KLS, Gogte Institute of Technology, Belagavi
Department of Information Science & Engineering

Semester: III **Academic Year: 2022-23**

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Open Assignment 1

Instruction:

1. Every program must be properly indented
2. Comments to be written wherever necessary
3. Sample input and output to be written

Problem allocation:

- Problem statement 1: solution to be submitted by USN001 to USN016
- Problem statement 2: solution to be submitted by USN017 to USN032
- Problem statement 3: solution to be submitted by USN033 to USN048
- Problem statement 4: solution to be submitted by USN049 onwards including COB

Problem Statement 1: Given an unsorted array **A** of size **N** that contains only non-negative integers, find a continuous sub-array which adds to a given number **S** and return the left and right index of that subarray.

In case of multiple subarrays, return the subarray indexes which comes first on moving from left to right.

Note : Assume first element is stored at index 1 and not at 0

```
Input:
N = 5, S = 12

A[] = {1,2,3,7,5}
Output: 2 4

Explanation: The sum of elements
from 2nd position to 4th position
is 12.
```

Problem Statement 2: Given an array **arr[]** and an integer **K** where K is smaller than size of array, the task is to find the **K^{th} smallest** element in the given array. It is given that all array elements are distinct.

Example :

```
Input:
N = 6
arr[] = 7 10 4 3 20 15
K = 3
Output: 7
Explanation:
3rd smallest element in the given
array is 7.
```

Problem Statement 3: Given an array a[] of size N which contains elements from 0 to N-1, you need to find all the elements occurring more than once in the given array.

Example :

```
Input:
N = 4
a[] = {0,3,1,2}
Output: -1
Explanation: N=4 and all elements from 0
to (N-1 = 3) are present in the given
array. Therefore output is -1.
```

Example 2:

```
Input:
N = 5
a[] = {2,3,1,2,3}
Output: 2 3
Explanation: 2 and 3 occur more than once
in the given array.
```

Problem Statement 4: Given string, you need to find frequency of every character present in the string and display character along with its count in a tabulated form.

Example 2:

```
Input:
Str= Belagavi
Output:
a : 2
b : 1
e : 1
g : 1
i : 1
l : 1
v : 1
Explanation: characters present in the input string are
to be displayed in the output.
```