Problem J. Joining the Team

Source file name:	Joining.c, Joining.cpp, Joining.java, Joining.py
Input:	`Standard`
Output:	`Standard`
Time / Memory limit:	`1/2/8 (C++/Java/Python) seconds / 64 megabytes`
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Coach Drump has a unique personality: he always insists that his team practice by forming special lineups during their training sessions.

Each lineup is considered unique if the sequence of player heights that compose it is different from any other.

In every training session, Coach Drump calls his players one by one to line up. However, he has a particular method for selecting them: he always calls the next tallest or the next shortest player available.

To maximize the variety in his training sessions, the coach aims to form a different lineup every day. He has made it clear that if a lineup is ever repeated, he will resign immediately.

A program is needed that, given the heights of the players, determines how many days will pass before Coach Drump finally releases his team from these quirky training methods. Since this number can be extremely large, the result must be given modulo $10^9 + 7$.

Input

The first line contains a single integer T $(1 \leq T \leq 10)$ indicating the test cases.

The next $2 \cdot T$ lines has the description of each test case.

Each test case consist on two lines, the first with a single number n $\left(1 \leq n \leq 3 \cdot 10^4\right)$ indicating the number of players on Drump's training team.

The next line contains a sequence H with n heights separated by space $\left(1 \leq h_i \leq 3 \cdot 10^4\right)$.

Output

For each test case, the output is a single line with the number of unique lineups modulo $10^9 + 7$

Example

Input	Output
3 2 2 3 5 2 2 2 2 2 3 1 2 1	2 1 3

Use fast I/O methods