Problem D. Sum of Characteristics

Input file:	*standard input*
Output file:	*standard output*
Time limit:	4 seconds
Memory limit:	512 mebibytes

You are given an array a consisting of n random integers from 1 to n. For its subsegment $[\ell, r]$, the *characteristic* is the value

$$C(\ell, r) = \min_{\ell \le i < j \le r} \max(a_i + j, a_j + i).$$

Your task is to calculate

$$\sum_{\ell=1}^{n} \sum_{r=\ell+1}^{n} C(\ell, r).$$

Input

The first line contains an integer t ($1 \le t \le 3 \cdot 10^5$), the number of test cases. The test cases follow.

The first line of each test case contains an integer n, the size of the array ($1 \le n \le 3 \cdot 10^5$). The next line contains the array itself: n integers from 1 to n, picked uniformly and independently by a pseudorandom number generator.

The sum of n over all test cases does not exceed $3 \cdot 10^5$.

Output

For each test case, output a line with a single integer: the sum of characteristics over all the subsegments.

Example

standard input	*standard output*
3 2 2 1 5 3 5 4 1 4 6 1 4 6 1 6 3	4 72 112