Island Connection

Time Limit: 1 Second
Memory Limit: 2048 MB

You just received a request to build bridges to connect islands in Hawaii because people are tired of traveling by ferries! However, you need to know how many bridges you will have to construct so that every island can reach every other islands. Moreover, you certainly want to build as few bridges as possible because you will only receive a fixed amount of funding for this request. Given the map of Hawaii, find out the number of bridges you will need to build so that the islands are connected. A bridge can connect exactly two islands.

Input

The map is represented as an $n \times m$ grid. The first line of input contains two integers n and m ($1 \leq n, m \leq 100$) - the size of the map.

The next n lines describe the grid. Each line contains m characters, where L denotes that the current grid is land, and O otherwise. Two cells are connected (i.e. belong to the same island) if you can travel from one cell to the other by going up, down, left, and right and only visiting cells marked as "L".

Output

Output a single integer denoting the number of bridges you need to build to connect islands in the map.

Sample Inputs

```
5 5
OLOLO
LLOLL
OLOOO
OOOOL
OOLOL
```

Sample Outputs

```
3
```