Alice is playing an arcade game and wants to climb to the top of the leaderboard and wants to track her ranking. The game uses Dense Ranking, so its leaderboard works like this:

- The player with the highest score is ranked number 1 on the leaderboard.
- Players who have equal scores receive the same ranking number, and the next player(s) receive the immediately following ranking number.

For example, the four players on the leaderboard have high scores of 100, 90, 90, and 80. Those players will have ranks 1, 2, 2, and 3, respectively. If Alice's scores are 70, 80 and 105, her rankings after each game are 4^{th}, 3^{rd} and 1^{st}.

Function Description

Complete the *climbingLeaderboard* function in the editor below. It should return an integer array where each element $res[j]$ represents Alice's rank after the j^{th} game.

climbingLeaderboard has the following parameter(s):

- *scores*: an array of integers that represent leaderboard scores
- *alice*: an array of integers that represent Alice's scores

Input Format

The first line contains an integer n, the number of players on the leaderboard.
The next line contains n space-separated integers $scores[i]$, the leaderboard scores in decreasing order.
The next line contains an integer, m, denoting the number games Alice plays.
The last line contains m space-separated integers $alice[j]$, the game scores.

Constraints

- $1 \leq n \leq 2 \times 10^5$
- $1 \leq m \leq 2 \times 10^5$
- $0 \leq scores[i] \leq 10^9$ for $0 \leq i < n$
- $0 \leq alice[j] \leq 10^9$ for $0 \leq j < m$
- The existing leaderboard, $scores$, is in *descending* order.
- Alice's scores, $alice$, are in *ascending* order.

Subtask

For 60% of the maximum score:

- $1 \leq n \leq 200$
- $1 \leq m \leq 200$

Output Format

Print m integers. The j^{th} integer should indicate Alice's rank after playing the j^{th} game.