Max Transform ☆

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Problem Solving ★★★

Problem Submissions Leaderboard Editorial

Transforming data into some other data is typical of a programming job. This problem is about a particular kind of transformation which we'll call the max transform.

Let A be a zero-indexed array of integers. For $0 \leq i \leq j < \textbf{length}(A)$, let $A_{i\ldots j}$ denote the subarray of A from index i to index j, inclusive.

Let's define the max transform of A as the array obtained by the following procedure:

- Let B be a list, initially empty.
- For k from 0 to $\textbf{length}(A) - 1$:
  - For i from 0 to $\textbf{length}(A) - k - 1$:
    - Let $j = i + k$.
    - Append $\textbf{max}(A_{i\ldots j})$ to the end of B.
- Return B.

The returned array is defined as the max transform of A. We denote it by $S(A)$.

Complete the function `solve` that takes an integer array A as input.

Given an array A, find the sum of the elements of $S(S(A))$, i.e., the max transform of the max transform of A. Since the answer may be very large, only find it modulo $10^9 + 7$.

Input Format

The first line of input contains a single integer n denoting the length of A.

The second line contains n space-separated integers $A_0, A_1, \ldots, A_{n-1}$ denoting the elements of A.

Constraints

- $1 \leq n \leq 2 \cdot 10^5$
- $1 \leq A_i \leq 10^6$

Subtasks

- For 33.33% of the total score, $1 \leq n \leq 4000$

Output Format

Print a single line containing a single integer denoting the answer.

Sample Input 0

```
3
3 2 1
```

Sample Output 0

58

Explanation 0

In the sample case, we have:

$$A = [3, 2, 1]$$
$$S(A) = [3, 2, 1, 3, 2, 3]$$
$$S(S(A)) = [3, 2, 1, 3, 2, 3, 3, 2, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3, 3]$$

Therefore, the sum of the elements of $S(S(A))$ is 58.

Current Buffer (saved locally, editable) Java 7

```
import java.io.*;
import java.math.*;
import java.security.*;
import java.text.*;
import java.util.*;
import java.util.concurrent.*;
import java.util.regex.*;

public class Solution {

    // Complete the solve function below.
    static int solve(int[] A) {
        // Return the sum of S(S(A)) modulo 10^9+7.

    }

    private static final Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) throws IOException {
        BufferedWriter bufferedWriter = new BufferedWriter(new
FileWriter(System.getenv("OUTPUT_PATH")));

        int n = scanner.nextInt();
        scanner.skip("(\r\n|[\n\r\u2028\u2029\u0085])?");

        int[] A = new int[n];

        String[] AItems = scanner.nextLine().split(" ");
        scanner.skip("(\r\n|[\n\r\u2028\u2029\u0085])?");

        for (int i = 0; i < n; i++) {
            int AItem = Integer.parseInt(AItems[i]);
            A[i] = AItem;
        }

        int result = solve(A);

```

```
        bufferedWriter.write(String.valueOf(result));
        bufferedWriter.newLine();

        bufferedWriter.close();

        scanner.close();
    }
}

```

Line: 1 Col: 1

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