Ordering Stickers

Ni and Sinf have been colecting stickers for some years and finnaly are going to display them, all stickers are numbered from 1 to N. The arrangement of the stickers has some restrictions, they have decided if sticker number i comes after or before sticker number i + 1. How may ways can they display the stickers ?

Input Format

The first line contains a single integer N.

The second line contains a binary array of size N−1. The ith element of this array is 1 if ith sticker comes before i+1ith sticker in the permutation, 0 otherwise.

Constraints

2 <= N <= 2000

Output Format

Print the answer modulo 10^9 + 13.

Sample Input 0

```
9
0 0 0 0 1 1 1 1
```

Sample Output 0

```
70
```

Sample Input 1

```
10
1 0 0 1 0 0 0 1 1
```

Sample Output 1

```
6056
```