Problem K

Original order

Time limit: 1 second
Memory limit: 256 megabytes

A supermarket has n items placed on a shelf in positions 1 to n. Three employees **A**, **B**, and **C** work in consecutive shifts. Each employee has a **permutation** of $\{1, 2, \ldots, n\}$. When an employee with permutation p works, the item currently at position i is moved to the **new position** p_i.

You are given the permutations of **A** and **C**. You are **B**; choose your permutation so that **after the three shifts** $A \to B \to C$, all items return to their original positions. Formally, for every $i \in \{1, \ldots, n\}$,

$$C_{B_{A_i}} = i.$$

Note. Permutations are given in the "new position" form: p_i is the new position of the item that is currently at position i.

Input

- The first line contains the integer n ($1 \le n \le 2 \cdot 10^5$).
- The second line contains n integers $a_1, a_2, \ldots, a_n$ — the permutation of **A**.
- The third line contains n integers $c_1, c_2, \ldots, c_n$ — the permutation of **C**.

Output

Print n integers $b_1, b_2, \ldots, b_n$ — a valid permutation for **B** such that after the three shifts $A \to B \to C$, all items return to their initial positions.

Sample Input	Sample Output
5 3 2 1 5 4 1 3 2 4 5	2 3 1 5 4