

## Assignment 12

Q1. Given an array of size  $n$ , find all elements in array that appear more than  $n/k$  times.

For example: if the input arrays is {3, 1, 2, 2, 1, 2, 3, 3} and  $k$  is 4,  
then the output should be [2, 3]. Note that size of array is 8 (or  $n = 8$ ),  
so we need to find all elements that appear more than 2 (or  $8/4$ ) times.  
There are two elements that appear more than two times, 2 and 3.

Q2. Given an array of size  $n$  and a range  $[a, b]$ .

The task is to partition the array around the range such that array is divided into three parts.

- 1) All elements smaller than  $a$  come first.
- 2) All elements in range  $a$  to  $b$  come next.
- 3) All elements greater than  $b$  appear in the end.

The individual elements of three sets can appear in any order.

You are required to return the modified array.

Example 1:

Input:

$n = 5$

$A[] = \{1, 2, 3, 3, 4\}$

$[a, b] = [1, 2]$

Output: 1

Explanation: One possible arrangement is:

{1, 2, 3, 3, 4}. If you return a valid arrangement, output will be 1.

Example 2:

Input:

$n = 3$

$A[] = \{1, 2, 3\}$

$[a, b] = [1, 3]$

Output: 1

Explanation: One possible arrangement is: {1, 2, 3}. If you return a valid arrangement, output will be 1.

Q3. Given an array of integers ( $A[]$ ) and a number  $x$ , find the smallest subarray with sum greater than the given value.

**Note:** The answer always exists.

It is guaranteed that  $x$  doesn't exceed the summation of  $a[i]$  (from 1 to  $N$ ).

Example 1:

Input:

$A[] = \{1, 4, 45, 6, 0, 19\}$

$x = 51$

Output: 3

Explanation:

Minimum length subarray is

{4, 45, 6}

Example 2:

Input:

A[] = {1, 10, 5, 2, 7}

x = 9

Output: 1

Explanation:

Minimum length subarray is {10}

#### Q4. Estimating the cost

Problem Statement – We want to estimate the cost of painting a property. Interior wall painting cost is Rs.18 per sq.ft and exterior wall painting cost is Rs.12 per sq.ft.

Take input as

1. Number of Interior walls
2. Number of Exterior walls
3. Surface Area of each Interior
4. Wall in units of square feet

Surface Area of each exterior wall in units of square feet.

Note – If a user enters zero as the number of walls then skip surface area values as user may don't want to paint that wall.

Calculate and display the total cost of painting the property

Example 1:

6

3

12.3

15.2

12.3

15.2

12.3

15.2

10.10

10.10

10.00

Total estimated Cost : 1847.4 INR