# Problem I: Zigzag Subsequence

*Filename:* `zigzag2`

*Timelimit:* `20 seconds`

Zigzag sequences are a curious kind of integer sequence. They are sequences of ***at least length 3*** that have the following form every three consecutive integers $a_i, a_{i+1}, a_{i+2}$:

$a_i < a_{i+1} > a_{i+2}$ or $a_i > a_{i+1} < a_{i+2}$

Examples of zigzag sequences are 14, 17, 3, 19 and 1, 7, 1, 97, 2. Examples of sequences that are not zigzag sequences are 1, 17, 29, 17, 1 and 1, 9, 9.

Given a sequence, you are to find how many subsequences form a zigzag sequence. A subsequence is formed by removing some number, possibly zero, of integers from the sequence. A subsequence is considered different if the $i^{th}$ location is removed in one sequence but not the other.

## Input

The first line contains a positive integer ***s*** (***s*** ≤ 40), representing the number of sequences to consider.

The next r lines contains a positive integer ***n***, ($3 \le n \le 10^5$) representing the length of the original sequence.

The following line contains ***n*** integers. Each integer $a_i$ ($-10^9 \le a_i \le 10^9$), represents the $i^{th}$ integer in the sequence.

## Output

For each sequence, output a single integer on a line by itself representing the number of subsequences that are also zigzag sequences. Since this number can be quite large, output this value modulo $10^9+7$.

## Samples

| Input | Output |
|---|---|
| 3<br>3<br>-7 8 -8<br>4<br>1 4 1 4<br>5<br>1 4 1 4 1 | 1<br>3<br>8 |