**CMPUT 275 - Tangible Computing** **Winter 2020**
**Morning Problem: Obscured**

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## Description

$n$ people have lined up in a straight line. There is some commotion at the front of the line and everyone wants to see what the big deal is.

The $i$'th person in the line can see the front if every person ahead of $i$ in the line is strictly shorter than $i$. Determine, for each person, if they can see past the front of the line. If they cannot, then print the largest index $j$ such that $j$ appears before $i$ in the line but $j$ is at least as tall as $i$. This is the person who directly obscures $i$'s view. Here, the front person in the line has index 0 and the last person has index $n - 1$.

## Input

The first line will consist of a single integer $1 \leq n \leq 100,000$.

The second line will contain $n$ space-separated integers $h_0, \ldots, h_{n-1}$. Here, $h_i$ is the height of the person at index $i$, where $0 \leq h_i \leq 100,000$ for each $0 \leq i \leq n - 1$.

## Output

For each input, output a single line containing $n$ space-separated integers or characters.

The $i$'th entry on this line should be the character `X` if person $i$ can see past the front of the line. Otherwise, print the largest index $j$ such that $0 \leq j < i$ and the height of $j$ is at least the height of $i$. This is person who directly obscures $i$'s view.

## Sample Input 1

```
4
1 2 4 2
```

## Sample Output 1

```
X X X 2
```

**Explanation**: In every input, the person at index 0 can see past the front of the line. In this example, the person at index 1 has height 2 and they can see over the person at index 0, who has height 1.

The person at index 2 has height4 and they can see over the two people ahead of them in the line. The last person (at index 3) has height 2 and the person who obscures their height of the line is at index 2 (height 4).

**Sample Input 2**

```
8
2 4 4 7 5 3 7 8
```

**Sample Output 2**

```
X X 1 X 3 4 3 X
```

**Sample Input 3**

```
6
1 7 2 8 9 14
```

**Sample Output 3**

```
X X 1 X X X
```