**Task#1:** (find the equilibrium index): Write a program that declares an integer array of constant size 9 and initialize the indices with integer value 0. Now prompt the user to enter data. Your task is to determine equilibrium index. An equilibrium index is the one whose sum of values on the left side is equal to the sum of values on right side. Your program must print the index number of equilibrium index and incase if there is no equilibrium index then print -1. Sample output is attached for better understanding of the problem. Provide generic code.

**Sequence of code:**

1: Create an integer array inside main function. 2: call the function getInput (pass array and size in the parameters), 3: call the function **findeqIndex** (pass array and size in the parameters) and return the eq index.

**Sample Output#1:**

Arr[7] = {13, 17, 7, 5, -1, 6, 20}

Equilibrium index: 2

Reason:

=>sum of values on the left side of index#2: 13+17 = 30

=>sum of values on the right side of index#2: 5 – 1 + 6 + 20 = 30

since equilibrium index is the one whose sum of values on left side is equals to the sum of values on right side so index#2 is the equilibrium index.

**Sample Output#2:**

Arr[7] = {-4, -3, 15, 6, 11, 12, 25}

Equilibrium index: 5

Reason:

sum of values on the left side of index#5: -4 - 3 + 15 + 6 + 11 = 25

sum of values on the right side of index#5: 25 (since there is only single value so sum is 25)

since equilibrium index is the one whose sum of values on left side is equals to the sum of values on right side so index#5 is the equilibrium index.

**Sample Output#3:**

Arr[7] = {4, 3, 15, 6, 11, 12, 25}

Equilibrium index: -1

Reason:

There is no such index whose sum of values on left side is equals to the sum of values on right side.

**Task#2:**

You have an integer array of const size having positive values and an integer as “targetVal”. Your task is to remove the longest sequence of elements matching the “targetVal”. You can remove these elements by overwriting the data with -1.

Sample Output: size is a const integer having value 18

Arr[size] = {4, 7, 7, 7, 3, 3, 3, 3, 3, 7, 7, 7, 7, 2, 2, 4, 4, 4}

Enter a value whose longest sequence you want to delete: 7

After deletion: {4, 7, 7, 7, 3, 3, 3, 3, 3, -1, -1, -1, -1, 2, 2, 4, 4, 4}

Reason: Since the longest matching sequence starts from index #9 and ends at index #12 so indices from 9 to 12 are overwritten with value -1.

**Sequence of code:** create an array and get input inside main function, call the function getTrgVal (pass an integer by reference and get the input inside getTrgVal function). Now call the function removeLongSeq(pass array, size and trgVal in the parameters). Display the contents of array in the main function.