Build the Towers

Time limit: *1000 ms*
Memory limit: *128 MB*

On an array, you are allowed to *select* any element equal to 0. When you do this, the following happens:

1. If none of the element's neighbour(s) are equal to 1, the selected element becomes 1.
2. If at least one of the neighbours is equal to 1, but no neighbour is equal to 2, the selected element becomes 2. In addition, the neighbour(s) equal to 1 become 0.
3. If one neighbour is equal to 1 and the other one is equal to 2, the selected element becomes 3. In addition, the neighbours become 0.

Initially you start with an array of size N where all the elements are 0. You are given another target array. Select the **minimum** number of elements in order to make the initial array equal to the target one.

Standard input

The first line contains a single integer N.

The second line contains N integers representing the elements of the target array.

Standard output

If there is no solution output -1.

Otherwise, print on the first line the number K of select operations.

On the second line print K numbers representing the indices of the selected elements.

Constraints and notes

- $1 \leq N \leq 10^5$
- The elements of the target array are integers between 0 and 3.

Input	Output	Explanation
3 2 1 2	5 2 1 2 3 2	0 1 0 2 0 0 2 1 0 2 0 2 2 1 2
3 1 2 3	-1	
3 1 2 2	-1	
4 1 3 2 1	8 1 4 3 2 1 4 3 4	1 0 0 0 1 0 0 1 1 0 2 0 0 3 0 0 1 3 0 0 1 3 0 1 1 3 2 0 1 3 2 1

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