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Impressing the Boss

locked

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Problem

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Given the consecutive years' sales data of a company as an array of integers: $\mathbf{a} = [a_0, a_1, \dots, a_{n-1}]$, with a_i denoting the total sales during the i^{th} year, your current task is to present the annual sales graph.

Your boss would be most impressed if the sales graph showed that the total sales never decreased for every pair of consecutive years. For this, you are allowed to modify at most one element of the data array for the property to be true. (Any more and the change will be too obvious.)

Given \mathbf{a} , determine if it is possible to do this task.

Complete the function `canModify` which takes in the integer array \mathbf{a} and returns the string `YES` or `NO` denoting whether it is possible to do the task.

Input Format

The first line of input denotes t denoting the number of scenarios. The following lines describe the scenarios.

The first line of each scenario contains a single integer n denoting the length of array \mathbf{a} . The second line contains n space-separated integers a_0, a_1, \dots, a_{n-1} .

Constraints

- $1 \leq t \leq 20$
- $1 \leq n \leq 20$
- $1 \leq a_i \leq 2000$

Output Format

For each scenario, print a single line containing a single string: either `YES` or `NO` denoting whether it is possible to do the task.

Sample Input 0

```
2
8
5 7 7 11 15 12 22 24
9
20 19 18 16 14 15 14 13 11
```

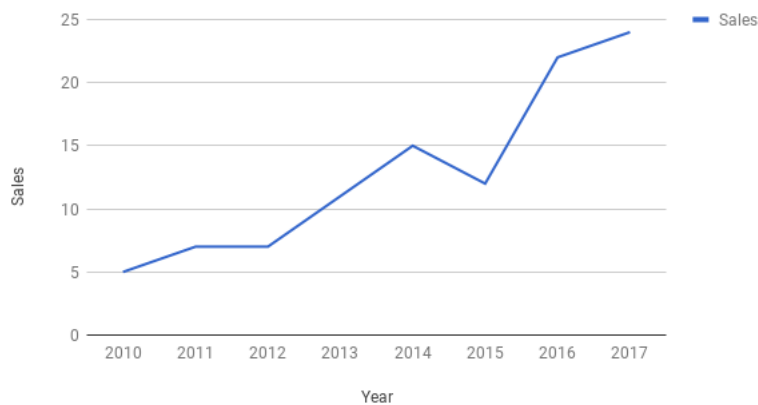
Sample Output 0

```
YES
NO
```

Explanation 0

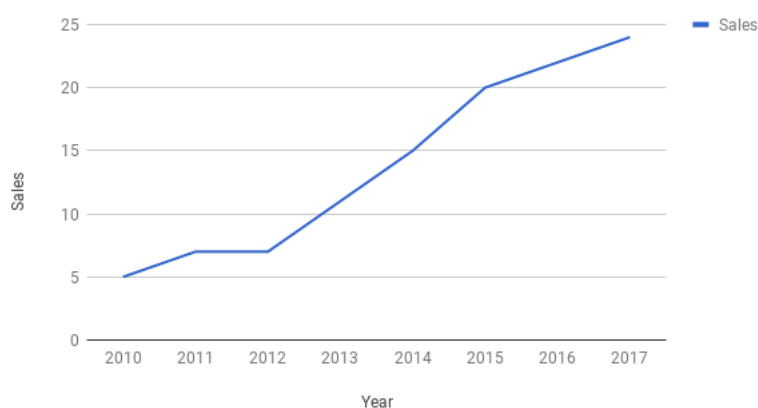
In the first scenario, $\mathbf{a} = [5, 7, 7, 11, 15, 12, 22, 24]$, and the annual sales graph looks as follows:

Sales vs. Year



The graph can be modified to meet the necessary condition by changing **12** to **20**.

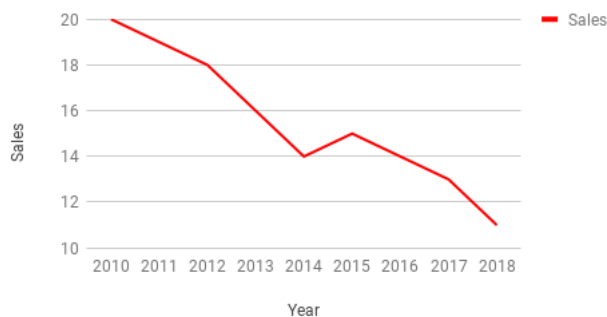
Sales vs. Year



Thus, the answer is YES.

In the second scenario, $a = [20, 19, 18, 16, 14, 15, 14, 13, 11]$, and the graph looks like:

Sales vs. Year



Clearly, it's impossible to change one element so that the sales never decreases.

f t in

Submissions: 1653

Max Score: 20

Difficulty: Easy

Rate This Challenge:

☆☆☆☆☆

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Current Buffer (saved locally, editable)

C++14



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

```

9
10 using namespace std;
11
12 vector<string> split_string(string);
13
14 /*
15  * Complete the canModify function below.
16  */
17 string canModify(vector<int> a) {
18     /*
19      * Write your code here.
20      */
21 }
22
23
24 int main()
25 {
26     ofstream fout(getenv("OUTPUT_PATH"));
27
28     int t;
29     cin >> t;
30     cin.ignore(numeric_limits<streamsize>::max(), '\n');
31
32     for (int t_itr = 0; t_itr < t; t_itr++) {
33         int n;
34         cin >> n;
35         cin.ignore(numeric_limits<streamsize>::max(), '\n');
36
37         string a_temp_temp;
38         getline(cin, a_temp_temp);
39
40         vector<string> a_temp = split_string(a_temp_temp);
41
42         vector<int> a(n);
43
44         for (int a_itr = 0; a_itr < n; a_itr++) {
45             int a_item = stoi(a_temp[a_itr]);
46
47             a[a_itr] = a_item;
48         }
49
50         string result = canModify(a);
51
52         fout << result << "\n";
53     }
54
55     fout.close();
56
57     return 0;
58 }
59
60 vector<string> split_string(string input_string) {
61     string::iterator new_end = unique(input_string.begin(), input_string.end(), [] (const char &x, const char
62     &y) {
63         return x == y and x == ' ';
64     });
65     input_string.erase(new_end, input_string.end());
66
67     while (input_string[input_string.length() - 1] == ' ') {
68         input_string.pop_back();
69     }
70
71     vector<string> splits;
72     char delimiter = ' ';
73
74     size_t i = 0;
75     size_t pos = input_string.find(delimiter);
76
77     while (pos != string::npos) {
78         splits.push_back(input_string.substr(i, pos - i));
79
80         i = pos + 1;
81         pos = input_string.find(delimiter, i);
82     }
83
84     splits.push_back(input_string.substr(i, min(pos, input_string.length()) - i + 1));
85

```

```
86     return splits;  
87 }  
88
```

Line: 1 Col: 1

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