



University of Engineering & Technology, Peshawar
Dept. of Computer Systems Engineering

Object-Oriented Programming Lab – Fall 2022

Lab Report No. 1

NOTE: Submit the hand-written lab report ONLY. Follow the LAB REPORT FORMAT for all the Coding activities (i.e. Activity 02, Activity 03, and Activity 04). Zero marks will be awarded to the printed & group-based submissions.

C++ Activity 01 (Conceptual/Non-Coding)

Briefly explain in your own words each of the following in few lines:

1. C++ class, data members, member functions, and an object
2. Constructor (No-argument, argument, overloaded)
3. Get and set functions
4. Role of a display function in a class
5. Destructor
6. Const and static keywords in C++ OOP
7. Array of objects
8. Pointer way of creating an object
9. Object inside an object

Marks will be deduction for long explanation, so stay to the point.

C++ Activity 02 (Coding)

Create a class called **Point** that has two data members: **x**- and **y**-coordinates of the point. Provide a **no-argument** and a **2-argument** constructor. Provide a separate **get** and **set** functions for each of the data members i.e. **getX**, **getY**, **setX**, **setY**. The getter functions should return the corresponding values to the calling function. Provide a **display** method to display the point in (**x**, **y**) format. Make appropriate functions **const**. Demonstrate and test class **Point** and its objects in the main function using test cases given in **Section 1.5** of Lab Material 01.

C++ Activity 03 (Coding)

Create a class called **BankAccount** that models a checking account at a bank. The program creates an account with an opening balance, displays the balance, makes a deposit and a withdrawal, and then displays the new balance. Note in withdrawal function, if balance is below Rs. 500 then display message showing insufficient balance otherwise allow withdrawal. Demonstrate and test class **BankAccount** and its objects in the main function using test cases given in **Section 1.5** of Lab Material 01.

C++ Activity 04 (Coding)

Reuse **Complex** class written in lab 2 to modify the **addComplex()** and **subComplex()** class functions. Instead of passing two objects in each, now pass only one object. Change the return type of each

function to **Complex**. Adjust the function code to match the changes. Demonstrate and test the modified class and its objects in the main function using test cases given in **Section 2.5** of Lab Material 02.

C++ Activity 05 (Concept Building)

Write C++ OOP programs covered in lab 3 for the following:

1. **Demonstrate the use of static and const keywords in OOP**
2. **Demonstrate the use of an array of objects**
3. **Demonstrate the pointer way of creating an object and its proper handling**
4. **Demonstrate the concept of object-within-object**

Write appropriate class(es) and demonstrate the objects in the main function. At the end of each code, write a paragraph to summarize or briefly explain in your own words the working of each code.

All the best.