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Sums in a Triangle

Problem code: SUMTRIAN

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Let's consider a triangle of numbers in which a number appears in the first line, two numbers appear in the second line, three in the third line, etc. Develop a program which will compute the largest of the sums of numbers that appear on the paths starting from the top towards the base, so that:

- on each path the next number is located on the row below, more precisely either directly below or below and one place to the right;
- the number of rows is strictly positive, but less than 100
- all numbers are positive integers between 0 and 99.

Input

In the first line integer n - the number of test cases (equal to about 1000).

Then n test cases follow. Each test case starts with the number of lines which is followed by their content.

Output

For each test case write the determined value in a separate line.

Example

Input:

```
2
3
1
2 1
1 2 3
4
1
1 2
4 1 2
2 3 1 1
```

Output:

```
5
9
```

Warning: large Input/Output data, be careful with certain languages

Date: 2008-12-01

Time limit: 3s

Source limit: 5000

Languages: C C99 strict C++ PAS gpc PAS fpc JAVA NICE JAR C# C#2 NEM ST ASM D FORT
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Comments

Rooparam Choudhary - 15th Jun, 2009 17:00:04.

first i used recursion, then it exceeded time limit. so, i use memoization.

Ashutosh Agarwal - 17th Jun, 2009 18:18:08.

i cannot understand how the path has to be recognised?

Siddharth Saha - 6th Jul, 2009 01:33:47.

The question is not clear... the path has been described as starting from the top and then either directly below or below and one place to the right. Following this instruction, for the first test case the path should be "1-2-2" which gives 5(correct). But for the second case the path should be

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