

PSG COLLEGE OF TECHNOLOGY, COIMBATORE -641004

DEPARTMENT OF COMPUTER APPLICATIONS

I SEMESTER MCA

23MX17 DATA STRUCTURES PROGRAMMING LABORATORY

- 1) Given an array of integer elements , write a program to remove prime numbers.

Input:

Array elements are:

100, 200, 31, 13, 97, 10, 20, 11

Output:

Array elements after removing prime numbers:

100

200

10

20

- 2) Write a Program to split an array and add the first half after the second half of the array

Input Format

The first line of the input consists of the value of n.

The second line are the inputs of the array.

The third line the input mentioning the position to split

Output Format

The output prints the array after moving all the zeros to the end.

Sample Input

10

0, 1, 2, 3, 4, 5, 6, 7, 8, 9

3

Sample Output

3 4 5 6 7 8 9 0 1 2

- 3) An element is called a peak element if its value is not smaller than the value of its adjacent elements(if they exists). Given an array arr[] of size N, write a program to find the index of any one of its peak elements. Expected Time Complexity: $O(\log N)$
- 4) 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.
Expected Time Complexity: $O(n)$
- 5) Given an array of size N containing only 0s, 1s, and 2s; write a program to sort the array in ascending order. Expected Time Complexity: $O(N)$

- 6) Given an unsorted array `arr[]` of size `N` having both negative and positive integers.
The task is place all negative element at the end of array without changing the order of positive element and negative element.

Expected Time Complexity: $O(N)$

- 7) Write a program to accept your name and count the number of vowels in it.

Sample Input: Alice

Sample Output: 3

- 1) Write a program to accept a string and perform the following operations without using any string functions:

- Print the length of the string
- Print the reverse of the string
- Copy the string to another new string

Sample Input

Apple

Sample Output

5

elppA

Apple

- 8) Write a program that converts all lowercase characters in a given string to its equivalent uppercase character.

Sample Input: abcabcd

Sample Output: ABCABCD

- 9) Write a program that replaces two or more consecutive blanks in a string by a single blank.

Sample Input

You are interested in programming

Sample Output

You are interested in programming

- 10) Challenging question: Hackerrank

Write a program to accept a string and a width. Wrap the string into a paragraph of width `w`.

Sample Input

ABCDEFGHIJKLMNOPQRSTUVWXYZ

4

Sample Output

ABCD

EFGH

IJKL

IMNO

QRST

UVWX

YZ