

Problem D. Tripartite Graph

Input file: **standard input**
Output file: **standard output**
Time limit: 2 seconds
Memory limit: 1024 megabytes

Little M has obtained a tripartite graph.

An undirected graph is a tripartite graph if and only if there exists a way to color each vertex of the graph with one of three colors: 1, 2, 3, such that the colors of the two vertices connected by each edge are different.

For a permutation p of length n , Little A generates a graph with n vertices as follows:

For $1 \leq i < j \leq n$, if $p_i > p_j$, then an undirected edge (i, j) is added to the graph; otherwise, there is no undirected edge (i, j) in the graph.

Now, given a permutation q of length n , how many permutations p of length n exist such that the lexicographical order of p is greater than that of q , and the graph generated by p is a tripartite graph? The answer should be given modulo 998244353.

Input

The first line contains a positive integer T ($1 \leq T \leq 300$), indicating the number of test cases.

For each test case, the first line contains a positive integer n ($1 \leq n \leq 300$), representing the length of the permutation.

The second line contains n integers q_1, q_2, \dots, q_n ($1 \leq q_i \leq n$), with the same meaning as described in the problem. It is guaranteed that $q_i \neq q_j$ for $i \neq j$, meaning that q is a permutation.

Output

For each test case, output a single line containing an integer representing the answer, modulo 998244353.

Example

standard input	standard output
2	102
5	96
1 2 3 4 5	
5	
1 3 2 4 5	