

Hacking The Fibonacci Sequence

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Competitive Programming Problem
Difficulty Level - HARD

1. Problem

One of the most successful professors at Harvard University of the algorithm course has tested his students. The problem consists of calculating a list of n numbers at their equivalent value in the sequence of fibonacci, then it has mentioned to the students that once they have the equivalence to the sequence in fibonacci they must count the digits of the number obtained from the sequence of each number.

The Fibonacci sequence can be written as $F_n = F_{n-1} + F_{n-2}$ for $n \geq 3$

The students began to complain about the challenge because they were realizing that as they were calculating the list of n number to their equivalence in the sequence of fibonacci the values were growing very fast and it was becoming impossible to find the final value, to then be able to find the sum of the digits of each value obtained from the sequence. For example, the value 20 in the fibonacci sequence is 6765. If we add the digits of 6765, we get the value 24.

But what would happen if the students had to calculate a value greater than 10^{10} , will the students be able to solve the problem?

2. Input

The first line of input contains an integer T ($1 \leq T \leq 100$), the number of test cases. The second line contains v integers v_1, v_2, \dots, v_N ($1 \leq v_i \leq 100$) representing all elements in the list.

3. Output

For each test case, output in a line the results omitting the commas, only show the values with spaces.

4. Test Case

Input	Output
1 20	24
3 1 5 10	1 , 1 , 10
2 100 1000	93 , 1005