Lakeside Walk (lake)

Carlo decided to quit his studies and start a software company. He decided to locate the headquarters of his new company in a remote city in the mountains. Among all the cities he visited, he found the perfect one: a city with a rectangular shape and a lake in the middle.

That is, the city can be represented by a grid of $N \times M$ square cells, where each cell is either land (represented by '`.`') or water (represented by '`#`').

Figure 1: Carlo's company.

Carlo needs inspiration to develop his software, so every morning he goes for a walk around the lake, enjoying the beautiful surroundings. One morning, however, he could not concentrate, and a question nagged at him: how long is the perimeter of the lake? Unfortunately, none of his software could answer this question, so he asks for your help!

> ☞ Among the attachments of this task you may find a template file `lake.*` with a sample incomplete implementation.

Input

The input file consists of:

- a line containing integers N, M.
- N lines, the i-th of which consisting of string $\texttt{city}_i$ of length M, describing the cells in row i.

Output

The output file must contain a single line consisting of integer P: the perimeter of the lake.

Constraints

- $1 \leq N, M \leq 1000$.
- Each string $\texttt{city}_i$ has length M and consists only of characters '`.`' and '`#`'.

- There is exactly one lake in the city.
- There are no islands in the lake.
- The boundary cells of the city are all land cells (i.e. '.').

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (50 points) The lake is square shaped.

– **Subtask 3** (30 points) $N, M \leq 20$.

– **Subtask 4** (20 points) No additional limitations.

Examples

input	output
5 5 ..... .###. .##.. ..##.	14
5 11 ....#.###.###. .#.#.#.#.#. .###.###.#.	40

The **first sample case** corresponds to the figure below.