Mock CCC '18 Contest 2 J5/S3 - A Coloring Problem

Time limit: 5.0s **Memory limit:** 1G

An m-by-n grid G is *good* if every square is colored either red or blue, and if the square in row i, column j is blue, then every square in row k, column l that satisfies $k \leq i$ and $l \leq j$ must also be colored blue.

You are given a grid that is partially colored in. Count the number of ways to color the remaining squares of the grid such that the grid is good.

Constraints

$1 \leq m, n \leq 30$

At least one square in the grid will be `.`.

Input Specification

The first line contains two space-separated integers m and n.

Each of the next m lines contains n characters representing the grid. Each character is either `R` to represent a red square, `B` to represent a blue square, or `.` to indicate a square that has not been colored.

Output Specification

Print, on a single line, the number of distinct colorings possible.

Sample Input 1

```
3 2
..
B.
.R
```

Sample Output 1

```
6
```

Sample Input 2

```
7 6
......
.....B
.B..R.
......
...B..
.R....
...R..
```

Sample Output 2

```
3
```

Sample Input 3

```
2 2
R.
.B
```

Sample Output 3

```
0
```