Goal

Let's consider a canoe slalom taking place on an artificial square area of water. The challenge is to navigate from one corner of the square to the opposite corner with a strong stream going in the same direction. Having said that, it's not about letting yourself moved by the stream: there are gates and the goal is to go through as many gates as possible.

The area is represented by a **NxN**. grid. The start is the top left corner and the finish is the bottom right corner. The stream is moving to the bottom right corner and it's difficult to go against the stream so the only possible moves from a cell of the grid to another are either to go to the cell below or to the cell to the right or to the cell located below and right.

To go through a gate, you just need to move to the cell on which the gate stands, there is no direction constraint on the way you go through the gate.

A brute force algorithm will not work on large grids and an algorithm with a complexity of $O(N^2)$ is expected.

Data

Input

Row *1*: an integer number **N** comprised between *1* and *1000*, representing the size of the grid. Rows *2* to **N+1**: the rows of the grid represented by strings of **N** characters. The characters may be X (a gate), or a .(empty).

Output

An integer number representing the maximum of gates that you can go through by moving only to the right or down or down-right from one cell to another and starting from the start cell and finishing on the end cell.

You can download sample input and output data files to work locally by clicking on the link at the bottom of the French version of the question