Instructions

- **The following questions are there to test logical thinking. Solve them in the best way possible according to you.**
- **Write algorithms or flowcharts for the problems mentioned below.**
- **Also mention the test-cases you would use to check the flowcharts/algorithms.**
- **Coding these problems is not a requirement, but if you want to send code instead of flowchart/algorithms, it is acceptable. Make sure your code can be compiled without any errors.**

Problem 1:

You are given S - a sequence of n integers $S = s_1, s_2, ..., s_n$. Please, compute if it is possible to split S into two parts: $s_1, s_2, ..., s_i$ and $s_{i+1}, s_{i+2}, ..., s_n$ ($1 <= i < n$) in such a way that the first part is strictly decreasing while the second is strictly increasing one.

Strictly increasing means that equal values are not treated as increasing or decreasing. See example 3 below.

Input data specification

There will be two inputs to the function.
First input will be the number of elements in the sequence.
Second input will be the array of elements

Output data specification

One word `Yes` or `No`.

Example 1

```
Input:
5
-1 2 -1 1 -1

Output:
No
```

Example 2

```
Input:
6
3 1 -2 -2 -1 3

Output:
Yes
```

Example 3

```
Input:
6
2 2 1 0 1 2

Output:
No
```

Problem 2:

You are given an array of n+2 elements. All elements of the array are in range 1 to n. And all elements occur once except two numbers which occur twice. Find the two repeating numbers.

For example, array = {4, 2, 4, 5, 2, 3, 1} and n = 5

The above array has n + 2 = 7 elements with all elements occurring once except 2 and 4 which occur twice. So the output should be 4 2.

Problem 3:

Write a program to remove duplicate elements in an array.

Example:
Enter array size : 5
Enter 5 array element : 11 13 11 12 13
Original array is : 11 13 11 12 13
New array is : 11 13 12

Program 4:

Given a start date and end date, calculate the number of days between those two dates. Do consider leap years.

Example:
sd = 2012,1,1 ed = 2012,2,28 days = 58
sd = 2012,1,1 ed = 2012,3,1 days = 60
sd = 2011,6,30 ed = 2012,6,30 days = 366
sd = 2011,1,1 ed = 2012,8,8 days = 585
sd = 1900,1,1 ed = 1999,12,31 days = 36523

Problem 5:

Write a function find(input string, search string, start location) that takes three inputs

Input string: the input string
Search string: the substring that one needs to search
Location: the position in input string from where you need to start search

Output:
-1 if search string was not found in start string
Otherwise Position of first occurrence of the search string in input string

Example 1:
Input String = “googly doogly do”
Search string = “oog”
Location = 0

Output = 1

Example 2:
Input String = “googly doogly do”
Search string = “oog”
Location = 2

Output = 8

Example 3:
Input String = “googly doogly do”
Search string = “oog”
Location = 10

Output = -1

Example 4:
Input String = “googly doogly do”
Search string = “hello”
Location = 0

Output = -1