The Platform Game

We intend to develop a platform game where we have to guide our avatar from the entrance of the level, on the left side of the screeen, to the exit, on the right side of the screen, walking on top of different platforms.

The avatar can move from one platform to another by climbing up or down some ladders or by jumping over the gap between two platforms. The ladders that go upwards have a positive number of steps, while the ones that go downwards have a negative number of steps. Ladders with 0 steps mean that the player has to jump to the next platform. Since we don't want the levels to be too long, there can be a maximum of 10.000 ladders.

In order for the avatar to be able to climb up or down a ladder (or jump to the next platform), the number of steps of that ladder must equal the sum of the steps of all the ladders to its right.

Therefore, we need to develop an algorithm that, for a given level of the game, counts the number of ladders and gaps that the avatar can use.

In addition to coding the solution, you have to calculate its complexity, specify the algorithm and write the invariant and termination function of your loops.

Input

The first line contains the number of levels of the game.

Each level is described in two lines. The first one contains the number of ladders of that level (with a maximum of 10.000 ladders), while the second contains the number of steps of each ladder (a positive number if they go upwards, a negative number if they go downwards or 0 if there is a gap).

Output

The output of each level is an independent line with the number of ladders and gaps that the avatar can use.

Sample input

```
4
6
35 1 17 3 6 8
4
4 3 1 0
4
4 2 1 1
6
1 2 3 4 5 6
```

Sample output

```
2
2
3
0
```

Notes

This exercise must be understood in the context of the *Data Structures and Algorithms* course, FDI-UCM 2017/2018 (prof. Gonzalo Méndez). Therefore, the only valid solutions are those that use the concepts studied in this course. Additional remarks may be provided in class.