

Problem E. Equal Adjacent Elements

Input file: *standard input*
 Output file: *standard output*
 Time limit: 2 seconds
 Memory limit: 512 mebibytes

Hello sir, I am very interested in coding.. But I am not able to get the solution to a problem. Can you help me??

An array of integers is **bad** if it contains a pair of equal adjacent elements. An array is **good** if it is not bad.

You are given a good array. How many ways are there to remove its elements one by one, concatenating the left and right part after each removal, such that at no point the array is bad? Two ways are different if there is a step on which indices of removed elements differ.

For example, after the removal of 1 from a good array [2, 1, 2] it becomes a bad array [2, 2] and after the removal of 5 from a good array [1, 2, 3, 4, 5, 6] it becomes [1, 2, 3, 4, 6] and stays good.

Output the answer congruent to the real one modulo 998244353. Formally, if the real answer is y and your answer is x , it will be considered correct if $-2^{63} \leq x < 2^{63}$ and $x - y$ is divisible by 998244353.

Input

The first line contains a single integer n ($1 \leq n \leq 500$), the number of elements in the array.

The second line contains n integers a_i ($1 \leq a_i \leq n$), elements of the array.

Output

Output a single integer — the answer to the problem modulo 998244353.

Examples

standard input	standard output
3 1 2 3	6
4 1 2 1 2	8
12 1 2 3 1 2 3 1 2 3 1 2 3	25660800
1 1	-998244352
2 1 2	998244355

Note

In the first example all elements are distinct, so it's impossible to get a bad array at some point. That's why there are $3! = 6$ ways to remove all the elements.

In the fourth example the real answer is 1 because there is only one way to remove the only element. The given answer -998244352 is congruent to 1 modulo 998244353, so it is correct too.

In the fifth example the real answer is 2.

Sorry for my bad English.