Everest Engineering College
Sanepa-2, Lalitpur

Date of distribution:…….
Date of submission:……..

Subject: Object Oriented Programming in C++

Lab-7

Title: Object Inheritance and reusability

Objective:

- To be familiar with inheritance and composition
- To understand about how inheritance supports reusability
- To understand about ambiguity in inheritance and virtual base class

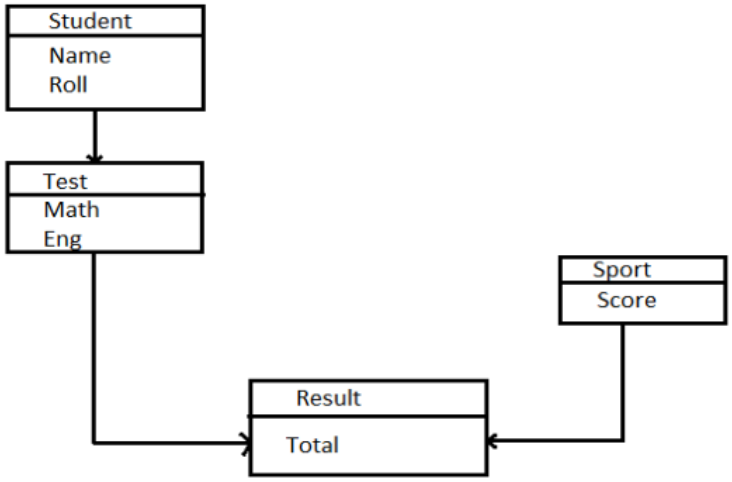
Theory:

- **Introduction to inheritance and its types**
- **Ambiguity in inheritance**
- **Virtual base class**
- **Composition**

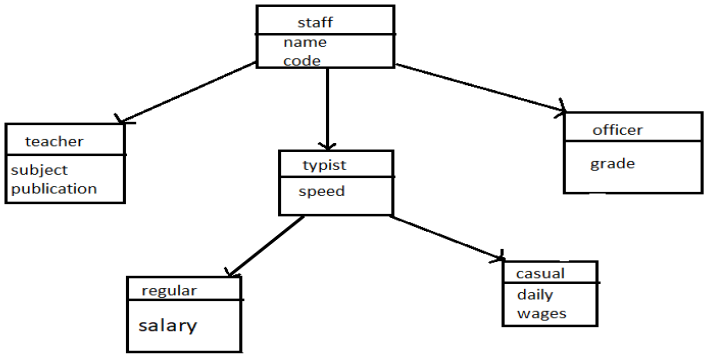
Lab exercises (please code yourself and show the output to instructor)

1. WAP to show that how inheritance supports reusability.
2. WAP to enter information of n students and then display is using the concept multiple inheritance**.**
3. WAP to enter information of n students and then display is using the concept multiple inheritance**.**
4. Develop a complete program for an institution which wishes to maintain a database of its staff. Declare a base class Staff which include staff_id and name.Now develop a records for the following staffs with the given information below.
   Lecturer(subject,department)
   Administrative staff (Post,department)
5. Create a class student with two data members represent name and age. Use appropriate member function to read and print these data members name and roll. Derive a class marks from student that has additional data member sessional1, sessional2 to store sessional marks. Derive another class result from marks and add the sessional marks. Use appropriate member function to read and display data in the class.

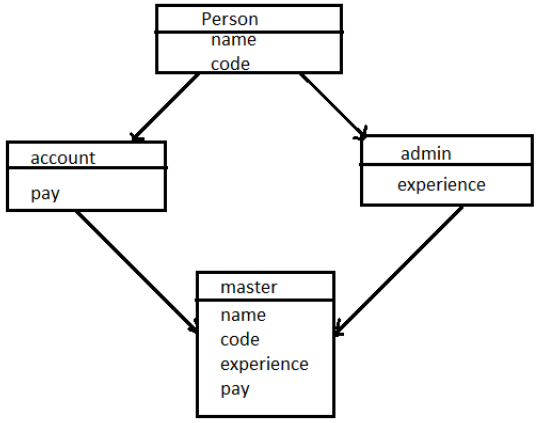
6. Implement the below given in class diagram in C++.Assume necessary function yourself.



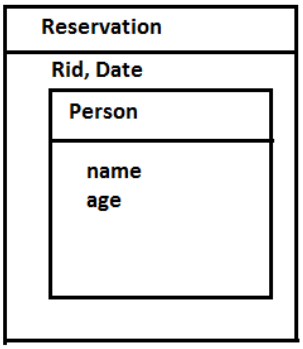
8. An educational institution wishes to maintain a database of its employees. The database is divided into a number of classes whose hierarchical relationship are shown below. The figure also shows minimum information requires for each class. Specify all the classes and define functions to create database and retrieve individual information when required.



9. The following figure shows minimum information required for each class.
Write a Program to realize the above program with necessary member functions to create the database and retrieve individual information



10. Write a program that allow you to book a ticket for person and use two classes Person, Reservation. Class Reservation is composite class/ container class.



11.Write a program to input two vector coordinates from the base class named “Base”. Class “Derived” inherits all the properties of class “Base”. Class “Derived” must contain a function named add_vector() that add the two vectors input from the base class and finally display the result from the function display() that is friend to the base class.