Problem B: Binary Tree

Advanced Algorithms for Programming Contests

Restrictions

Time: 2 seconds
Memory: 512 MB

Problem description

Given a list $a_1, ..., a_N$ of numbers, find a binary tree with N vertices s.t.

- the in-order traversal (i.e. the traversal scheme that, when deployed in a binary search tree with unique values, retrieves the data ascendingly sorted) of the tree visits the vertices in the order $1, ..., N$

- for every vertex i the depth (distance from root) of i is a_i.

Input

The input consists of

- one line containing N $(1 \leq N \leq 10^5)$ – the number of vertices

- one line containing the depth values $a_1, ..., a_N$ $(0 \leq a_i < N)$.

It is guaranteed that for every set of parameters you are given there is at least one tree that conforms to the constraints stated above.

Output

Output a single line containing N integers, the i-th being the parent of vertex i for all vertices except the root, and 0 for the root.

Sample input and output

Input	Output
3 2 1 0	2 3 0
5 2 1 2 0 1	2 4 2 0 4