



Central Europe Regional Contest 2018

Matrice

`matrice.c`, `matrice.cpp`, `Matrice.java`, `matrice.py`

Agent Sue Thomas and her son are looking for trinities in a grid. The word *trinity* is a neologism referring to a particular triangular (as the morpheme “tri” suggests) shape composed of cells in the grid.

Each trinity is a result of taking a square-shaped area of the cells and removing all cells that lie either above or below one of the two diagonals of the area. The diagonal may be either the main diagonal (southeast-northwest direction) or the main antidiagonal (southwest-northeast direction). A valid trinity consists of at least three grid cells and all its cells contain the same character.

Input Specification

The first input line contains two numbers N and M ($1 \leq N, M \leq 1000$), describing the number of rows and columns in the grid, respectively. Each of next N lines contains M characters, whose ASCII codes are between 33 and 126, inclusively.

Output Specification

Output the number of different valid trinities in the input grid.

Sample Input 1

```
2 2
AA
Ad
```

Output for Sample Input 1

```
1
```

Sample Input 2

```
5 5
#####
####.
###..
##...
#....
```

Output for Sample Input 2

```
60
```

Sample Input 3

```
5 4  
hwrr  
eahe  
lroy  
lswr  
oaau
```

Output for Sample Input 3

```
0
```

Sample Input 4

```
5 6  
#girls  
##areb  
#.#est  
#..#!!  
#####!
```

Output for Sample Input 4

```
7
```