

A. Signal Waveform

Standard I/O | Time Limit: 1.0s | Memory Limit: 512MB

During an interstellar mission to decode alien broadcasts, Dr. Aurel intercepted an energy signal represented as an array of K positive integers $V = (V_1, V_2, \dots, V_K)$, where V_i denotes the frequency level at index i ($1 \leq i \leq K$). We define $\text{compress}(V)$ as the sequence obtained by collapsing consecutive identical elements into a single element. For example, if $V = (1, 1, 2, 2, 2, 4, 3, 3, 1, 1)$, then $\text{compress}(V) = (1, 2, 4, 3, 1)$.

An element in a sequence is a strict local maximum if its value is strictly greater than all adjacent neighbors. It is a strict local minimum if its value is strictly smaller than all adjacent neighbors. Boundary elements of a sequence of length ≥ 2 have only one neighbor. In a sequence of length 1, the single element is simultaneously both a local minimum and a local maximum. Given a primary signal record $A = (A_1, A_2, \dots, A_N)$ of N positive integers. A contiguous subsegment $S = (A_L, A_{L+1}, \dots, A_R)$ with $1 \leq L < R \leq N$ is called a snake waveform if and only if every position in $\text{compress}(S)$ is either a strict local minimum or a strict local maximum.

Determine the total number of pairs (L, R) with $1 \leq L < R \leq N$ such that the subsegment S is a snake waveform.

Input

The first line contains an integer N ($1 \leq N \leq 200,000$). The second line contains N space-separated positive integers $A_1, A_2, \dots, A_N$ ($1 \leq A_i \leq 10^9$).

Output

Print a single integer: the number of valid pairs (L, R) .

Standard Input	Standard Output
6 1 2 4 4 3 3	11

Explanation: Valid pairs (L, R) are $(1,2), (2,3), (2,4), (2,5), (2,6), (3,4), (3,5), (3,6), (4,5), (4,6), (5,6)$, totaling 11 pairs.