Algorithm Find the maximum amount of water that can be trapped between the given bars

Ensure: One Based Indexing for the array

1: **function** $Trapping\_Rain\_Water(arr)$
▷ $left\_max[i]$ represents the largest bar to the left of i (including it)
▷ $right\_max[i]$ represents the largest bar to the right of i (including it)
▷ $contribution[i]$ denotes the maximum amount of water on top of the $i-th$ bar

2: $n \leftarrow arr.length$

3: $left\_max[1] \leftarrow a[1]$
4: **for** $i = 2 : n$ **do**
5: $left\_max[i] = max(left\_max[i-1], a[i])$

6: $right\_max[n] \leftarrow a[n]$
7: **for** $i = len - 1$ **downto** 1 **do**
8: $right\_max[i] = max(right\_max[i+1], a[i])$

9: **for** $i = 1 : n$ **do**
10: $max\_height \leftarrow min(left\_max[i], right\_max[i])$
11: $contribution[i] \leftarrow (max\_height - a[i])$

12: $total\_water \leftarrow 0$
13: **for** $i = 1 : n$ **do**
14: $total\_water \leftarrow total\_water + contribution[i]$

15: **return** $total\_water$