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Chef and Operations

Problem Code: QABC



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Twee

All submissions for this problem are available.###Read problems statements in Hindi (http://www.codechef.com/download/translated/S19QLTST/hindi/QABC.pdf) ,Mandarin chinese

(http://www.codechef.com/download/translated/S19QLTST/mandarin/QABC.pdf), Russian

(http://www.codechef.com/download/translated/S19QLTST/russian/QABC.pdf), Vietnamese

(http://www.codechef.com/download/translated/S19QLTST/vietnamese/QABC.pdf) and Bengali

(http://www.codechef.com/download/translated/S19QLTST/bengali/QABC.pdf) as well.

Chef has two sequences A and B, each with length N. He can apply the following magic operation an arbitrary number of times (including zero): choose an index i ($1 \leq i \leq N-2$) and add 1 to A_i , 2 to A_{i+1} and 3 to A_{i+2} , i.e. change A_i to A_i+1 , A_{i+1} to $A_{i+1}+2$ and A_{i+2} to $A_{i+2}+3$.

Chef asks you to tell him if it is possible to obtain sequence ${\cal B}$ from sequence ${\cal A}$ this way. Help him!

Input

- The first line of the input contains a single integer T denoting the number of test cases. The description of T test cases follows.
- ullet The first line of each test case contains a single integer N .
- The second line contains N space-separated integers A_1,A_2,\ldots,A_N .
- The third line contains N space-separated integers $B_1, B_2, \dots, B_N.$

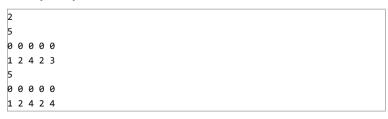
Output

For each test case, print a single line containing the string "TAK" if it is possible to reach sequence B or "NIE" otherwise.

Constraints

- $1 \le T \le 1,000$
- $1 \le N \le 10^5$
- $0 \leq A_i \leq 10^8$ for each valid i
- $0 \leq B_i \leq 10^8$ for each valid i
- ullet the sum of N for all test cases does not exceed $5\cdot 10^5$

Example Input



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TAK NIE

Explanation

Example case 1: Chef can apply the operation at index i=3 and get the sequence (0,0,1,2,3). Afterwards, he can apply that operation at index i=1 and get the sequence (1,2,4,2,3)=B.

Example case 2: It is impossible to reach sequence B.

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Tags: mgch (/tags/problems/mgch)

Date Added: 11-10-2018

Time Limit: 1 secs

Source Limit: 50000 Bytes

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