

## Data Structures

# Heights

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 ( $1 \leq i \leq n$ ).

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

- $1 < n < 10^6$
- $1 < a_i < 10^9$

### Sample Input 1

```
6
1 5 2 3 2 1
```

### Sample Output 1

```
0 5 0 3 1 0
```

### Sample Input 2

```
10
1 6 2 3 5 2 1 4 6 2
```

### Sample Output 2

```
0 7 0 1 5 1 0 2 7 0
```