



Hello, 2024101067.

Complete the level again

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admin➤ **Problem type**▼ **Allowed languages**
C, C++

Aaryan is playing a computer game. Now he wants to complete the first level of this game. A level is a rectangular grid of rows and columns. Aaryan controls a character, which starts in cell (1,1) at the intersection of the 1 st row and the 1 st column. Aaryan's character can move from one cell to another in one step if the cells are adjacent by side and/or corner. Formally, it is possible to move from cell (x1,y1) to cell (x2,y2) in one step if $|x1-x2| \leq 1$ and $|y1-y2| \leq 1$. Obviously, it is prohibited to go outside the grid.

Some cells contain traps. Aaryan's gym-honed strength lets him **turn any trap cell into a safe cell** before stepping on it. Converting a trap to safe counts as one "conversion" and happens the moment he steps into that cell. Reaching (2,n) for Aaryan is never a matter of *if* but only of *when*.

Your task is to compute, for each level layout, **the minimum number of trap → safe conversions Aaryan must make** so that there exists a safe path from (1,1) to (2,n).

Input Format

- The first line contains a single integer t ($1 \leq t \leq 100$), the number of test cases. Then the test cases follow. Each test case consists of three lines.
- The first line contains a single integer n ($3 \leq n \leq 100$), the number of columns.
- The next two lines describe the level. The i th of these lines describes the i th line of the level, the line consists of the characters and . The character corresponds to a safe cell, the character corresponds to a trap cell.
- Assume the cells (1,1) and (2,n) are always safe, irrespective of that cell being 0 or 1.

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For each test case, output a single integer: the minimum number of trap cells Aaryan must convert into safe cells in order to reach $((2,n))$.

Sample Test Cases

Input

```
2
3
000
000
4
0111
1100
```

Copy

Output

```
0
1
```

Explanations

1. **(n=3), all safe**: A path exists with no conversions (e.g. $(1,1) \rightarrow (2,2) \rightarrow (2,3)$).

? Clarifications

[Request clarification](#)

No clarifications have been made at this time.