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Larry's Array

Problem Submissions Leaderboard Discussions

Larry has been given a permutation of a sequence of natural numbers incrementing from 1 as an array. He must determine whether the array can be sorted using the following operation any number of times:

- Choose any 3 consecutive indices and rotate their elements in such a way that $ABC \rightarrow BCA \rightarrow CAB \rightarrow ABC$.

For example, if $A = \{1, 6, 5, 2, 4, 3\}$:

```
A               rotate
[1,6,5,2,4,3]   [6,5,2]
[1,5,2,6,4,3]   [5,2,6]
[1,2,6,5,4,3]   [5,4,3]
[1,2,6,3,5,4]   [6,3,5]
[1,2,3,5,6,4]   [5,6,4]
[1,2,3,4,5,6]

YES
```

On a new line for each test case, print `YES` if A can be fully sorted. Otherwise, print `NO`.

Function Description

Complete the *larrysArray* function in the editor below. It must return a string, either `YES` or `NO`.

larrysArray has the following parameter(s):

- *A*: an array of integers

Input Format

The first line contains an integer t, the number of test cases.

The next t pairs of lines are as follows:

- The first line contains an integer n, the length of A.
- The next line contains n space-separated integers $A[i]$.

Constraints

- $1 \leq t \leq 10$
- $3 \leq n \leq 1000$
- $1 \leq A[i] \leq n$
- A_{sorted} = integers that increment by 1 from 1 to n

Output Format

For each test case, print `YES` if A can be fully sorted. Otherwise, print `NO`.

Sample Input

```
3
3
```

```
3 1 2
4
1 3 4 2
5
1 2 3 5 4
```

Sample Output

```
YES
YES
NO
```

Explanation

In the explanation below, the subscript of A denotes the number of operations performed.

Test Case 0:
$A_0 = \{3, 1, 2\} \rightarrow \text{rotate}(3, 1, 2) \rightarrow A_1 = \{1, 2, 3\}$
A is now sorted, so we print `YES` on a new line.

Test Case 1:
$A_0 = \{1, 3, 4, 2\} \rightarrow \text{rotate}(3, 4, 2) \rightarrow A_1 = \{1, 4, 2, 3\}$.
$A_1 = \{1, 4, 2, 3\} \rightarrow \text{rotate}(4, 2, 3) \rightarrow A_2 = \{1, 2, 3, 4\}$.
A is now sorted, so we print `YES` on a new line.

Test Case 2:
No sequence of rotations will result in a sorted A. Thus, we print `NO` on a new line.

Contest ends in a day

Submissions: 145
Max Score: 50
Difficulty: Medium

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C++14

```
#include <bits/stdc++.h>

using namespace std;

vector<string> split_string(string);

// Complete the larrysArray function below.
string larrysArray(vector<int> A) {


}

int main()
{↔}
vector<string> split_string(string input_string) {↔}
```

Line: 1 Col: 1

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