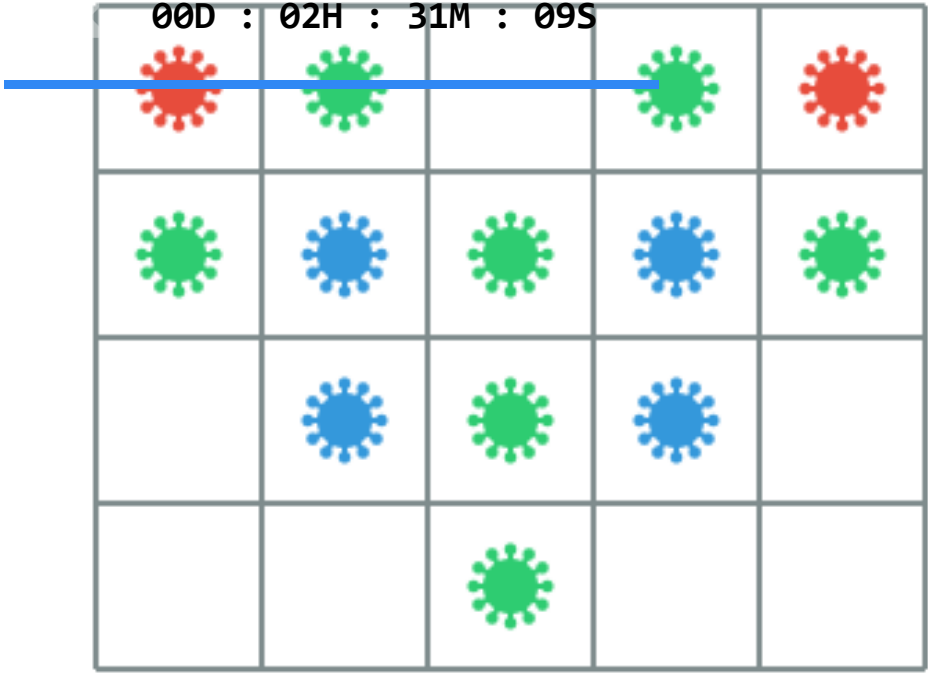
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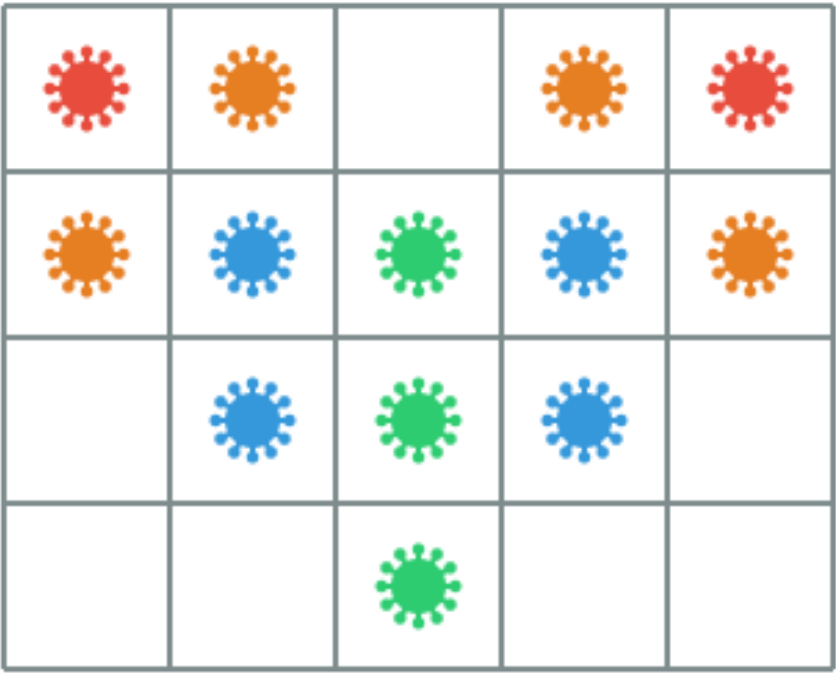
1. Virus Transmission ()

Note:

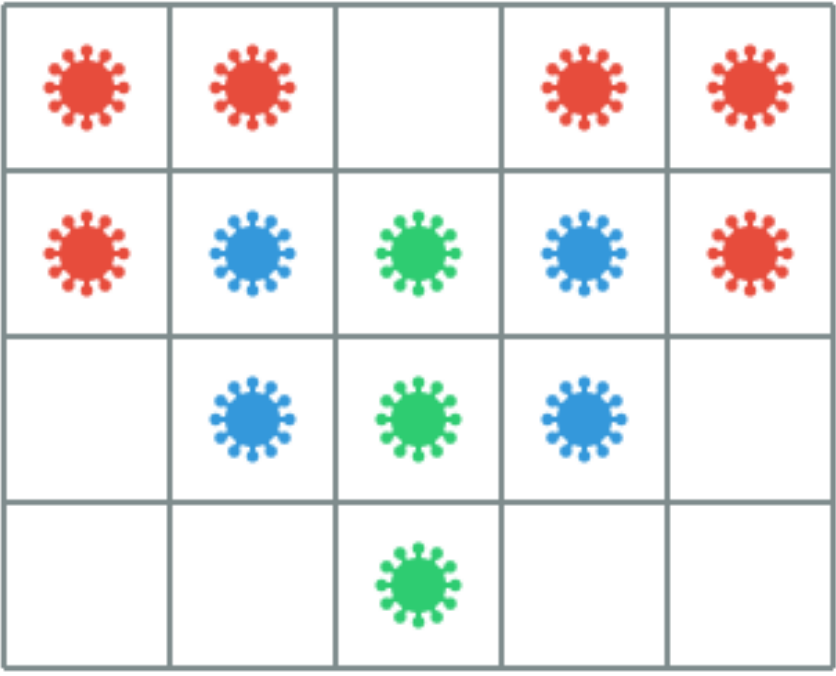
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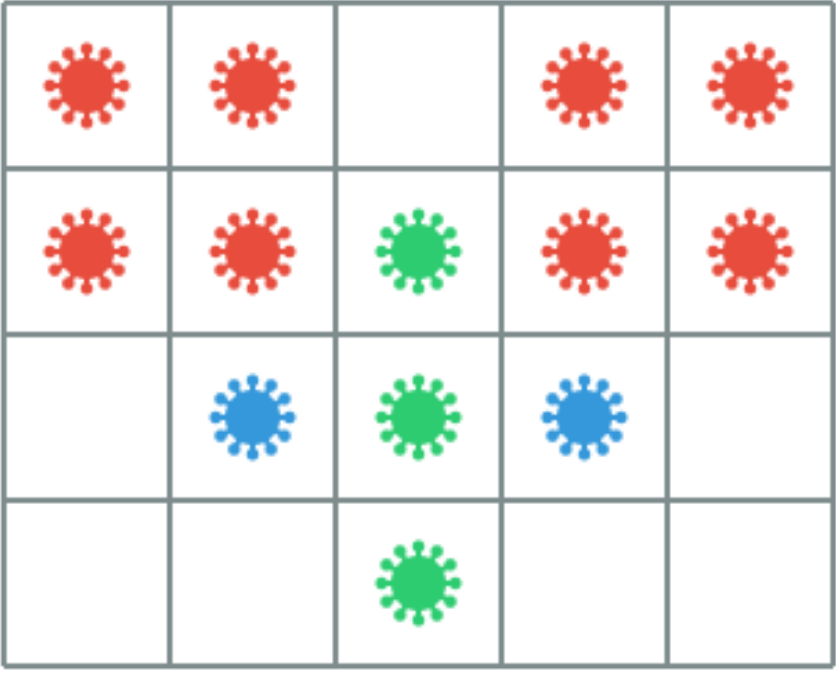
After Day 1



After Day 2



After Day 3



After Day 4

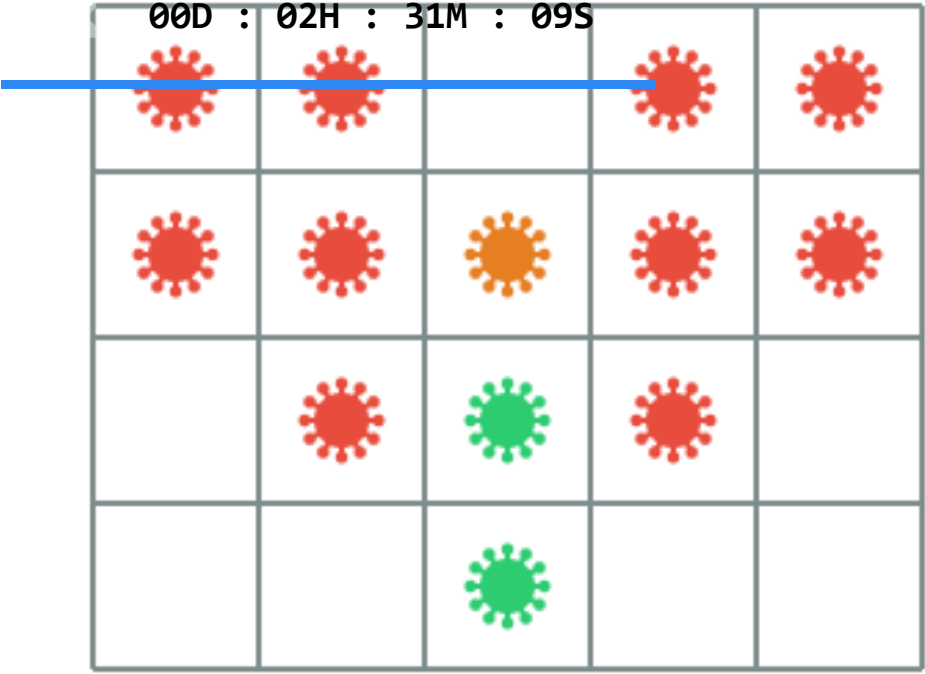
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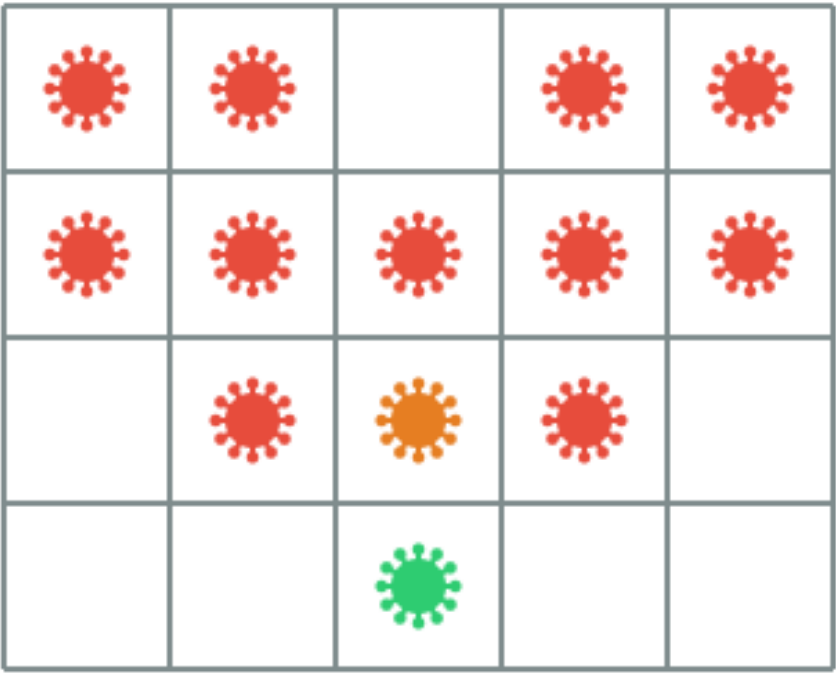
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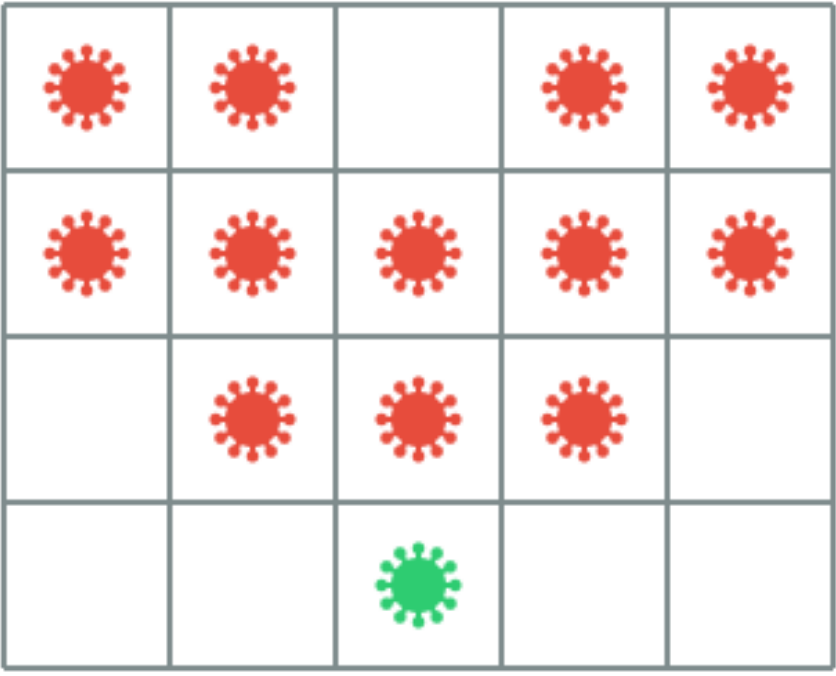
- Your highest score will be considered



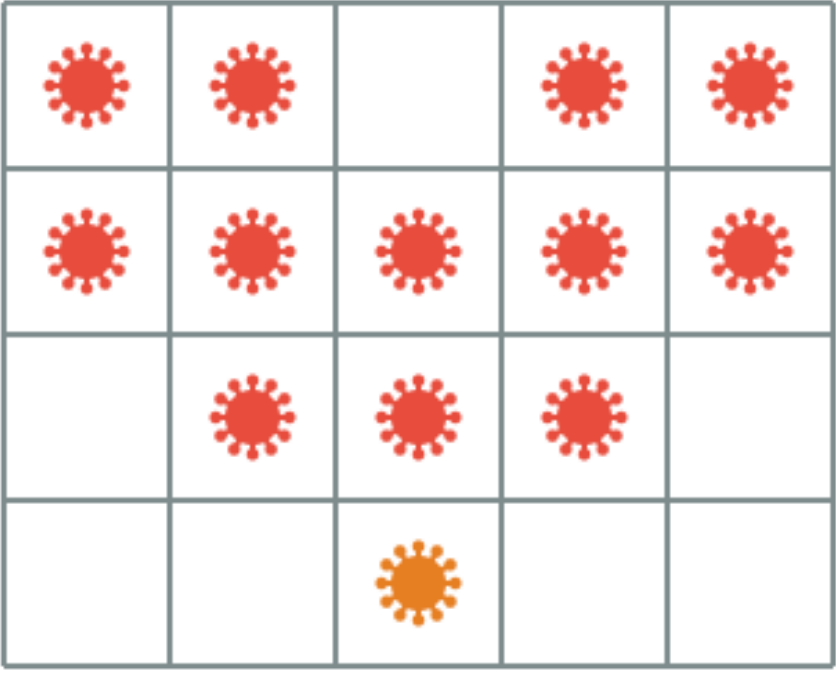
After Day 5



After Day 6



After Day 7



After Day 8

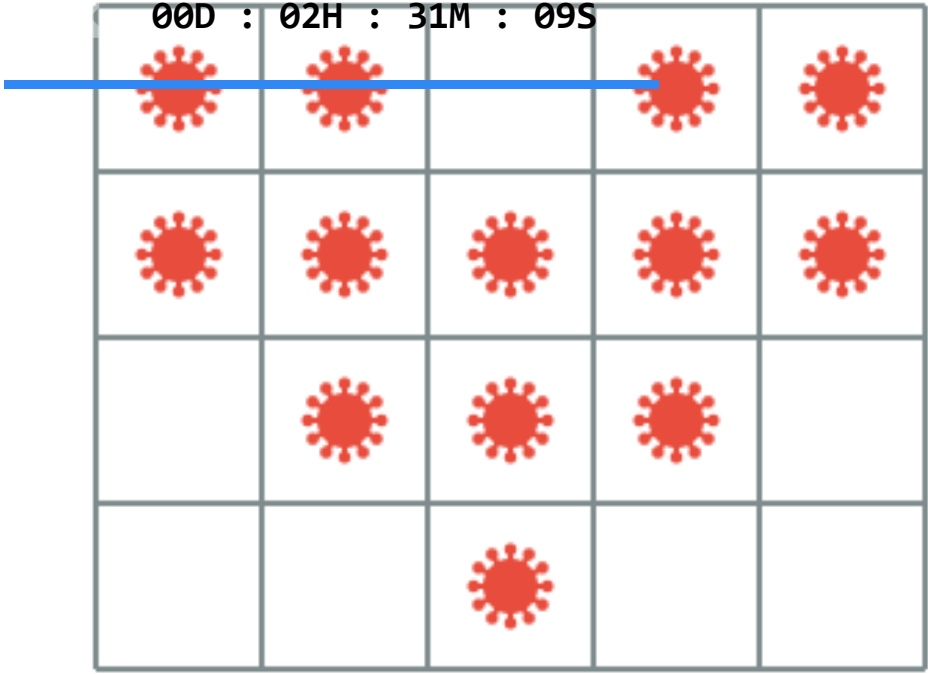
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It takes a total of 8 days.

Infected cell is shown in red, weak in blue and strong in green. Intermediate state of a strong cell after first day of infection is shown in orange.

Constraints

1 <= t <= 1000

1 <= m,n <= 100

Environment

Read from STDIN and write to STDOUT.

Please check the sample programs below which print the sum of two numbers received as input

- C [goo.gl/4zRfEC](https://goo.gl/4zRfEC) (<https://goo.gl/4zRfEC>)
- C++ [bit.ly/2Io1VND](https://bit.ly/2Io1VND) (<https://bit.ly/2Io1VND>)
- Java [goo.gl/QUZhgb](https://goo.gl/QUZhgb) (<https://goo.gl/QUZhgb>) (Remove package declarations and keep the class name as “solution” (small case))
- Python2 [bit.ly/2T1TGu4](https://bit.ly/2T1TGu4) (<https://bit.ly/2T1TGu4>)
- Python3 [bit.ly/2AsphPm](https://bit.ly/2AsphPm) (<https://bit.ly/2AsphPm>)

Instructions

- The dashboard provides two modes.
  - Test runs your code against public/sample test cases.
  - Submit runs against private/hidden ones.
- Only public/sample test cases and their elaborate “test” results are made available. A line by line comparison with expected output is shown. There is no score for passing the public test cases. It’s only for testing and debugging.
- For the private/hidden test cases, the judging system only shows the exit code, passed status, time consumption, memory consumption and score. We expect users to take cues from these values. Only making a “submit” will yield a score. Total score is a normalized weighted score over all test cases.
- If the code reaches execution time limit and it still running, it is terminated and a timeout is declared.
- Use the help button

SAMPLE

STDIN 1 (<https://cdn.skillenza.com/files/cf98757c-1f7a-4702-aecb-cb999f29d668/in.txt>)

42  
4 5  
02\_20  
21212  
\_121\_  
\_\_2\_\_  
3 3

SAMPLE

STDOUT (<https://cdn.skillenza.com/files/90aed2fe-81327b-4206-aaa4-0557dcab8bd9/out.txt>)

8 1  
1  
-1  
0  
16  
6  
-1

Upload solution to editor

Select language

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InstructionsEnd Stage

TestSubmit