Problem F
Factor-Free Tree
Time limit: 6 seconds

A *factor-free tree* is a rooted binary tree where every node in the tree contains a positive integer value that is coprime with all of the values of its ancestors. Two positive integers are coprime if their greatest common divisor equals 1.

The *inorder sequence* of a rooted binary tree can be generated recursively by traversing first the left subtree, then the root, then the right subtree. See Figure F.1 below for the inorder sequence of one factor-free tree.

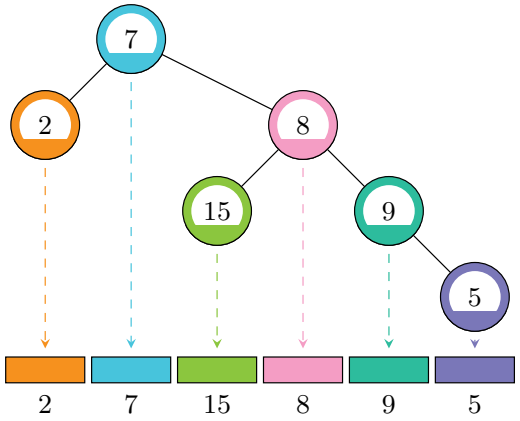


Figure F.1: Illustration of Sample 1. The tree is factor-free; for example, the value of the node marked "5" is coprime with all of the values of its ancestors, marked "9", "8", and "7".

Given a sequence $a_1, a_2, \ldots, a_n$, decide if it is the inorder sequence of some factor-free tree and if so construct such a tree.

Input

The input consists of:

- One line with one integer n ($1 \leq n \leq 10^6$), the length of the sequence.
- One line with n integers $a_1, \ldots, a_n$ ($1 \leq a_i \leq 10^7$ for each i), the elements of the sequence.

Output

If there exists a factor-free tree whose inorder sequence is the given sequence, output n values. For each value in the sequence, give the 1-based index of its parent, or 0 if it is the root. If there are multiple valid answers, print any one of them.

If no such tree exists, output "`impossible`" instead.

Sample Input 1	Sample Output 1
6 2 7 15 8 9 5	2 0 4 2 4 5

Sample Input 2	Sample Output 2
6 2 7 15 8 9 6	impossible