CS100 Computational Problem Solving
Fall 2019-20

Section 1

Tuesday, 26 November 2019

Lab 13: Exercise

Lab Guidelines

1. Make sure you get your work graded before the lab time ends.
2. You put all your work into th folder **Lab13_YourRollNo_TAname** and submit it on LMS (Assignment>Lab13) before the time the lab ends.
3. Talking to each other is NOT permitted. If you have a question, ask the lab assistants.
4. The object is not simply to get the job done, but to get it done in the way that is asked for in the lab.
5. Phone is NOT allowed. Put it in bag or at instructor desk.
6. Any cheating case will be reported to Disciplinary Committee without any delay.

Coding Conventions:

1. Constants are ALL_CAPS.
2. Variables are all_small.
3. All curly brackets defining a block must be vertically aligned.

Learning Objective:

1. PO-02 Develop proficiency in the practice of computing.
2. CO-02 To help students analyze and solve programming problems
3. LO-02 Critical Thinking and Analysis
4. LO-03 Problem Solving
5. LO-05 Responsibility

Marks: Name: _____ Roll #: _____

Task1									Total
									15

Task2									Total
									20

Task 3									Total
									25

Task 4									Total
									40

Total Marks Obtained

/100

TA: _____

Let's Begin

Task 1: **[15 marks]**

Write a program which performs the following on an *int* type array of size 15:

1. Computes and prints sum of the numbers
2. Calculates average of all numbers
3. Finds smallest and largest element of the array

The array elements should be provided by the user.

Task 2: **[20 marks]**

Write a program to find the most occurring element in an array of integers. Array size and elements will be provided as an input by the user. However, the size must be below 20.

Task 3: **[25 marks]**

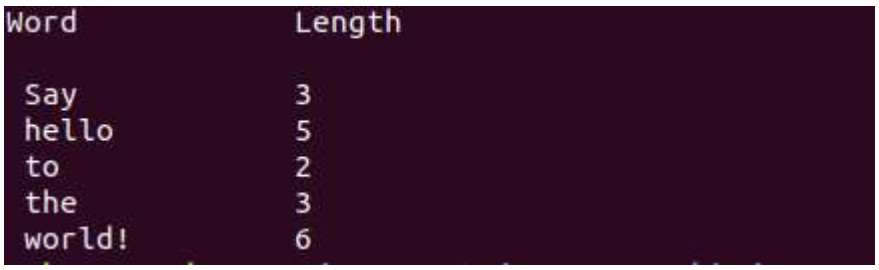
Write a C++ program to rearrange the elements of a 9-digit array of integers in zig-zag fashion i.e. a < b > c < d > e < f.

Example:

Original array: 0 1 3 4 5 6 7 8 10
Rearranged array: 0 3 1 5 4 7 6 10 8

Task 4: **[40 marks]**

Write a program which stores 5 words in an array of type string and computes the length of each element of this array. Your program should store these lengths in another array of the same size (i.e 5). The elements of the 2ndarray should store the lengths of corresponding elements of the 1starray. Display both the arrays on the screen. In the following format:



The program then asks the user for a target string to search in the array and another string to replace it with. Display the updated array. If the target string is not in the array display 'Target string not found'.
For example if the target string is "hello" and you need to replace it with "bye", the output will be similar to this: