



HOME TOP CONTESTS GYM PROBLEMSET GROUPS RATING API HELP HONORCUP Z CALENDAR

PROBLEMS SUBMIT STATUS STANDINGS CUSTOM TEST

A. Circle of Students

time limit per test: 2 seconds memory limit per test: 256 megabytes input: standard input output: standard output

There are n students standing in a circle in some order. The index of the i-th student is p_i . It is guaranteed that all indices of students are distinct integers from 1 to n (i. e. they form a permutation).

Students want to start a round dance. A **clockwise** round dance can be started if the student 2 comes right after the student 1 in clockwise order (there are no students between them), the student 3 comes right after the student 2 in clockwise order, and so on, and the student n comes right after the student n-1 in clockwise order. A **counterclockwise** round dance is almost the same thing — the only difference is that the student i should be right after the student i-1 in counterclockwise order (this condition should be met for every i from i to i.

For example, if the indices of students listed in clockwise order are [2,3,4,5,1], then they can start a clockwise round dance. If the students have indices [3,2,1,4] in clockwise order, then they can start a counterclockwise round dance.

Your task is to determine whether it is possible to start a round dance. Note that the students cannot change their positions before starting the dance; they cannot swap or leave the circle, and no other student can enter the circle.

You have to answer q independent queries.

Input

The first line of the input contains one integer q ($1 \le q \le 200$) — the number of queries. Then q queries follow.

The first line of the query contains one integer n ($1 \le n \le 200$) — the number of students.

The second line of the query contains a permutation of indices p_1, p_2, \ldots, p_n $(1 \le p_i \le n)$, where p_i is the index of the i-th student (in clockwise order). It is guaranteed that all p_i are distinct integers from 1 to n (i. e. they form a permutation).

Output

For each query, print the answer on it. If a round dance can be started with the given order of students, print "YES". Otherwise print "NO".

Example



Codeforces Round #579 (Div. 3)

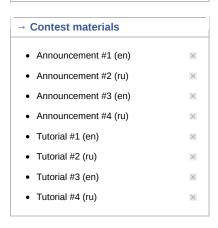
Finished

→ Virtual participation

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Start virtual contest

| → Problem ta | ags | |
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| YES | | | |
|-----|--|--|--|
| YES | | | |
| NO | | | |
| YES | | | |
| YES | | | |
| | | | |

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