A. Bmail Computer Network
https://codeforces.com/problemset/problem/1057/A

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Once upon a time there was only one router in the well-known company Bmail. Years went by and over time new routers were purchased. Every time they bought a new router, they connected it to one of the routers bought before it. You are given the values p_i – the index of the router to which the i-th router was connected after being purchased ($p_i < i$).

There are n routers in Boogle in total now. Print the sequence of routers on the path from the first to the n-th router.

Input
The first line contains integer number ($2 \le n \le 200\,000$) – the number of the routers. The following line contains n - 1 integers $p_2, p_3, ..., p_n$ ($1 \le p_i \le i$) where p_i is equal to index of the router to which the i-th was connected after purchase.

Output
Print the path from the 1-st to the n-th router. It starts with 1 and ends with n. All the elements in the path should be distinct.

Examples

Input	Output
8 1 1 2 2 3 2 5	1 2 5 8
6 1 2 3 4 5	7 1 1 2 3 4 3
7 1 1 2 3 4 3	1 3 7