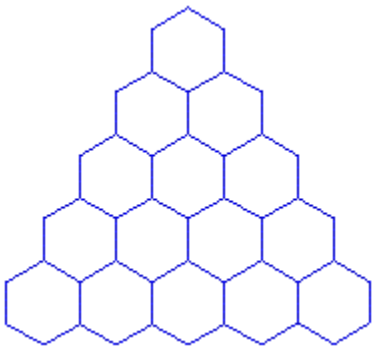
Problem 41: Honeycomb



Difficulty: Hard

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Problem Background

A honeycomb is an efficient way to visualize a set of interconnected spaces. In a honeycomb, each space is connected to at least two other spaces and at most six other spaces. Four of these possible connections are diagonal: up left, up right, down left, and down right. The other two are simply left and right.

Problem Description

In this problem, you are a honey bee. You are currently located at the top of the honeycomb triangle. You are supposed to leave soon to go gather pollen, but you left your pollen brush in the bottom right corner of the triangle. And you just remembered that your pollen bag is in the bottom left corner! You need to collect your things, and you need to do it quickly so you don't get left behind. Since the door to the bee hive is just above the top of the honeycomb, you need to find the fastest route to go from the top of the honeycomb to the bottom right, then to the bottom left, and back to the top again.

Oh, and since the bees have been hard at work, there is honey in your way. Each section of the honeycomb has a different amount of honey in it, so each space will take a different amount of time to get through.

Sample Input

The first line of your program's input, received from the standard input channel, will contain a positive integer representing the number of test cases. Each test case will include:

- A positive integer **N** representing the number of rows in the honeycomb. Each honeycomb will have at least 3 rows.
- **N** lines, each containing a comma separated list of positive integers denoting the time it takes to get through each space in the honeycomb. The first line will have a single integer, the second line will have 2, and so on

```
2
5
5
1,3
1,2,4
2,4,3,1
6,8,3,7,9
```

```
3
1
1,10
1,1,1
```

Sample Output

For each test case, your program should print out the minimum time required to gather your supplies in order and get back to the top of the honeycomb.

```
40
7
```