Connecting Towns

HackerRank

Gandalf is travelling from **Rohan** to **Rivendell** to meet Frodo but there is no direct route from **Rohan** (T_1) to **Rivendell** (T_n).

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_j 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^{th} 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
8
```

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.