National University of Computer and Emerging Sciences

Lab Manual

for

Programming Fundamentals

Course Instructor	Mr. Waqas Manzoor
Lab Instructor(s)	Mr Muzammil Mr. Waqas
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Department of Computer Science
FAST-NU, Lahore, Pakistan

Objectives

After performing this lab, students will be able to:

- Write C++ Code for the problems involving 1D-Arrays.

Instructions

- For each problem, your filename should be "q Number".cpp. e.g For Problem 1, create "q1.cpp".
- Zip all files in a folder and your submission zip filename must be your rollno. e.g "21L1234.zip". Note your zip file shall contain all the .cpp files for the problems you solved.
- Submit the zip folder on Google classroom.
- Plagiarism is strictly prohibited.
- Good Luck.

Problems

Write C++ Code of the following Problems using For Loop or While Loop.

Problem# 1

In this task you need to do the following:

1. Declare an integer array of size 5 and print its values.
2. Now take 5 values from the user as input and store them in this array
3. Print Largest and Smallest number of the array.

Problem#2

Write a program that finds the occurrence of an integer in the Array.

A[]= {1,1,2,2,3,4,5,6,6,6,7} **Input:** Number to Find: 6	**Output:** 6 appeared 3 times.

Problem#3

Write a program that checks if sub-array exist in the array or not and displays the index.

-	**Output**
A[] = {2,5,6,8,7,5,3,4,2,1} sub_arr[] = {7,5,3}	Sub Array Exist from index 4 to index 6.

Problem#4

Write a program that moves all negative numbers to one side and positive numbers to the other side of the array.

-	**Output**
A[] = {5, 4, 6, -11, -9, 18, -7}	A[] = {-11, -9, -7, 5, 4, 6, 18}

Problem#5

Let's play a game, Chase-1D.

- In this game, there will be two users standing in a box-line of size 9. And the goal is to catch the other user first.
- 1 is denoting user1 location and 2 is denoting user2 location.
- For moving to the left, user will enter 4 and for moving to the right, user will enter 6 and for standing still, user will enter 0.
- Both users cannot move outside the boundary (beyond start and end of the array)
- The user that will catch the other user first will win.

-	**Output**
Board: **A[] = {0,0,0,0,2,0,0,1,0}** **Input:** User 1 turn(Enter Move): 4 User 2 turn(Enter Move): 6 User 1 turn(Enter Move): 4	User1 moved from location 8 to location 7. User2 moved from location 5 to location 6. User1 moved from location 7 to location 6. User1 caught User2 at location 6. User1 won!!!