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Bit Manipulation: Lonely Integer



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Check out the resources on the page's right side to learn more about bit manipulation. The video tutorial is by Gayle Laakmann McDowell, author of the best-selling interview book Cracking the Coding Interview.

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Consider an array of n integers, $A = [a_0, a_1, \dots, a_{n-1}]$, where all but one of the integers occur in pairs. In other words, every element in A occurs exactly twice except for one unique element.

Given A, find and print the unique element.

Input Format

The first line contains a single integer, n, denoting the number of integers in the array. The second line contains n space-separated integers describing the respective values in n.

Constraints

- $1 \le n < 100$
- It is guaranteed that *n* is an odd number.
- $0 \leq a_i \leq 100$, where $0 \leq i < n$.

Output Format

Print the unique number that occurs only once in \boldsymbol{A} on a new line.

Sample Input 0

1

1

Sample Output 0

1

Explanation 0

The array only contains a single 1, so we print 1 as our answer.

Sample Input 1

Sample Output 1

2

Explanation 1

We have two 1's and one 2. We print 2, because that's the only unique element in the array.

Sample Input 2

5 0 0 1 2 1

Sample Output 2

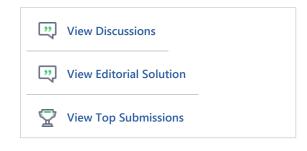
2

Explanation 2

We have two 0's, two 1's, and one 2. We print 2, because that's the only unique element in the array.



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Resources

9:06

Binary Numbers and Bit Manipulation

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f y in DIG. rrent Buffer (saved locallyneditable) C++ Q Rank T Leaderboard 1 ▼ #include <map> 2 #include <set> #include <list> #include <cmath> #include <ctime> 6 #include <deque> #include <queue> 7 8 #include <stack> 9 #include <string> 10 #include <bitset> 11 #include <cstdio> 12 #include <limits> 13 #include <vector> 14 #include <climits> 15 #include <cstring> 16 #include <cstdlib> 17 #include <fstream> 18 #include <numeric> 19 #include <sstream> 20 #include <iostream> 21 #include <algorithm> 22 #include <unordered_map> 23 24 using namespace std; 25 26 v int lonely_integer(vector < int > a) { 27 ▼ int cont[101]; for(int i =0; i<=100; i++) { 28 ▼ 29 ▼ cont[i]=0; 30 31 32 ▼ for(int i =0; i<a.size(); i++) {</pre> 33 ▼ cont[a[i]]++; 34 } 35 36 ▼ for(int i =0; i<=100; i++) { 37 ▼ if(cont[i] == 1) return i; 38 } 39 return -1; 40 } 41 42 ▼ int main(){ 43 int n; 44 cin >> n;45 vector<int> a(n); 46 ▼ for(int $a_i = 0; a_i < n; a_{i++}){$ 47 ▼ cin >> a[a_i]; 48 cout << lonely_integer(a) << endl;</pre> 49 50 return 0; 51 } 52 Line: 39 Col: 15

1 Upload Code as File

Test against custom input

Submit Code

Run Code

	Challenge your friends: f y in	
	& Share it as a snippet.	
✓ Test Case #0	✓ Test Case #1	✓ Test Case #2
✓ Test Case #3	✓ Test Case #4	✓ Test Case #5
✓ Test Case #6	✓ Test Case #7	✓ Test Case #8

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