amppz

Formula One

FOR

Available memory: 128 MB.

Little Bytie really enjoys watching Formula One races which are held annually on a track between Bytetown and Byteburg. The most exciting moments for him are overtakes. He would like to see as many of them as possible.

Bytie is dreaming of a race in which n Formula One cars compete and the car that started the race at the i-th position (for each $1 \leqslant i \leqslant n$) performs a_i overtakes during the race. We assume for simplicity that at each moment of time at most one overtaking takes place, in which exactly two cars participate (that is, one car goes past another car).

Bytie is wondering whether such a race is possible at all. Could you help him figure this out?

Input

The first line of input contains one positive integer t that represents the number of test cases that follow.

Each test case is described in two lines. The first line contains one integer n ($1 \leqslant n \leqslant 1\,000\,000$): the number of cars that participate in the race. The second line holds a sequence of n integers $a_1, a_2, \ldots, a_n$ ($0 \leqslant a_i \leqslant 10^9$) that gives the number of overtakes performed by the respective cars.

The size of a single input file does not exceed 20 MB.

Output

Your program should output t lines containing answers to the respective test cases. Each line should hold a single word `TAK` (Polish for *yes*) or `NIE` (Polish for *no*) depending on whether the race described by the test case is possible or not.

Example

For the input data:

```
3
2
0 1
3
0 1 4
3
1 1 3
```

the correct result is:

```
TAK
NIE
TAK
```


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