

GE23131-Programming Using C-2024

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Status	Finished
Started	Monday, 13 January 2025, 12:15 PM
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Question 1

Correct

☐ Flag question

Given an array of numbers, find the index of the smallest array element (the pivot), for which the sums of all elements to the left and to the right are equal. The array may not be reordered.

Example

```
arr=[1,2,3,4,6]
```

- the sum of the first three elements, $1+2+3=6$. The value of the last element is 6.
- Using zero based indexing, $arr[3]=4$ is the pivot between the two subarrays.
- The index of the pivot is 3.

Function Description

Complete the function `balancedSum` in the editor below.

`balancedSum` has the following parameter(s):

`int arr[n]`: an array of integers

Returns:

`int`: an integer representing the index of the pivot

Constraints

- $3 \leq n \leq 10^5$
- $1 \leq arr[i] \leq 2 \times 10^4$, where $0 \leq i < n$
- It is guaranteed that a solution always exists.

Input Format for Custom Testing

The first line contains an integer n , the size of the array `arr`.
Each of the next n lines contains an integer, `arr[i]`, where $0 \leq i < n$.

Sample Case 0

Sample Input 0

STDIN Function Parameters

4 → `arr[]` size $n = 4$

1 → `arr = [1, 2, 3, 3]`

2

3

3

Sample Output 0

2

Explanation 0

- The sum of the first two elements, $1+2=3$. The value of the last element is 3.
- Using zero based indexing, `arr[2]=3` is the pivot between the two subarrays.
- The index of the pivot is 2.

Sample Case 1

Sample Input 1

STDIN Function Parameters

3 → `arr[]` size $n = 3$

1 → `arr = [1, 2, 1]`

2

1

Sample Output 1

1

- The first and last elements are equal to 1.
- Using zero based indexing, arr[1]=2 is the pivot between the two subarrays.
- The index of the pivot is 1.

Answer: (penalty regime: 0 %)

Reset answer

	Test	Expected	Got	
	<pre>int arr[] = {1,2,3,3}; printf("%d", balancedSum(4, arr))</pre>	2	2	

Passed all tests!

Question **2**

Correct

☐ Flag
question

Calculate the sum of an array of integers.

Example

numbers = [3, 13, 4, 11, 9]

The sum is 3 + 13 + 4 + 11 + 9 = 40.

Function Description

Complete the function arraySum in the editor below.

int numbers[n]: an array of integers

Returns

int: integer sum of the numbers array

Constraints

$$1 \leq n \leq 10^4$$

$$1 \leq \text{numbers}[i] \leq 10^4$$

Input Format for Custom Testing

Input from stdin will be processed as follows and passed to the function.

The first line contains an integer n, the size of the array numbers.

Each of the next n lines contains an integer numbers[i] where $0 \leq i < n$.

Sample Case 0

Sample Input 0

STDIN	Function
-------	----------

-----	-----
-------	-------

5	→ numbers[] size n = 5
---	------------------------

1	→ numbers = [1, 2, 3, 4, 5]
---	-----------------------------

2	
---	--

3	
---	--

4	
---	--

5	
---	--

Sample Output 0

15

Explanation 0

$$1 + 2 + 3 + 4 + 5 = 15.$$

Sample Case 1

Sample Input 1

```
-----  
2    → numbers[] size n = 2  
12   → numbers = [12, 12]  
12
```

Sample Output 1

24

Explanation 1

$12 + 12 = 24$.

Answer: (penalty regime: 0 %)

Reset answer

	Test	Expected	Got	
	int arr[] = {1,2,3,4,5}; printf("%d", arraySum(5, arr))	15	15	

Passed all tests!

Question **3**
Correct

Given an array of n integers, rearrange them so that the sum of the absolute differences of all adjacent elements is minimized. Then, compute the sum of those absolute differences. Example n = 5 arr = [1, 3, 3, 2, 4] If the list is rearranged as arr' = [1, 2, 3, 3, 4], the absolute differences are $|1 - 2| = 1$, $|2 - 3| = 1$, $|3 - 3| = 0$, $|3 - 4| = 1$. The sum of those differences is $1 + 1 + 0 + 1 = 3$. Function Description Complete the function

integer, n , the size of arr . Each of the following n lines contains an integer that describes $arr[i]$ (where $0 \leq i < n$). Sample Case 0 Sample Input For Custom Testing STDIN Function ----- 5 \rightarrow $arr[]$ size $n = 5$ 5 \rightarrow $arr[] = [5, 1, 3, 7, 3]$ 1 3 7 3 Sample Output 6 Explanation $n = 5$ $arr = [5, 1, 3, 7, 3]$ If arr is rearranged as $arr' = [1, 3, 3, 5, 7]$, the differences are minimized. The final answer is $|1 - 3| + |3 - 3| + |3 - 5| + |5 - 7| = 6$. Sample Case 1 Sample Input For Custom Testing STDIN Function ----- 2 \rightarrow $arr[]$ size $n = 2$ 3 \rightarrow $arr[] = [3, 2]$ 2 Sample Output 1 Explanation $n = 2$ $arr = [3, 2]$ There is no need to rearrange because there are only two elements. The final answer is $|3 - 2| = 1$.

Answer: (penalty regime: 0 %)

Reset answer

	Test	Expected	Got	
	int arr[] = {5, 1, 3, 7, 3}; printf("%d", minDiff(5, arr))	6	6	

Passed all tests!

Save the state of the flags

Finish review