D. Destruction of a Tree

You are given a tree (a graph with n vertices and $n - 1$ edges in which it's possible to reach any vertex from any other vertex using only its edges).

A vertex can be destroyed if this vertex has even degree. If you destroy a vertex, all edges connected to it are also deleted.

Destroy all vertices in the given tree or determine that it is impossible.

Input

The first line contains integer n ($1 \le n \le 2 \cdot 10^5$) — number of vertices in a tree.

The second line contains n integers $p_1, p_2, ..., p_n$ ($0 \le p_i \le n$). If $p_i \ne 0$ there is an edge between vertices i and p_i. It is guaranteed that the given graph is a tree.

Output

If it's possible to destroy all vertices, print "YES" (without quotes), otherwise print "NO" (without quotes).

If it's possible to destroy all vertices, in the next n lines print the indices of the vertices in order you destroy them. If there are multiple correct answers, print any.

Examples

input

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

output

```
YES
1
2
3
5
4
```

input

```
4
0 1 2 3
```

output

```
NO
```

Note

In the first example at first you have to remove the vertex with index 1 (after that, the edges (1, 2) and (1, 4) are removed), then the vertex with index 2 (and edges (2, 3) and (2, 5) are removed). After that there are no edges in the tree, so you can remove remaining vertices in any order.