Triangle numbers

Problem ID: triangeltal

In a class with N students, it is time for the obligatory task of giving a speech. Most students are very excited to give their speeches and can hardly wait for their turn. First, they must be divided into three groups. Everyone in group 1 will then present to group 2, group 2 to group 3, and group 3 to group 1.

One complication in this grouping is that the students have different ambition levels. Each student i requires to give their speech to at least A_i people. So, if student i ends up in group 1, group 2 must have at least A_i members for student i to be satisfied.

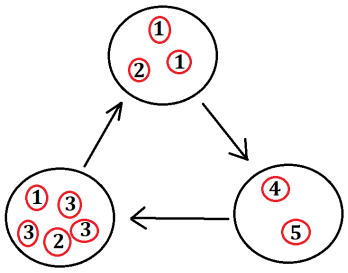

Figure 1: The image corresponds to the first example.

Your task is to determine, given the students' ambition levels, if there is a way to divide the students into three groups so that everyone is satisfied, and if so, find a valid division.

Input

The first line contains an integer N ($3 \leq N \leq 5 \cdot 10^5$), the number of students in the class.

The second line contains N integers A_i ($1 \leq A_i \leq N$), where A_i is the minimum number of students the i-th student wants to give a speech to.

Output

If there is no valid division, print a single line with the string "`NO`".

If there is a valid division, first print a line with the string "`YES`". Then, print a line with a string S consisting of the characters `1`, `2`, and `3`. The character at position i in this string indicates which group student i belongs to. If there are multiple solutions, you can print any of them.

Points

Your solution will be tested on several test case groups. To get the points for a group, it must pass all the test cases in the group.

Group	Point value	Constraints
1	14	$A_1 = A_2 = \cdots = A_N$
2	16	$N \leq 10$
3	11	$A_i \leq 3$
4	23	$N \leq 3000$
5	36	No additional constraints.

Sample Input 1

```
10
1 3 1 3 3 2 4 1 5 2
```

Sample Output 1

```
YES
3313332121
```

Sample Input 2	Sample Output 2
3 1 2 2	NO