Lab – Inheritance

1. Write a base class Computer that contains data members of wordsize , memorysize , storagesize and speed. Derive a Laptop class that is a kind of computer but also specifies the object’s length, width, height, and weight. Member functions for both classes should include a default constructor, a constructor to initialize all components and a function to display data members.

Note:Use overriding for defining display function.

1. Write a class CommisionEmployee class that has attributes of firstname,lastName,SSN, grossSales, CommisionRate. It has a constructor to initialize,set and get functions,display and a function to calculate earnings.

Create another class BasePlusCommisionEmployee that inherits above class. It has additional attributes of Salary. It also has set and get functions display and earnings function.

1. Imagine a publishing company that markets both book and audio-cassette versions of its works. Create a class publication that stores the title and price of a publication. From this class derive two classes:
   1. book,
      1. data: page count
   2. tape,
      1. data: playing time in minutes.

Each of these three classes should have get and set functions. And display function to display its data.

Write a main() program to test the book and tape class by creating instances of them.

1. Write a program that declares two classes. The parent class is called Simple that has two data members num1 and num2 to store two numbers. It also has four member functions.

The add() function adds two numbers and displays the result.

The sub() function subtracts two numbers and displays the result.

The mul() function multiplies two numbers and displays the result.

The div() function divides two numbers and displays the result.

The child class is called VerifiedSimple that overrides all four functions. Each function in the child class checks the value of data members. It calls the corresponding member function in the parent class if the values are greater than 0. Otherwise it displays error message.

1. Consider a class **Person** that contains Name (String), Age (int), as data members. This class contains argument constructor which initializes all data members.

Now Create a class **Vehicle** that has the manufacturer’s name (String), number of cylinders in the engine (int ), and owner (Person). Include argument Constructor to initialize all data members.

Then, create a class called **Truck** tha t is derived from **Vehicle** and has the following properties: the load capacity in tons (double ) and towing capacity in pounds (int). Include argument constructor to initialize all data members.

This class should have a display method that displays the “load capacity of truck”, “towing Capacity” , “manufactor’s name of truck”, number of cylinders in the engine”, “name of the owner of truck” and  “Age of the owner of the truck”.

1. (The Person, Student, Employee, Faculty, and Staff classes)

Design a class named Person and its two subclasses named Student and Employee. Make Faculty and Staff subclasses of Employee.

A person has a name, address (Address), phone number, and email address.

A student has a status(String)

An employee has an office, salary, and date hired. Use the Date class defined earlier to create an object for date hired.

A faculty member has office hours and a rank.

A staff member has a title.

**Create display function only in faculty and Staff class only.**

Keep Data members **private**.