F1. Short Colorful Strip

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

This is the first subtask of problem F. The only differences between this and the second subtask are the constraints on the value of m and the time limit. You need to solve both subtasks in order to hack this one.

There are $n + 1$ distinct colours in the universe, numbered 0 through n. There is a strip of paper m centimetres long initially painted with colour 0.

Alice took a brush and painted the strip using the following process. For each i from 1 to n, **in this order**, she picks two integers $0 \leq a_i < b_i \leq m$, such that the segment $[a_i, b_i]$ is currently painted with a **single** colour, and repaints it with colour i.

Alice chose the segments in such a way that each centimetre is now painted in some colour other than 0. Formally, the segment $[i - 1, i]$ is painted with colour c_i ($c_i \neq 0$). Every colour other than 0 is visible on the strip.

Count the number of different pairs of sequences $\{a_i\}_{i=1}^{n}$, $\{b_i\}_{i=1}^{n}$ that result in this configuration.

Since this number may be large, output it modulo 998244353.

Input

The first line contains a two integers n, m ($1 \leq n \leq 500$, $n = m$) — the number of colours excluding the colour 0 and the length of the paper, respectively.

The second line contains m space separated integers $c_1, c_2, \ldots, c_m$ ($1 \leq c_i \leq n$) — the colour visible on the segment $[i - 1, i]$ after the process ends. It is guaranteed that for all j between 1 and n there is an index k such that $c_k = j$.

Note that since in this subtask $n = m$, this means that c is a permutation of integers 1 through n.

Output

Output a single integer — the number of ways Alice can perform the painting, modulo 998244353.

Examples

input Copy

```
3 3
1 2 3
```

output Copy

```
5
```

input Copy

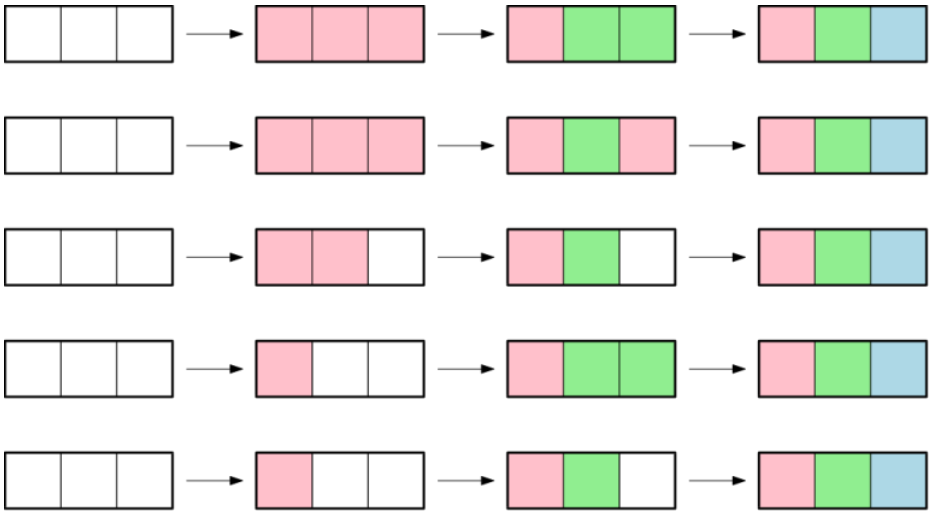
```
7 7
4 5 1 6 2 3 7
```

output Copy

```
165
```

Note

In the first example, there are 5 ways, all depicted in the figure below. Here, 0 is white, 1 is red, 2 is green and 3 is blue.



Below is an example of a painting process that is not valid, as in the second step the segment `1 3` is not single colour, and thus may not be repainted with colour 2.