



Task 1: Mountains (mountains)

Pengu the Penguin lives in Antarctica with his penguin friends. Despite being flightless birds, they wish to experience the joy of soaring through the air. Pengu decides to fulfill their wishes through the power of technology - with gliders.

Luckily for Pengu, there are n mountains in the Transantarctic Mountain Range. The mountains are labelled 1 to n and are arranged in a row from left to right. The i^{th} mountain has height H_i .

Pengu decides to pick 3 mountains x , y and z . He plans to build a base station on mountain y and receiving stations on mountains x and z . Penguins will glide from mountain y to either mountain x or z . To accommodate more penguins while avoiding midair collisions, mountains x and z are to the left and right of mountain y respectively. Furthermore, mountains x and z must be strictly shorter than mountain y .

Pengu is very meticulous and wants to consider all possible choices. Find the number of possible choices for (x, y, z) such that $1 \leq x < y < z \leq n$, $H_x < H_y$ and $H_y > H_z$.

Input

Your program must read from standard input.

The first line contains an integer n , the number of mountains.

The second line contains n integers, where the i^{th} integer represents the height of the i^{th} mountain H_i .

Output

Your program must print to standard output.

The output should contain a single integer on a single line, the total number of possible choices for (x, y, z) .

Implementation Note

C++ and Java source files containing fast input/output templates have been provided in the attachment. You are strongly recommended to use these templates.

If you are implementing your solution in Java, please name your file `Mountains.java` and place your `main` function inside `class Mountains`.



Subtasks

The maximum execution time on each instance is 2.0s, and the maximum memory usage on each instance is 256MiB. For all testcases, the input will satisfy the following bounds:

- $3 \leq n \leq 3 * 10^5$
- $0 \leq H_i \leq 10^{18}$

Your program will be tested on input instances that satisfy the following restrictions:

Subtask	Marks	Additional Constraints
1	2	H_i is non-decreasing ($H_i \leq H_j$ for $i < j$)
2	4	$0 \leq H_i \leq 1$
3	9	$0 \leq H_i \leq 99$
4	36	$n \leq 500$
5	28	$n \leq 10^4$
6	9	$0 \leq H_i \leq 10^5$
7	12	-

Sample Testcase 1

This testcase is valid for all subtasks except subtask 1.

Input	Output
5 0 1 1 0 1	2

Sample Testcase 1 Explanation

There are 2 valid triplets: (1, 2, 4) and (1, 3, 4).

Sample Testcase 2

This testcase is valid for subtasks 4, 5, 6 and 7 only.

Input	Output
6 500 20 900 0 900 70	7



Sample Testcase 2 Explanation

There are 7 valid triplets: (1, 3, 4), (1, 3, 6), (1, 5, 6), (2, 3, 4), (2, 3, 6), (2, 5, 6) and (4, 5, 6).