National University of Computer and Emerging Sciences

Lab Manual 01
Object Oriented Programming

Course Instructor	Ms. Syeda Tayyaba Bukhari
Lab Instructor (s)	Ms. Fariha Maqbool Mr. Muhammad Usama Alam
Section	BCS-2H
Semester	Spring 2023

Department of Computer Science
FAST-NU, Lahore, Pakistan

1.1 Objectives

After performing this lab, students shall be able to:

- ✓ Have an understanding of pointers.
- ✓ Access and modify pointers in functions.
- ✓ Handle constant pointers and pointers to constants.

Note: For all the integer or float variables in all the programs, take input value from user.

TASK 1:

Write C++ program:

1- Declare two variables x and y of type **integer**
2- Initialize **x** with 3 and **y** with 4
3- Declare 2 pointer variables p and q of type **int**
4- Assign address of x to **p**, and address of y to **q**
5- Print the values of following:
   i. x, p, *p, &p, &x
   ii. y, q, *q, &q, &y

TASK 2:

Write a C++ program that takes two numbers from user. Then pass these numbers by reference to a function named SUM that returns the sum of these numbers.

TASK 3:

Write C++ program which takes three numbers as input from the user and find their average using pointers.

TASK 4:

Write a C++ program as following:

1. Declare a variable '**a'** and store value 20
2. Declare a pointer variable named '**b**' to store the address of 'a'
3. Print the value of a using **'b'**
4. Declare a new pointer variable named '**c**' and store the address of '**b**' in it. Print the value of variable '**a**' using this new pointer '**c**'.

TASK 5:

A C++ program "**Incrementer**" creates an array of **size 10**. This function adds 3 to each element of the array. You have to add to the elements using pointer only. Array subscript notation cannot be used.

TASK 6:

Create a float array **InArr** of size 10 and another float array **ResArr** of size 9. Point a constant pointer **myptr** (**float * const myptr**) to InArr. Now perform the operation ResArr[i] = InArr[i] + InArr[i+1]. Once this operation is completed, point myptr to ResArr.

In case you are unable to follow given instructions, figure out the issue and its solution. You should be able to explain the phenomenon that caused the problem.