Practice Assignment: C++/JAVA Programming
Topic: Object oriented concepts and programming

Q1. You are required to create a class —Invoice. This class might be used by a departmental store to represent an invoice for an item sold at the store. An Invoice should include four data members— item number (type string), item description or name (type string), quantity of the item being purchased (type int) and price per item (type int). Your class should have a constructor that initializes the four data members. Provide a set and a get function for each data member. In addition, provide a member function named getInvoiceAmount that calculates the invoice amount (*i.e.*, multiplies the quantity by the price per item), then returns the amount as an int value. The class should be able to give the count of all the objects which are created through copy operation. Write a function that accepts two invoices for different departmental stores and return the maximum quantity out of two invoices. Write a test program that demonstrates class Invoice's capabilities.

Q2. Create a class —Employee that includes three pieces of information as data members—a first name (type string), a last name (type string) and a monthly salary (type int). Your class should have a constructor that initializes the three data members. Provide a set and a get function for each data member. Create two Employee objects and display each object's yearly salary. Then give each Employee a 10 percent raise and display each Employee's yearly salary again. The class should be able to give the count of all the default objects. Write a function which takes two employees and return the name of the employee with higher salary. Write a test program that demonstrates class Employee capabilities.

Q3. Create a class —DepartmentalStore having following data members: D_Store_Name, D_Store_Address, List of Employees (consider maximum 10 employees where employees are the objects of the class type —Employee‖ whose details and functionalities are given in **Q1**), and List of invoices (consider maximum 30 invoices where invoices are the objects of the class type —Invoice‖ whose details and functionalities are given in **Q2**). Each employee is responsible to sale different items available in the store to different customers (an employee may sale items to different customers hence responsible for the generation of multiple/different invoices) and for each customer a unique invoice (contains the details and quantity of the purchased items) is supposed to be generated. Add the necessary member functions in the class DepartmentalStore and extend/update/modify (if required) the member functions/data members of the classes Invoice and Employee such that following queries can be answered, if invoked through an object of the class DepartmentalStore:

(a) Name/description of an item is inputted by the user. Output the name of the employee who sold maximum number/count of the inputted item.

(b) Based on the total amount of the sold items (in different invoices) by an employee, management of the Departmental store decided following policies: Give 10% increment to those employees who sold the items whose combined price is more than Rs. 10000 otherwise no increment is to be given to the employee. List the name of all employees who are eligible to get the increment.

(c) Give the name of the item whose total sold quantity is maximum.