Problem G
Gig Combinatorics
Time limit: 0 seconds

Your friend Tóti is an aspiring musician. He has written n songs, each of which has *hype-rating* of either 1, 2, or 3. A higher hype-rating means the song has more energy. Tóti is planning his first live performance and needs your help. He wants to know how many *setlist* he can make. A setlist consist of at least three songs, the first songs has to have a hype-rating 1, the last has to have a hype-rating 3, and all others have to have a hype-rating 2. Tóti also wants to play the songs in the same order he wrote them.

Given the hype-rating of each of Tóti's song in the order he wrote them, how many setlist can he make?



Picture by Veress Attila Esküvői, cc by-sa

Input

The first line of the input consists of a single integer n ($1 \leq n \leq 10^6$), the number of songs Tóti has written. The second line consists of n integers, each in $\{1, 2, 3\}$, giving the hype-ratings of the n songs in the order they were written.

Output

The output should consist of one integer, the number of setlists Tóti can make. Since this number can be large, print it modulo $10^9 + 7$.

Sample Input 1	Sample Output 1
9 1 1 1 2 2 2 3 3 3	63

Sample Input 2	Sample Output 2
8 1 2 1 2 3 1 2 3	15

This page is intentionally left blank.