Elephant Filimon and the Very Important Message

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	256 megabytes

Once, Elephant Filimon wrote a Very Important Message consisting of letters from the Russian alphabet on a piece of paper. After that, he encrypted it as follows: instead of each letter, he wrote its ordinal number in the alphabet, thus obtaining an array of numbers from 1 to 33.

Many years later, Elephant Filimon found the encrypted Very Important Message again. Possessing a magnificent memory, he recalled what was what. Deciding that his old cipher was too weak, he wanted to encrypt the message even more strongly, and for this, he wanted to calculate the following tricky characteristic, and he needs your help with this!

Given an array $a_1, a_2, \ldots, a_n$ of numbers from 1 to 33.

In one operation, you can combine two adjacent elements of the array into one element equal to the sum of the combined elements. However, the operation can only be performed if the new element is a **prime** number.

For example, from the array $[1, 2, 3, 4, 5]$, you can obtain the arrays $[3, 3, 4, 5], [1, 5, 4, 5], [1, 2, 7, 5]$ in one operation. However, it is **not possible** to obtain the array $[1, 2, 3, 9]$, since 9 is not a prime number.

How many different arrays can be obtained after applying some number of operations (possibly zero)? If one array can be obtained in several ways, it is still counted only once. Since the answer can be quite large, find it modulo 333 333 333.

Input

The first line of input contains one integer n ($1 \le n \le 333\,333$) — the length of the array a.

The second line contains n integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le 33$) — the elements of the array a.

Output

In a single line, output the answer to the problem — the number of arrays that can be reached through operations, modulo 333 333 333.

Scoring

Subtask	Points	Additional constraints		Necessary Groups
		n	a	
1	12	$n \le 10$	–	–
2	12	$n \le 18$	–	1
3	13	$n \le 500$	–	1-2
4	11	$n \le 5000$	$a_i > 1$	–
5	10	$n \le 5000$	–	1-4
6	11	$n \le 10^5$	$a_i > 1$	4
7	10	$n \le 10^5$	–	1-6
8	12	–	$a_i = 1$	–
9	9	–	–	1-8

Examples

standard input	standard output
1 1	1
5 1 2 3 4 5	5
3 33 33 33	1
9 1 1 1 1 1 1 1 1 1	180
11 19 13 16 15 22 10 13 10 14 16 15	80