
Stamp

Input file: **standard input**
Output file: **standard output**
Time limit: 1 second
Memory limit: 512 megabytes

Designer Arseny wants to draw a new brilliant logo. For a special conceptuality, Arseny decided that he would use a special stamp for his drawing. A stamp is a rectangle $h \times w$, each cell of which is either empty or filled with a coloring element. When the stamp touches the paper, each coloring element fills the cell over which it is located. For aesthetic reasons, you cannot rotate the stamp.

Arseny wants the logo to be a rectangle completely filled with paint, but Arseniy has not yet determined the optimal dimensions of the rectangle. First, he wants to find the rectangle of the minimum area that can be obtained. Help him find such a rectangle.

Input

The first line contains the integers h and w ($1 \leq h, w \leq 3000$) — the height and width of the stamp.

The following h lines of w characters contain a description of the stamp, the character ‘.’ corresponds to an empty cell, the character ‘X’ corresponds to a cell with a coloring element.

It is guaranteed that the corner cells of the stamp are nonempty.

Output

Print two integers — the height and width of the rectangle of the minimum area, which can be obtained using this stamp.

Scoring

Subtask	Score	Constraints
1	16	$h, w \leq 10$
2	17	$h, w \leq 100$
3	28	$h, w \leq 500$
4	19	$h, w \leq 1000$
5	20	$h, w \leq 3000$

Examples

standard input	standard output
4 3 X.X XXX ... X.X	5 4
5 6 X...XX XX...XXX.. XXX..X	7 9
1 1 X	1 1

Explanation

Illustration for the first example.

