Queue Rookie (Easy)

There are N people standing in a Queue. You are given the height of each person and the number of people who are taller and standing ahead of him. You have to find the position of each person.

Input

First line conatins a single integer T, the number of test cases. It is followed by T test cases each of which contains 3 lines. First line of each test case contains a single integer N. Second line contains N integers representing the heights of these N people. Third line also contains N integers denoting the number of taller people standing ahead of him.

Output

Output one line for each test case which contains the heights of the N people in the order in which they are standing.

Constraints

0 < T <= 100

0 < N <= 1000

Expected Time Complexity = O(N2)

Example

Input:
1
5
33 11 22 44 55
0 2 1 1 0

Output:
33 22 11 55 44