SubseqPal

Input file:	*standard input*
Output file:	*standard output*
Time limit:	3 second
Memory limit:	2048 MB

You are given an array of integers of length N.

A **palindromic subsequence** of an array is a sequence formed by selecting elements from the array in their original order, without necessarily selecting contiguous elements, such that the selected elements read the same forward and backwards.

Let A and B be two palindromic subsequences, and let $a_{\min}$ and $a_{\max}$ be the smallest and largest positions selected by A, respectively, while $b_{\min}$ and $b_{\max}$ are the smallest and largest positions selected by B, respectively. We say that A and B **intersect** if their spanning intervals $[a_{\min}, a_{\max}]$ and $[b_{\min}, b_{\max}]$ overlap, but neither contains the other.

Formally, $(a_{\min} < b_{\min} \leq a_{\max} < b_{\max}) \vee (b_{\min} < a_{\min} \leq b_{\max} < a_{\max})$.

We consider each distinct palindromic subsequence of the array as a node in a graph. Two nodes in this graph have an edge if the two palindromic subsequences intersect.

Output the number of connected components in the created graph modulo $10^9 + 7$.

Input

The first line of input contains one number N ($1 \leq N \leq 5000$), the length of the array. The second line contains N integers $a[1], \ldots, a[N] (1 \leq a[i] \leq 10^9)$, the array itself.

Output

The output should contain the number of connected components in the created graph modulo $10^9 + 7$.

Example

standard input	standard output
12 1 3 2 3 1 6 6 6 7 8 7 8	24
10 100 2 1000 2 100 100 100 2 2 2	11

Explanation

In the first example, the 24 connected components of the palindromic subsequence graph are listed below, represented as 1-indexed positions in the array:

1: $\{1\}$
2: $\{1, 2, 3, 4, 5\}$
3: $\{1, 2, 4, 5\}$
4: $\{1, 2, 5\}$
5: $\{1, 3, 5\}$
6: $\{1, 4, 5\}$
7: $\{1, 5\}$
8: $\{2\}$
9: $\{2, 3, 4\}$
10: $\{2, 4\}$
11: $\{3\}$
12: $\{4\}$
13: $\{5\}$
14: $\{6\}$
15: $\{6, 7\}$, $\{7, 8\}$
16: $\{6, 7, 8\}$
17: $\{6, 8\}$
18: $\{7\}$
19: $\{8\}$
20: $\{9\}$
21: $\{9, 11\}$, $\{9, 10, 11\}$, $\{10, 12\}$, $\{10, 11, 12\}$
22: $\{10\}$
23: $\{11\}$
24: $\{12\}$