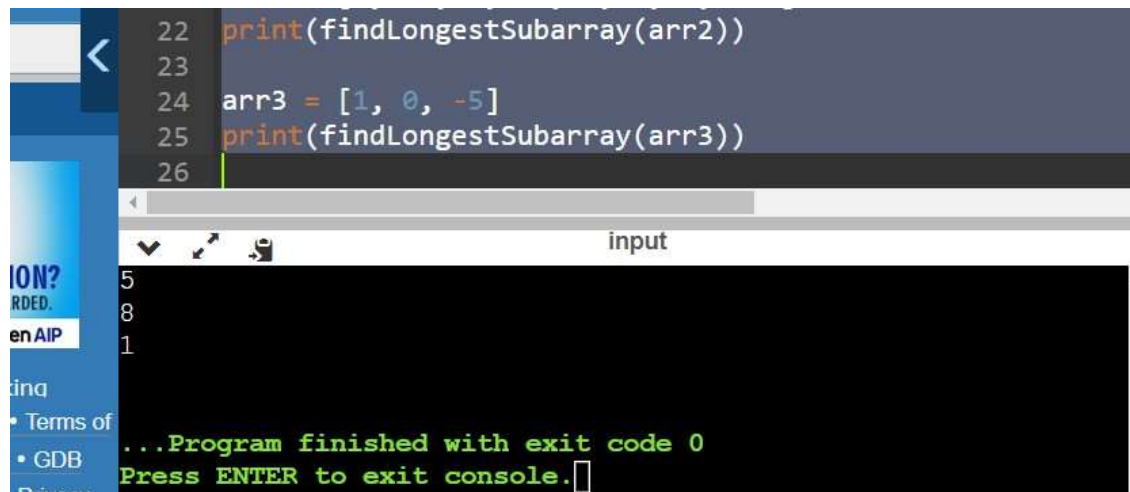**Problem 4:** Given an array containing both positive and negative integers, we have to find the length of the longest subarray with the sum of all elements equal to zero.

```python
def findLongestSubarray(arr):

    maxLen = 0

    curSum = 0

    sumDict = {}


    for i in range(len(arr)):

        curSum += arr[i]


        if curSum == 0:

            maxLen = i + 1


        if curSum in sumDict:

            maxLen = max(maxLen, i - sumDict[curSum])

        else:

            sumDict[curSum] = i


    return maxLen

arr1 = [9, -3, 3, -1, 6, -5]

print(findLongestSubarray(arr1))


arr2 = [6, -2, 2, -8, 1, 7, 4, -10]
```

print(findLongestSubarray(arr2))

arr3 = [1, 0, −5]

print(findLongestSubarray(arr3))

```
22  print(findLongestSubarray(arr2))
23
24  arr3 = [1, 0, -5]
25  print(findLongestSubarray(arr3))
26
```

input

```
5
8
1

...Program finished with exit code 0
Press ENTER to exit console.
```