CSE 106
Online on Divide and Conquer and Greedy Algorithms

Time: 35 minutes

Problem Statement

Given an array of n integers, determine the element that occurs more than $\lfloor n/2 \rfloor$ times using a **Divide and Conquer** approach.

Input:
An array $A[1 \dots n]$ of integers. You may assume that a majority element always exists. The majority element is the element that appears more than $n/2$ times.

Output:
Return the majority element of the array.

Constraints:

- $1 \leq n \leq 10^5$
- $-10^9 \leq A[i] \leq 10^9$

Task

Implement a divide-and-conquer algorithm to solve the above problem.

Optional Example

Input: `[2, 2, 1, 1, 1, 2, 2]`
Output: `2`
Input: `[5, 3, 1, 5, 5]`
Output: `5`