National University
Of Computer & Emerging Sciences Faisalabad-Chiniot Campus

CL-1002
Programming Fundamentals
Lab # 12

Objectives:

- Practice and understanding on basic c++ programs
- Arrays
- Character Arrays
- Arrays manipulation using arrays
- Nested Loops
- Random function

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. First think about statement problems and then write your program.
2. Write Program in C compiler/IDE and save source file **for each program.**
3. Do not copy from any source otherwise you will be penalized with negative marks.
4. Complete your lab **within given Time Slot**.
5. Add your source code in this word document + Make one ZIP file of your all source codes.
6. Please submit your **Both files** with this naming convention ROLLNO_SECTION_LABNO.
7. Submit your lab on Google Classroom.

Problem: 1 (Character Arrays and reverse order)	(Marks = 5)

Write a computer program that checks if a given array is a palindrome array or not. Remember that you are not allowed to make a second array in the process.

Sample Input in array-1:   ['a', 'b', 'c', 'd', 'e', 'e', 'd', 'c', 'b', 'a']

Sample Output: Palindrome

Problem: 2 (Integer Arrays and Loops)	(Marks = 5)

Write a C++ program that creates an array of 10 integers, then user is asked to enter prime numbers. If user entered number is a prime number then number is inserted into array; otherwise, user is asked to enter prime numbers. Once the array is full, program terminates with a message "Array is full".

Problem: 3 (Character Arrays)   (Marks = 5)

Write a C++ program that create an array of length 30 characters, then you need to get input from user to get a series of characters in array.

Program should tell how many unique values are present in the array.

Also, the program should tell the occurrence of each unique value in the character array.

Problem: 4 (Loops)   (Marks = 5)

Write a computer program that creates an integer array of size 10. Asks the user to populate the array with numbers as taken input by the user(user may enter less than 10 numbers). Form an integer variable which has the list content numbers as elaborated by following:

Sample values in Array: [2, 3, 7, 5, 0, 0, 9, , ,]
Sample Integer: 2375009

Problem: 5 (Loops)   (Marks = 5)

Write a program to takes an array of 20 integers as input from the user and then shows minimum and maximum elements of the array.

Problem: 6 (Loops and Arrays)   (Marks = 5)

Write a C++ program that creates an array of 15 integers, then you need to show the game winner which is the unique highest value in the array.

Sample Input: [1, 2, 3, 2, 3, 2, 3, 5, 6, 7, 5, 4, 7, 4, 6, 7]
Sample Output: 1

Problem: 7 (Arrays and Comparison)   (Marks = 10)

Write a C++ program that creates two arrays of 10 integers, takes input from user, then program should create a 3rd array of size 10 integers. 3rd array should have top 10 biggest integers from both arrays.

Sample Input: [1, 2, 3, 4, 5, 6, 6, 7, 8, 9], [4, 5, 6, 7, 8, 9, 10, 11, 12, 13]
Sample Output: [13, 12, 11, 10, 9, 9, 8, 8, 7, 7]

Problem: 8 (Arrays and Comparison)	(Marks = 10)

Write a C++ program that creates two arrays of 20 integers, takes input from user, then program should create 2 arrays(named 'even' and 'odd') each of size 20 integers. 'even' array should have all even integers from 1st array and 'odd' array should have all odd integers from 1st array.

Sample Input: [1, 2, 3, 4, 5, 6, 6, 7, 8, 9, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]

Sample Output: even = [2, 4, 6, 6, 8, 8, 4, 6, 8, 10, 12]

odd =   [1, 3, 5, 7, 9, 5, 7, 9, 11, 13]