CCO '14 P1 - Troyangles

Time limit: 1.0s **Memory limit:** 1G

Canadian Computing Competition: 2014 Stage 2, Day 1, Problem 1

Troy loves triangles. He especially likes counting triangles. He has an N-by-N grid consisting of either `.` or `#` characters. Help him count the number of triangles formed only by `#` characters in the grid. Triangles are of the form

```
   #
  ###
 #, ###, #####, etc.
```

More formally, a triangle of height h consists of h rows for some positive integer h. The i-th row contains $2i-1$ `#` characters for $i = 1, \ldots, h$. The rows are centred above each other so that they are symmetrical about a vertical line down their middle.

Input Specification

The first line contains the number N ($1 \leq N \leq 2000$) representing the size of the grid. The next N lines each contain N characters as described above.

You can assume that for test cases worth 20% of the marks, $N \leq 50$.

Output Specification

Output the number of triangles in the grid.

Sample Input

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

Output for Sample Input

```
16
```

Explanation of Output for Sample Input

There are 11 triangles of height one, 4 triangles of height two, and 1 triangle of height three.