REC-CIS

GE23131-Programming Using C-2024

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Status	Finished
Started	Monday, 13 January 2025, 12:45 PM
Completed	Monday, 13 January 2025, 12:57 PM
Duration	12 mins 5 secs

Question 1

Correct

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Given an array of numbers, find the index of the smallest array element (the pivot), for which the sum 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

· $3 \le n \le 10^5$

· $1 \le arr[i] \le 2 \times 10^4$, where $0 \le i < n$

·   It is guaranteed that a solution always exists.

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 arr.
Each of the next n lines contains an integer, arr[i], where $0 \le i < n$.

Sample Case 0
Sample Input 0

```
STDIN     Function Parameters
-----     ------------------
4      →  arr[] size n = 4
1      →  arr = [1, 2, 3, 3]
2
```

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

Explanation 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	
`int arr[] = {1,2,3,3};` `printf("%d", balancedSum(4, arr))`	2	2	

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.

arraySum has the following parameter(s):
int numbers[n]: an array of integers

Returns
int: integer sum of the numbers array

Constraints

$1 \le n \le 10^4$
$1 \le numbers[i] \le 10^4$

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 $0 \le i < n$.

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

```
STDIN     Function
-----     --------
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

☐⚑ Flag question

Given an array of n integers, rearrange them so that the sum of the absolute differences of all adjace
is minimized. Then, compute the sum of those absolute differences. Example n = 5 arr = [1, 3, 3, 2, 4]
rearranged as arr' = [1, 2, 3, 3, 4], the absolute differences are |1 - 2| = 1, |2 - 3| = 1, |3 - 3| = 0, |3 - 4|
sum of those differences is 1 + 1 + 0 + 1 = 3. Function Description Complete the function minDiff in
below. minDiff has the following parameter: arr: an integer array Returns: int: the sum of the absolute
differences of adjacent elements Constraints 2 ≤ n ≤105 0 ≤ arr[i] ≤ 109, where 0 ≤ i < n Input Form
Custom Testing The first line of input contains an integer, n, the size of arr. Each of the following n lir
an integer that describes arr[i] (where 0 ≤ i < n) . Sample Case 0 Sample Input For Custom Testing ST
Function ----- -------- 5 → arr[] size n = 5 5 → arr[] = [5, 1, 3, 7, 3] 1 3 7 3 Sample Output 6 Explanatio
= [5, 1, 3, 7, 3] If arr is rearranged as arr' = [1, 3, 3, 5, 7], the differences are minimized. The final answ
+ |3 - 3| + |3 - 5| + |5 - 7| = 6. Sample Case 1 Sample Input For Custom Testing STDIN Function -----
arr[] size n = 2 3 → arr[] = [3, 2] 2 Sample Output 1 Explanation n = 2 arr = [3, 2] There is no need to
because there are only two elements. The final answer is |3 - 2| = 1.

Answer: (penalty regime: 0 %)

	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