

## D. Destruction of a Tree

time limit per test: 1 second  
 memory limit per test: 256 megabytes  
 input: standard input  
 output: standard output

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  $n$  ( $1 \leq n \leq 2 \cdot 10^5$ ) — number of vertices in a tree.

The second line contains  $n$  integers  $p_1, p_2, \dots, p_n$  ( $0 \leq p_i \leq n$ ). If  $p_i \neq 0$  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

### **Tinkoff Internship Warmup Round 2018 and Codeforces Round #475 (Div. 2)**

**Finished**

Practice



### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

### → Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

**input**

Copy

5  
0 1 2 1 2

**output**

Copy

YES  
1  
2  
3  
5  
4

**input**

Copy

4  
0 1 2 3

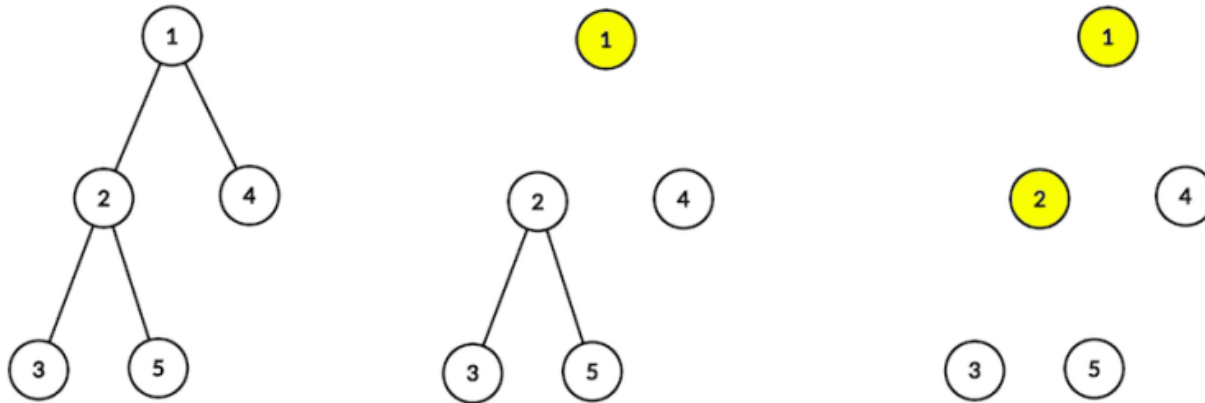
**output**

Copy

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.

→ **Clone Contest to Mashup**

You can clone this contest to a mashup.

→ **Submit?**

Language:

Choose file:  No file chosen

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

→ **Problem tags**

dfs and similar dp

No tag edit access

→ **Contest materials**

- Announcement



The only programming contests Web 2.0 platform

Server time: Apr/18/2018 19:25:05<sup>UTC+8</sup> (d1).

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