4. Battleship

Problem ID: 9431 | Bonus Problem | 100pt(s)

Time Limit: 1000ms **Memory Limit: 524288kB**

Description

In the famous game Battleship, a fixed number and shape of ships are placed on a rectangular board, each of which cannot touch any others. In this problem, we will only consider boats as rectangular. Write a program to find the total number of ships placed on the board.

Input

Input

The first line of the input file consists of two integers R and C separated by spaces, representing the number of rows and columns on the game board respectively. Note that 1<=R,C<= 1000.

The next R lines each contain C characters, each of which can be either "#" or ".", where "#" represents a part of a boat and "." represents water.

Output

Output one line. If there are only rectangles on the board, and none of them touch each other, output the sentence "There are S ships." where S is the number of ships. If two "#"s are adjacent to each other but belong to two different ships, the two ships are touching and "Bad placement." should be output instead.

Examples

Input 1

```
6 8
.....#.#
##.....#
##.....#
.......#
#......#
#..#...#
```

Output 1

```
There are 5 ships.
```

Input 2

```
6 8
......##
##.....#
##.....#
.......#
#......#
#..#...#
```

Output 2

```
Bad placement.
```