

1 Illuminate

Time Limit: 1.0s
Memory Limit: 256MB

1.1 Problem Description

Chien Hao the criminal mastermind has been terrorizing the streets of Bunnyland! In order to curb street crime rates in the city, Benson the Rabbit has decided to place street lights to illuminate the streets of Bunnyland. The city can be represented by a grid with R rows and C columns. The grid cells are numbered from $(1, 1)$ to (R, C) , each represented by the character $X_{i,j}$. If the grid cell (i, j) is empty, it is represented by a '.' (without quotes); if it contains a building, it is represented by a '#' (without quotes).

Benson the Rabbit will place a street light at every empty grid cell in the grid. The street lights are very strong but can only shine in 4 directions. More precisely, each street light increases the illumination level of every grid cell in the same row and column as itself by 1 as long as there isn't a building between the grid cell and the street light. Notably, a street light will increase the illumination level of its own grid cell by 1.

The total illumination of the city is defined as the sum of the illumination levels of all empty grid cells in the city. Help Benson find the total illumination of the city.

1.2 Input Format

The input format is as follows:

- The first line of input will contain 2 spaced integers, R and C respectively.
- The next R lines of input will contain a string of C characters $X_{i,1}, X_{i,2}, \dots, X_{i,C}$ without spaces, each one being either a '.' or a '#', indicating whether that grid cell is empty or contains a building.

1.3 Output Format

The output format is as follows:

- Output a single integer, the total illumination level of the city.

1.4 Subtasks

For all testcases, it is guaranteed that:

- $1 \leq R \cdot C \leq 2 \cdot 10^6$
- $1 \leq R, C \leq 2 \cdot 10^6$.

Subtask	Score	R,C	Additional constraints
1	5	-	All characters are '#'
2	15	-	All characters are '.'
3	10	$1 \leq R, C \leq 70$	-
4	20	$1 \leq R, C \leq 300$	-
5	15	$R = 1$	-
6	35	-	-
7	0	Sample Testcases	

1.5 Sample Testcases

standard input	standard output
<pre>3 3 .#.#.</pre>	25
<pre>10 5 .#... ...#. ###.. ..##. ...## ...## ..##. ..##. #..#.</pre>	195

1.6 Sample Testcase Explanation

In the first sample testcase, the 4 empty cells in the corners each illuminate 3 cells, the 2 empty cells in columns 1 and 3 in row 2 each illuminate 5 cells and the center cell illuminates 3 cells. Thus, the total illumination is $3 + 3 + 3 + 3 + 5 + 5 + 3 = 25$.