Problem 2 – Knight Game

Chess is the oldest game, but it is still popular these days. For this task we will use only one chess piece – the **Knight**.

The knight moves to the **nearest square but not on the same** row**,** column**, or** diagonal. (This can be thought of as moving two squares horizontally, then one square vertically, or moving one square horizontally then two squares vertically— i.e. in an **"L" pattern**.)

The knight game is played on a board with dimensions **N x N** and a lot of chess knights **0 <= K <= N^2**.

You will receive a board with **K** for knights and '**0**' for empty cells. Your task is to remove a minimum of the knights, so there will be no knights left that can attack another knight.

Input

On the first line, you will receive the **N** size of the board
On the next **N** lines you will receive strings with **Ks** and **0s**.

Output

Print a single integer with the minimum amount of knights that needs to be removed

Constraints

- Size of the board will be 0 < N < 30
- Time limit: 0.3 sec. Memory limit: 16 MB.

Examples

Input	Output
5 0K0K0 K000K 00K00 K000K 0K0K0	1
2 KK KK	0
8 0K0KKK00 0K00KKKK 00K0000K KKKKKK0K K0K0000K KK00000K 00K0K000 000K00KK	12