Sorting objects

The user is given n objects colored with red, blue, and green. We have to sort the objects in such a way that objects of the same color are adjacent, with the colors in the order red, blue, and then green.
The objects should be sorted in-place. For simplicity we will denote object in red, blue, and green with 0, 1, and 2.

Note:- in-place means objects should be sorted in same order and different array should not be used.

Input Format

1. n will be given which denote number of objects.
2. n seperated objects having values 0,1 and 2 in any order will be provided.

Constraints

$1<=n<=10^6$

Output Format

Just complete the helper function. You don't have to manage the printing just arrange in given array only.

Sample Input 0

```
10
0 2 2 1 2 1 2 1 0 2
```

Sample Output 0

```
0 0 1 1 1 2 2 2 2 2
```

Sample Input 1

```
20
2 2 2 2 2 2 2 2 2 2 1 1 1 1 1 1 1 1 1 1
```

Sample Output 1

```
1 1 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2
```

MAX PROFIT PROBLEM

You are given an array gold where gold[i] is the price of a 1kg gold at given day. Ram want to maximize his profit by choosing a single day to buy 1kg and choosing a different day in the future to sell that same amount of gold.

Return the maximum profit ram can achieve. If ram cannot achieve any profit, return -1.

Input Format

Array of gold prices for n days will be given.

Constraints

- $1<=n<=10^7$
- 0<=gold[i]<=n

Output Format

Max profit that he can achieve.

Sample Input 0

```
6
7 1 5 3 6 4
```

Sample Output 0

```
5
```

Explanation 0

He can buy the gold at any day and sell at any day in the future he buy at day-2 at price of 1 and sell on day-5 at price of 6 So,total profit is 6-1=5

Sample Input 1

```
10
2 5 8 4 1 3 89 45 12 50
```

Sample Output 1

```
88
```

NON DUPLICATE

Given an non empty array of integer in which each number is occuring twice except one number which occurs only once. Return that one number which occurs only once in array.

Input Format

- first line contain n which is equal to number of given input.
- n space seperated values

Constraints

- $3<=n<10^4$
- $1<=x<=[n/2]$

Output Format

Number that occurs only once

Sample Input 0

```
7
1 1 2 2 3 4 4
```

Sample Output 0

```
3
```

Explanation 0

As 3 is the only number which occurs only once

Sample Input 1

```
11
1 2 3 4 1 4 3 5 2 6 5
```

Sample Output 1

```
6
```

Explanation 1

6 is the only number which occurs once

Special index

The task is to find the special index in an array. Special index is an index such that sum of all the elements left of that index is equal to sum of all the elements right of that index.There can be many such special index in one array, if that is the case then return the first such occurence of special index.If there is no such special index in array then print -1. Print that special index.

Note:The Array is 1-based indexing

Input Format

Two line input in which 1st line contain n(the size of n elements of array) second line contains n space seperated elements.

Constraints

- $1<=n<=10^6$
- $-10^3<=x<=10^3$, x is range of value in array.

Output Format

Print the special index of array

Sample Input 0

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

Sample Output 0

```
3
```

Explanation 0

As the sum of starting 3 values(1+3+5=9) is same as sum of last three value(5+2+2=9) so Answer would be 3 as special index is 3.

Sample Input 1

```
1
5
```

Sample Output 1

```
1
```

Explanation 1

As array contains only 1 value so it is only the special index

N-flower

You have a lot of empty space in which there are tables placed in a line and out of them flower pots are placed on some of the tables such that 2 adjacent tables don't have flower pots. Tables which are empty will be represented by 0 whereas tables which have flower pots will be represent by 1. n will be given and you have to tell if these n flower pots can be placed on empty tables such that any 2 adjacent table should not have flowerpots. If it can be done print true else print false

Input Format

- first line contain the number of tables.
- Second line contain the state of table either 0 or 1.
- Third line will contain the value of n which have to be checked wether this many flower pots can be placed or not

Constraints

- $1<=x<=10^5$
- all the values are 1 or 0
- 1<=n<=x

Output Format

True or False

Sample Input 0

```
5
1 0 0 0 1
1
```

Sample Output 0

```
True
```

Explanation 0

As we have to place 1 flower pot such that no flower pot can be adjacent so we can place at 2-indexed considering array as 0-based indexing. So True will be printed.

Sample Input 1

```
5
1 0 0 0 1
2
```

Sample Output 1

```
False
```

Explanation 1

As there is no way we can place 2 flower pots such that there will be no adjacent flower pots only 1 can be placed. So False will be printed.

Contest ends in 3 months

Submissions: 0
Max Score: 40
Difficulty: Medium

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C

```c
#include <stdio.h>
#include <string.h>
#include <math.h>
#include <stdlib.h>

int main() {

    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    return 0;
}

```

Line: 1 Col: 1

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