WEEK 13

1. 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.

PROGRAM:

```c
/*
 * Complete the 'balancedSum' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts INTEGER_ARRAY arr as parameter.
 */

int balancedSum(int arr_count, int* arr)
{
    int l=0, r=0;
    for(int i=0; i<arr_count; i++){
        r += arr[i];
    }
    for(int i=0; i<arr_count; i++){
        if(l == r-arr[i]){
            return i;
        }
        l += arr[i];
        r -= arr[i];
    }
    return 1;
}
```

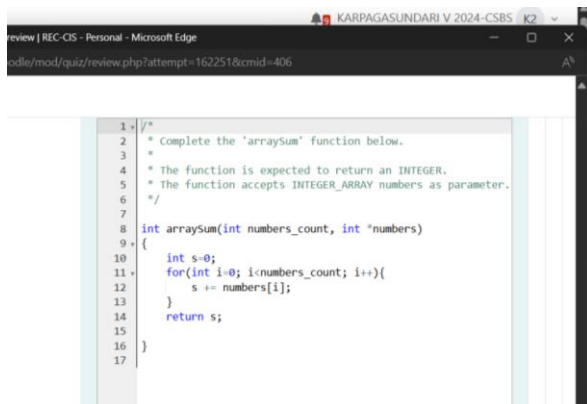OUTPUT:

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

Passed all tests! ✓

2. Calculate the sum of an array of integers.

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 $0 \leq i < n$.

Program:

```c
/*
 * Complete the 'arraySum' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts INTEGER_ARRAY numbers as parameter.
 */

int arraySum(int numbers_count, int *numbers)
{
    int s=0;
    for(int i=0; i<numbers_count; i++){
        s += numbers[i];
    }
    return s;
}
```

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

Passed all tests! ✓

3. 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.

Input Format For Custom Testing The first line of input contains an integer, n, the size of arr. Each of the following n lines contains an integer that describes arr[i] (where 0 ≤ i < n)

Program:

```c
/*
 * Complete the 'minDiff' function below.
 *
 * The function is expected to return an INTEGER.
 * The function accepts INTEGER_ARRAY arr as parameter.
 */

int minDiff(int arr_count, int* arr)
{
    for(int i=0; i<arr_count; i++){
        for(int j=i; j<arr_count; j++){
            if(i != j){
                if(arr[i]>arr[j]){
                    int temp = arr[j];
                    arr[j] = arr[i];
                    arr[i] = temp;
                }
            }
        }
    }
    int m =0;
    for(int i=0; i<arr_count-1; i++){
        m += arr[i+1] - arr[i];
    }
    return m;
}
```

OUTPUT:

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

Passed all tests! ✓