COURSE: (CL-1004) OBJECT ORIENTED PROGRAMMING LAB

LAB TASK # 07
Classes and Objects

NOTE:
Only submit .cpp file of each question in a folder. Anyone who submits any other format file will get straight **ZERO.** Each question should have a separate .cpp file. Copy Paste or other UFM will also get **ZERO**. Use the following format for naming the folder Roll#_Name (P18-1234_NAME).

For user understanding purposes you should write comment with each line of code.

Q No.01: Laptop Class

Write a program that creates a class called Laptop. The data members of the class are

Brand (string)

Model (string)

Serial (int)

Color (string)

Price (float)

ProcessorSpeed (float)

Ram (int)

ScreenSize (float)

Create member functions that will set the individual values. Since the RAM can be upgraded. Therefore, create a function that allows you to upgrade the RAM. In the end create a function that will display all the data members. Include a program to test this class.

Q No.02: Bank Account Class

Define the class bankAccount to implement the basic properties of a bank account. An object of this class should store the following data:

Account holder's name (string), account number (int), account type (string, checking/saving), balance (double), and interest rate (double).

Add appropriate member functions to manipulate an object. Also declare an array of 10 components of type bankAccount to process up to 10 customers and write a program to illustrate how to use your class.

Q No.03: Toll Booth Class

Imagine a tollbooth at a bridge. Cars passing by the booth are expected to pay a 50pkr toll. Mostly they do, but sometimes a car goes by without paying. The tollbooth keeps track of the number of cars that have gone by, and of the total amount of money collected.

Model this tollbooth with a class called tollBooth. The two data items are a type unsigned int to hold the total number of cars, and a type double to hold the total amount of money collected. A member function called setDataMembers(), initialise the two data members to 0. A member function called payingCar() increments the car total and adds 50pkr to the cash total. Another function, called nopayCar(), increments the car total but adds nothing to the cash total. Finally, a member function called display() displays the total number of cars, number of cars paid toll, number of cars that didn't pay toll and total toll collected.

Include a program to test this class. This program should allow the user to push one key to count a paying car, second to count a non-paying car and another key should cause the program to call display() function and then exit.

Q No.04: Complex Number

Perform addition and subtraction operations on complex numbers using class and object. The program should ask for real and imaginary part of two complex numbers, and display the real and imaginary parts of their sum and subtraction.

Hint: Complex Numbers