

Problem C

Longest Generalized Fibonacci Subsequence

Input file: *testdata.in*

Time limit: 4 seconds

Problem Description

The Fibonacci sequence is the integer sequence in which the first two numbers are 0 and 1, and each subsequent number is the sum of the previous two. The sequence F_n of Fibonacci numbers is defined by the recurrence relation

$$F_n = F_{n-1} + F_{n-2}, \forall n \geq 2 \quad (1)$$

with initial condition $F_0 = 0, F_1 = 1$.

A *subsequence* is a sequence that can be derived from another sequence by deleting some elements without changing the order of the remaining elements. A generalized Fibonacci subsequence of a given sorted sequence S is a subsequence of S with the same recurrence relation as the Fibonacci sequence. For example, 2 3 5 8 is a generalized Fibonacci subsequence of the sequence 1 2 3 4 5 6 7 8 9 10 11 12. The longest generalized Fibonacci subsequence of S is the generalized Fibonacci subsequence with largest number of elements. The longest generalized Fibonacci subsequence problem is to find the number of elements in the longest generalized Fibonacci subsequence of a given sorted sequence.

Technical Specification

- The input sequence is a sorted integer sequence in which all the integers are positive and distinct.
- All the positive integers of the input sequence are less than 65536.
- Each input sequence contains at least 2 and at most 50000 elements.

Input Format

The first line of the input file contains an integer t , indicating the number of test cases to follow. The first line for each test case contains an integer n that indicates the number of elements of the input sequence, where $2 \leq n \leq 50000$. The next line contains n integers, separated by a space, of the sequence.

Output Format

For each test case, output the number of elements in a longest generalized Fibonacci subsequence of the input sequence.

Sample Input

```
3
4
3 4 8 10
7
1 3 4 6 7 10 16
13
1 2 3 4 5 6 7 8 9 10 11 12 13
```

Sample Output

```
2
4
6
```