Mountain Countin' (Medium)

Time limit: 1s   **Memory limit: 2GB**

Mora the Mountain Explorer is excited to go on her next expedition, but needs to shop for food supplies first. The amount of food she needs will depend on the number of mountains on her journey. The elevation of terrain Mora will cover on her journey is given in the form of an integer array, a.

A mountain is defined as a triple of coordinates $1 \leq x < y < z \leq N$ such that $a[y] > a[x]$ and $a[y] > a[z]$. If a mountain is left-slanted, that is $a[x] < a[z] < a[y]$, Mora will purchase protein bars to help with the steep uphill climb. When it is right-slanted, that is $a[z] < a[x] < a[y]$, she prefers strawberries because they are delicious and in season. Mora doesn't care about mountains where $a[x] = a[z]$. Note that a point can constitute more than one mountain.

She knows from experience that she needs to find the exact number of left-slanted mountains, l, and right-slanted mountains, r, because if she overestimates, she will have too much food and Swiper the Fox will come after her to steal all her supplies!

Count how many left and right slanted mountains are on Mora's map.

NOTE: If you have 3 nested for-loops, it will be too slow. Find a way to solve this in $O(N^2)$ time.

Input and Output
The first line of input data contains the integer N.
The next line will contain N integers that make up the array a.

Print $l\ r$, the number of left and right slanted mountains, respectively, in a.

Constraints
$1 \leq N \leq 2500$
$0 \leq a[i] \leq 10^5$

Sample Input (stdin)
```
4
2 4 3 1
```

Sample Output (stdout)
```
1 2
```

Explanation
The (x, y, z) of the left-slanted mountain is $(1, 2, 3)$, while the right slanted mountains have (x, y, z) indices $(1, 2, 4)$ and $(1, 3, 4)$. Note that some points are part of more than one mountain.