INOI, Iranian National Olympiad in Informatics
Online Contest, April 2008
Fourth Exam

Numbers

Time limit for each test: 2 seconds
Memory limit: 32 megabytes

A new game again! This time, Dara and Sara have made up the following game to improve their math.

First, Dara picks n initial numbers, and announces them. Then at each step, he chooses one of the current numbers (call this x) and replaces it with $2 \times x$ or $2 \times x + 1$. He can perform this action for as many times as he likes. When he's finished, he announces all of his final n numbers.

After that, Sara's turn begins. For each of the initial numbers, such as a, she must find a final number, like b, such that it is possible to reach b by changing a using a number of actions like what Dara could do. Additionally she should make sure that all of the final numbers are covered, and that no two initial numbers are assigned to the same final number.

Right now, Dara has finished his turn and you must help Sara.

Problem

Write a program that

- Reads all of the initial and final numbers from the *Standard Input*.
- Assigns a one-to-one relation between the initial and final numbers, such that each initial number can be turned into the final number related to it (using a series of legal actions mentioned above).
- Writes this relation in the *Standard Output* or declares it is impossible to solve it and that Dara has not played his turn correctly.

Input Sepcification

The first line of input contains n (the total number of initial numbers).
In the second line, n integers will appear, separated by single spaces. These are the initial numbers Dara has chosen.
In the third line, again, n integers will appear, separated by single spaces. These are the final numbers that Dara has announced.

Output Specification

In the first and only line of the output, write n integers seperated by single spaces. Name the i^{th} of these integers p_i. For each i, the i^{th} initial number is assigned to the $p_i{}^{\text{th}}$ final number ($1 \leq i, p_i \leq n$).
In the case that it is impossible to assign such a set of relationships, write `-1` in only line of output.

Restrictions

- $1 \leq n \leq 250,000$.
- All the numbers in the input are non-negative and fit in 32-bit signed integers.

Example

Standard Input	Standard Output
3 2 3 5 6 11 4	3 1 2