

The 30th Annual ACM International Collegiate Programming Contest ASIA Regional - Seoul

Practice Problem B Minesweeper

Mines have been laid under an N by N chess board by a bad terrorist. Luckily, we revealed that there are no mines under boundary cells of the chess board, and further these boundary cells give us important information about mines around them. More specifically, a boundary cell has the number of mines laid under cells neighboring the cell so that we can be aware of the maximum possible number of mines under the chess board.

```
11100
2###1
3###1
2###1
12210
```

The figure above shows an example of chess boards and you could figure it out that there are at most 6 mines laid under the chess board (* shows a mine):

```
11100
2*##1
3***1
2**#1
12210
```

Write a program to calculate the maximum possible number of mines laid under a given chess board. Chess boards are represented (like the above figure) by N strings of N characters which are integers and #'s. # means unknown.

Input

Your program is to read from standard input. The input consists of T test cases. The number of test cases T is given in the first line of the input. Each test case starts with the size N of a chess board. N is given as an integer between 1 and 100. Then, N strings representing the chess board are followed. These strings are exactly N characters long.

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Output

Your program is to write to standard output. Print exactly one line for each test case with the maximum number of mines under the given chess board input.

The following shows sample input and output for three test cases.

Sample Input

```
2
5
11100
2###1
3###1
2###1
12210
7
1233210
1#####1
1#####1
1#####2
2#####2
2#####1
1232011
```

Output for the Sample Input

```
6
19
```