Competitive Programming SS24

Submit until end of contest

Problem: dough (1.0 second timelimit)

Note: This is a problem that is harder to solve than usual. Solve the other problems first before spending too much time on this one.

Right now it is 3:00AM. You are in a hurry to bake some cookies for today's ICPC competition. Unfortunately, you realise that you only have two types of cookie cutters and you only have a single piece of baking paper left. But things get even worse, this last piece has some holes in it. You already made a huge amount of cookie dough, and now you ask yourself how to place it... The two shapes of cookies you are able to make are a 1×1 cookie and a 2×1 cookie (you are able to rotate a cookie). The baking paper is modeled as a grid. Are you able to find the minimum number of cookies you need to fill the baking paper with cookies? Note that you cannot place any part of a cookie on top of a hole.

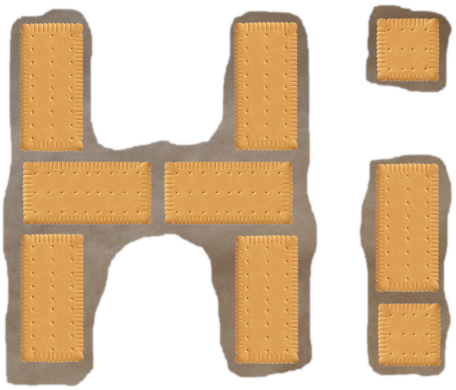

Figure 1: Illustration of the sample input. You need at least nine cookies to cover the area of the baking paper.

Input The first line contains two integers w and h $(1 \leq w, h, \leq 100)$, the dimensions of your baking paper. The next h lines contain w characters $c_{ij} \in \{\texttt{'\#'}, \texttt{'.'}\}$ to describe the baking paper. A `'.'` represents a hole.

Output Print a single integer, the minimum number of cookies you need to place to fill the baking paper.

Sample input

```
6 5
#..#.#
#..#..
####.#
#..#.#
#..#.#
```

Sample output

```
9
```