



ITEC

2013

INFORMATION TECHNOLOGY EXHIBITION & COMPETITION



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UNLEASHING THE POTENTIAL

SPEED PROGRAMMING COMPETITION

(SAMPLE CONTENTS)

SAMPLE QUESTION 1: CID vs Terrorists

ACP Pradyumn is on his way to catch the mastermind behind the Hyderabad bomb blasts.

The mastermind, on the other hand, challenges the ACP by generating a sequence of numbers for him.

There is a sequence of n numbers, which can be both positive and negative. The task is to find the number of continuous sequence of numbers such that their sum is zero.

For example if the sequence is:

5, 2, -2, 5, -5, 9

There are 3 such sequences

2, -2

5, -5

2, -2, 5, -5

Since the ACP is having difficulty in solving the problem, he asks for your help. Your goal is to find number of such sequences to help the ACP in catching the terrorist.

Input

First line contains T - number of test cases

Second line contains n - the number of elements in a particular test case.

Next line contain n elements, a_i ($1 \leq i \leq n$) separated by spaces.

Output

The number of such sequences whose sum if zero.

Constraints

$1 \leq T \leq 5$

$1 \leq n \leq 10^6$

$-10 \leq a_i \leq 10$

Example

Input:

2

4

0 1 -1 0

6

5 2 -2 5 -5 9

Output:

6

3

SAMPLE QUESTION 2:Count the String

The alphabet of Zorpia is quite peculiar. It consists of only two letters, A and B and that too in upper-case only. A visitor to Zorpia is amazed by the diversity of words formed by the combination of A and B. He notices one more peculiar thing about the words. All the words were of even length and the number of A's in the word is equal to the number of B's. One of the natives told him that it is the number of transitions in the word that guides the pronunciation of the words. The words having same number of transitions are pronounced almost similarly.

Let us define what transition means here. A transition occurs in a word whenever there is a change from A to B. Eg: consider the word ABAB. It has three transitions. First when going from index 1 to 2, second when going from 2 to 3 and third when going from 3 to 4.

Given the length of the word and the number of transitions, the visitor needs to find out how many such words are possible from the alphabet of Zorpia and following the rules for word as described above.

Input

The input consists of several test cases(5000 atmost). Each test case consists of two integers n and k where n is the length of word and $n(2 \leq n \leq 10000)$ is even. K is the number of transitions. The input is terminated by n=k=0.

Output

For every test case output on a line an integer which is the number of words possible modulo 1,000,000,007.

Example

Input:

6 2
6 3
0 0

Output:

4
8

Explanation

For the first case the 4 words are AABBBB, ABBBAA, BAAABB, BBAAAB .