

Single Number Algorithm

Looking for a single number in an array is a common task in algorithms. Let's take a look at how to do it.

*Given a **non-empty** array of integers, every element appears twice except for one. Find that single one.*

Example:

Input: [4, 1, 2, 1, 2]

First time 4 XOR 1

4 -> 0100

1 -> 0001

R -> 0101 -----> Now our accumulator has 5 as value.

Second time: 5 XOR 2

5 -> 0101

2 -> 0010

R -> 0111 -----> *Now our accumulator has 7 as value.*

Third time: 7 XOR 1

7 -> 0111

1 -> 0001

R -> 0110 -----> *Now our accumulator has 6 as value.*

Fourth time: 6 XOR 2

6 -> 0110

2 -> 0010

R -> 0100 -----> Now our accumulator has 4 as value.

Return 4