Problem D

Longest Increasing Subsequence

Time limit: 1 second
Memory: 1024 megabytes

Problem Description

Given an array of positive integers with **N** elements, denoted $\mathbf{A_1, A_2, \ldots, A_N}$. A monotonic subsequence is defined as a subsequence $\mathbf{A[i_1], A[i_2], \ldots, A[i_K]}$ that satisfies:

- $\mathbf{0 < i_1 < i_2 < \ldots < i_K \leq N.}$
- $\mathbf{A[i_1] < A[i_2] < \ldots < A[i_K]}$.

Your task: Determine the maximum possible sum of values in any increasing subsequence of the array.

Input:

- The first line contains a positive integers **N** ($\mathbf{N \leq 10^5}$).
- The second line contains **N** positive integers $\mathbf{a_1, a_2, ..., a_n}$ ($\mathbf{a_i \leq 10^5}$).

Output:

- The output is a single integer representing the maximum sum of an increasing subsequence.

Example:

INPUT	OUTPUT
7 1 4 5 2 4 3 4	10