

Bonus Question (Morning Lab)

Given two input arrays of length **N** as a preorder and postorder traversal of a Binary Tree, construct the tree with the assumption that every non-leaf node has two children. Print the final tree level-by-level and left-to-right.

Input

First line of the input contains the number of nodes in the Full Tree - N

Second line contains N space separated integers representing PreOrder Traversal

Third line contains N space separated Integers representing PostOrder Traversal

Output

Output Level Wise Traversal of the Constructed Tree. Refer Sample.

Constraints

$1 \leq N \leq 10^4$

$1 \leq \text{Value of Node} \leq 10^9$

Sample Input

7

1 7 4 5 6 3 8

5 6 4 3 7 8 1

Sample Output

1 7 8 4 3 5 6

Explanation

Tree Looks Like:

```
  1
 / \
7   8
 / \
4   3
 / \
5   6
```