**Everest Engineering College**
**Sanepa-2, Lalitpur**

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**Subject: Object Oriented Programming in C++**

# Lab-7

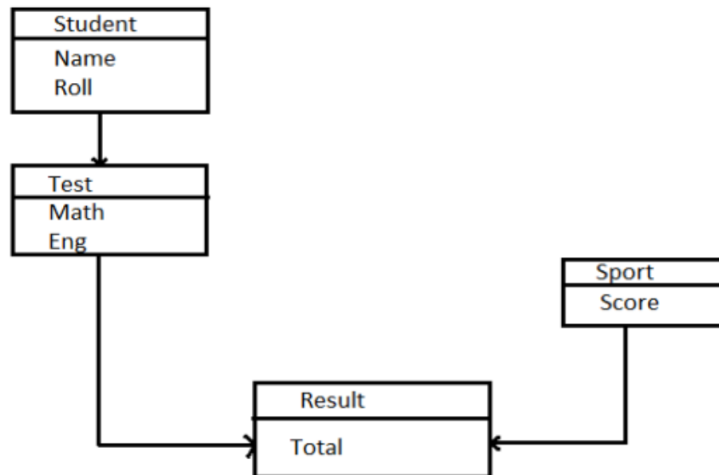**Title: Object Inheritance and Reusability**

**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 the instructor)

1.Write a Program to show that how inheritance supports reusability.
2. Write a Program to enter information of n students and then display is using the concept multiple inheritance**.**
3. Write a Program to enter information of n students and then display is using the concept multilevel inheritance**.**
4.Create a class Person with data members name and age. Derive a class Employee from Person with its data member employee_id. Derive another class Manager from Employee with its data member department. Receive the data members from each class member function and display the data of all classes from the class Manager.
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 diagram in C++.Assume necessary function yourself.

7. Write a program for composition in a class.

8. 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.

9.Write a program to concatenate two strings using the concept of containership.