

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 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 $0 \leq i < n$

- ## 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, $\text{arr}[2]=3$ 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.

```
1  /*
2   * Complete the 'balancedSum' function below.
3   *
4   * The function is expected to return a boolean.
5   * The function accepts the following parameters:
6   * 1. arr: an array of integers.
7   * 2. arr_count: the number of elements in arr.
8   *
9   */
10 int balancedSum(int arr[], int arr_count)
11 {
12     int t=0;
13     for(int i=0; i<arr_count; i++)
14         t+=arr[i];
15     int l=0;
16     for(int i=0; i<arr_count; i++)
17     {
18         int r=t-l-arr[i];
19         if(l==r){
20             return 1;
21         }
22         l+=arr[i];
23     }
```

Question **2**

Correct

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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

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

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

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
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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

STDIN Function

2 → numbers[] size n = 2

12 → numbers = [12, 12]

12

Sample Output 1

24

Explanation 1

$$12 + 12 = 24.$$

Reset answer

```
1  /*
2   * Complete the 'arraySum' function.
3   *
4   * The function is expected to return an integer.
5   * The function accepts the following parameters:
6   */
7
8  int arraySum(int numbers[], int n) {
9
10     int sum=0;
11     for(int i=0;i<n;i++)
12         sum=sum+numbers[i];
13     return sum;
14 }
15
```

Question 3

Correct

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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 `minDiff` in the editor below. `minDiff` has the following parameter: `arr`: an integer array Returns: `int`: the sum of the absolute differences of adjacent elements Constraints $2 \leq n \leq 105$ $0 \leq arr[i] \leq 109$, where $0 \leq i < n$ Input Format For Custom Testing

Reset answer

```
1  ▼  /*
2      * Complete the 'minDiff' function.
3      *
4      * The function is expected to return an integer.
5      * The function accepts the following parameters:
6      */
7  #include<stdlib.h>
8  ▼  int compare(const void *a, const void *b) {
9      return (*(int *)a) - (*(int *)b);
10 int minDiff(int arr[], int n) {
11 ▼  {
12     qsort(arr, n, sizeof(int), compare);
13     int t=0;
14 ▼     for(int i=1; i<n; i++) {
15         t+=abs(arr[i]-arr[i-1]);
16     }
17     return t;
18 }
19
20
```