Advanced Data Structures

Heights

HARD

There are n people arranged in a row from left to right to take a group photo.
You are given an array a, where a_i represents the height of the i-th person ($1 <= i <= n$).

Person i's *satisfaction level* is the total number of people that is shorter than person i before hitting the end of row or a person with a taller or equal height, in both directions.

For example, consider an array {1, 5, 2, 3, 2, 1} :
Person 4's satisfaction level is 3. To the left side, person 3 is the only shorter person before hitting a greater height; on the right side, persons 5 and 6 are both shorter than person 4.

Given an integer n and the array a, find out the satisfaction levels of each person.

Input Format
The first line of input be 1 integer, n.
The next line of input will contain n space-separated integers, representing the array a.

Output Format
Output n integers, where the i-th integer represents the satisfaction level of the i-th person.

Constraints
- $1 < n < 10^7$
- $1 < a_i < 10^9$

Sample Input 1
6
1 5 2 5 2 1

Sample Output 1
0 2 0 3 1 0