Simple Max (title of the proposed problem)

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1 Problem Description

Provide a brief description for the problem. Please clearly state the range of variables. Describe your idea precisely and concisely. Avoid ambiguity. For example,

Given an array with n ($1 \leq n \leq 10^5$) integers, find the maximum value among the integers. Integers in the array are no larger than 10^9 in their absolute values.

2 Solutions

Describe your intended solution(s) to this problem and its(their) time complexity. For example,

- Perform a linear scan to find the maximum value. Time complexity is $O(n)$.
- Use divide-and-conquer to split the array into two equal halves. Find the maximum in each half and take the larger among the two halves during a merge. Time complexity is $T(n) = 2T(n/2) + O(1) = O(n)$. (an overkill and awkward solution).

3 Anti-Solutions

Describe some anti-solution(s) that people may try and briefly explain why they will fail. For example,

- A WA solution may initialize the answer to zero, and is thus unable to find a negative maximum.
- An RTE solution may have off-by-one error. (This is only an example! Try to find a more meaningful anti-solution.)

4 Test Case Design

Provide a plan for test case generation. For example,

- Three cases are generated randomly
- One case contains only negative numbers
- One case contains only zeroes

A total of 5 secret cases will be generated.