







Rank









Fundamentals Challenges

# Connecting Towns **■**



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Gandalf is travelling from Rohan to Rivendell to meet Frodo but there is no direct route from Rohan (T<sub>1</sub>) to Rivendell (T<sub>p</sub>).

But there are towns  $T_2$ ,  $T_3$ ,  $T_4$ ...  $T_{n-1}$  such that there are  $N_1$  routes from Town  $T_1$  to  $T_2$ , and in general,  $N_i$  routes from  $T_i$  to  $T_{i+1}$  for i=1 to n-1 and 0 routes for any other  $T_i$  to  $T_i$  for  $j \neq i+1$ 

Find the total number of routes Gandalf can take to reach Rivendell from Rohan.

### Note

Gandalf has to pass all the towns  $T_i$  for i=1 to n-1 in numerical order to reach  $T_n$ . For each  $T_i$ ,  $T_{i+1}$  there are only  $N_i$  distinct routes Gandalf can take.

#### **Input Format**

The first line contains an integer T, T test-cases follow.

Each test-case has 2 lines. The first line contains an integer N (the number of towns).

The second line contains N - 1 space separated integers where the i<sup>th</sup> integer denotes the number of routes,  $N_i$ , from the town  $T_i$  to  $T_{i+1}$ 

## **Output Format**

Total number of routes from  $T_1$  to  $T_n$  modulo 1234567 http://en.wikipedia.org/wiki/Modular\_arithmetic

## Constraints

1 <= T<=1000

2< N <=100

 $1 <= N_i <= 1000$ 

## **Sample Input**

2

3

1 3

4 2 2 2

## **Sample Output**

3

#### **Explanation**

Case 1: 1 route from  $T_1$  to  $T_2$ , 3 routes from  $T_2$  to  $T_3$ , hence only 3 routes.

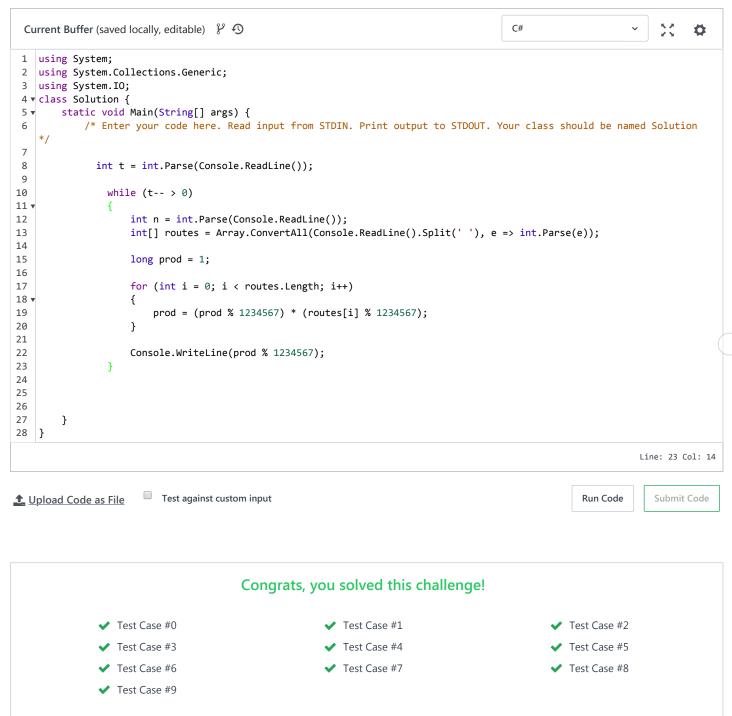
Case 2: There are 2 routes from each city to the next, at each city, Gandalf has 2 choices to make, hence 2 \* 2 \* 2 = 8.

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Max Score: 10 Difficulty: Easy

Submissions: 12767





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