Eri and Expanded Sets

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

Let there be a set that contains **distinct** positive integers. To expand the set to contain as many integers as possible, Eri can choose two integers $x \neq y$ from the set such that their average $\frac{x+y}{2}$ is still a positive integer and isn't contained in the set, and add it to the set. The integers x and y remain in the set.

Let's call the set of integers *consecutive* if, after the elements are sorted, the difference between any pair of adjacent elements is 1. For example, sets $\{2\}$, $\{2, 5, 4, 3\}$, $\{5, 6, 8, 7\}$ are consecutive, while $\{2, 4, 5, 6\}$, $\{9, 7\}$ are not.

Eri likes consecutive sets. Suppose there is an array b, then Eri puts all elements in b into the set. If after a finite number of operations described above, the set can become consecutive, the array b will be called *brilliant*.

Note that if the same integer appears in the array multiple times, we only put it into the set **once**, as a set always contains distinct positive integers.

Eri has an array a of n positive integers. Please help him to count the number of pairs of integers (l, r) such that $1 \leq l \leq r \leq n$ and the subarray $a_l, a_{l+1}, \ldots, a_r$ is brilliant.

Input

Each test consists of multiple test cases. The first line contains a single integer t ($1 \leq t \leq 10^4$) — the number of test cases. The description of the test cases follows.

The first line of each test case contains a single integer n ($1 \leq n \leq 4 \cdot 10^5$) — length of the array a.

The second line of each test case contains n integers $a_1, a_2, \ldots a_n$ ($1 \leq a_i \leq 10^9$) — the elements of the array a.

It is guaranteed that the sum of n over all test cases doesn't exceed $4 \cdot 10^5$.

Output

For each test case, output a single integer — the number of brilliant subarrays.

Example

standard input	standard output
6 2 2 2 6 1 3 6 10 15 21 5 6 30 18 36 9 1 1000000000 6 1 1 4 5 1 4 12 70 130 90 90 90 108 612 500 451 171 193	3 18 5 1 18 53 193

Note

In the first test case, the array $a = [2, 2]$ has 3 subarrays: $[2]$, $[2]$, and $[2, 2]$. For all of them, the set only contains a single integer 2, therefore it's always consecutive. All these subarrays are brilliant, so the answer is 3.

In the second test case, let's consider the subarray $[3, 6, 10]$. We can do operations as follows:

$$\{3, 6, 10\} \xrightarrow{x=6, y=10} \{3, 6, 8, 10\} \xrightarrow{x=6, y=8} \{3, 6, 7, 8, 10\} \xrightarrow{x=3, y=7} \{3, 5, 6, 7, 8, 10\}$$

$$\xrightarrow{x=3, y=5} \{3, 4, 5, 6, 7, 8, 10\} \xrightarrow{x=8, y=10} \{3, 4, 5, 6, 7, 8, 9, 10\}$$

$\{3, 4, 5, 6, 7, 8, 9, 10\}$ is a consecutive set, so the subarray $[3, 6, 10]$ is brilliant.