Problem E. Express Eviction

Time limit: 4 seconds
Memory limit: 1024 megabytes

Bajtocja is a rectangular land consisting of $H \cdot W$ cells arranged in H rows and W columns. The border of each cell is a local road with little traffic. Each cell is either empty or inhabited by one resident. The residents like peace and would not want to live right next to a planned express road[3].

Your task is to plan the route of the express road from the upper-left to the lower-right corner of Bajtocja. The route can only run along existing roads, which minimizes reconstruction costs. The length and number of turns do not matter.

It will be necessary to evict each resident whose cell is adjacent to the express road by the side or even by a corner. At least how many residents need to be evicted?

Input

The first line of the input contains two numbers H and W ($1 \le H, W \le 50$) – the dimensions of Bajtocja.

The next H lines describe inhabited and uninhabited cells. Each line contains a string of length W, consisting of characters `'.'` (empty cell) and `'#'` (inhabited cell).

Output

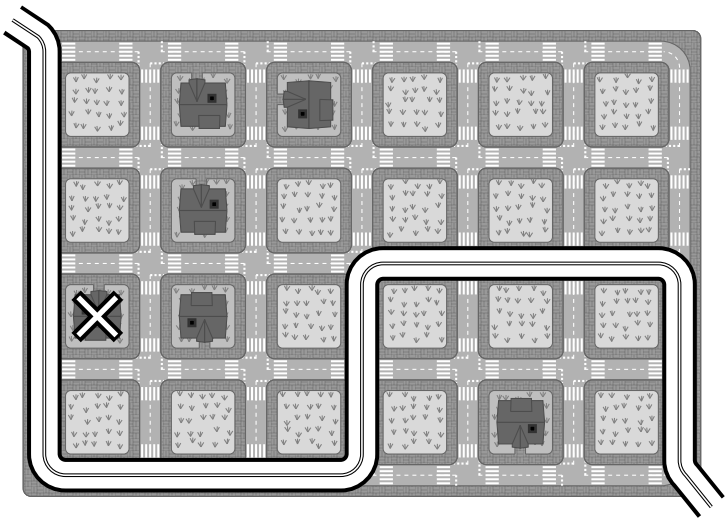
Output a single integer – the minimum possible number of evicted residents.

Example

standard input	standard output
4 6 .##... .#.... ##.... ....#.	1

Note

If you evict the resident from the cell in the first column and the third row, you can build the express road as follows:



[3]Many years ago, an old man was so annoyed that he tied many balloons to his house and flew away.