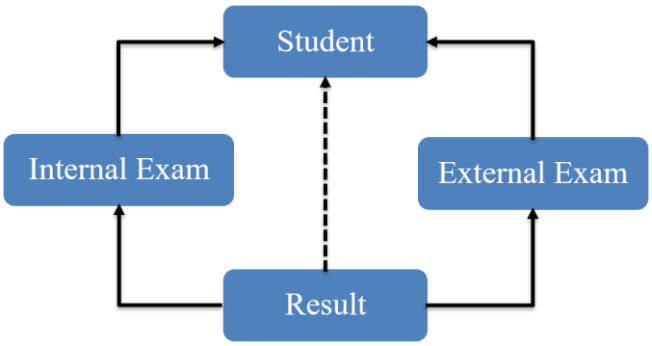
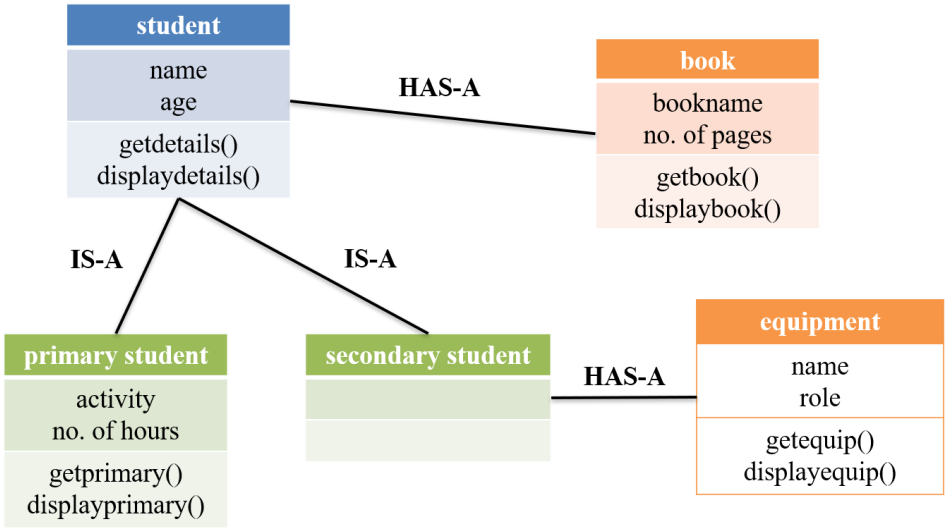
Practical List: 04	Enrollment No.:	Name:

Sr. No.	Practical Problems
1.	Create a class called EMPLOYEE that stores the enro, name and designation using getdetail() function. From the EMPLOYEE class, derive SALARY which ask for the basic pay, HRA(human resource allowance), DA(dearness allowance), PF(Profitable fund) to calculate net pay using calculate(). Display all the details using show(). [Note: Take the user input for minimum five employees.]
2.	Create a class "Rectangle" which can ask for length and breadth from the user. Derive a class named "Area" which will calculate the area of rectangle and return it the value in function. Derive another class named "perimeter" which will calculate perimeter of rectangle and return the calculated value. [Hint: Area = l * b and Perimeter = 2(l + b)]
3.	Declare the base class called STUDENT which have member function getinfo() to get the student details. Declare the another class called SPORTS which have getsports() to read the sports marks. Create a class STATEMENT derived from STUDENT and SPORTS which have member function as display() to find out the total and average of marks.
4.	A college maintains a list of its students graduating every year. At the end of the year, the college produces a report that lists the following: ========== *** Year: *** No. of Graduates: No. of Non-Graduates: *** Details of the top-most scorer *** Name: Age: Subject: Average Marks: x % of the graduates this year are non-working and n % are first divisioners. ========== Create a C++ application program for it that uses the following path: Person ----------> Student ----------> Graduate Student (name, age) (enro, average marks) (subject, employed)

5.	Write a C++ program to perform the following:  Consider data members for STUDENT as rollno, branch, for INTERNAL and EXTERNAL exam take five subjects marks and for RESULT take total. Take appropriate methods and complete the task.
6.	Write a C++ program for defining a class for furniture with color, width and heights. Define another class for shell, which inherits the data members of the class furniture and has a data member for storing the number of shelves. Get the details from the user and display it.
7.	Create the following class hierarchy in C++: 

Objective(s)	To clear the concept of Class and Object; Member and Non-Member Functions, Constructor, Destructor and Inheritance.
Pre-requisites	Usage of class and object; member and non-member function; and constructors and destructor.
Duration for Completion	10 Hours
PSO(s) to be achieved	PSO2: Student will have ability to understand, critically analyze, and test a software system for world-wide network of computers and propose feasible technical solutions using skills, and tools.
PO(s) to be achieved	PO2: Identify, Analyse and provide the solution for emerging real-world problems with the help of theoretical and practical understanding of tools and technologies.

CO(s) to be achieved	CO2: Recognize, design, implement and use classes and methods. CO3: Describe the concept of polymorphism and implement static (compile time) polymorphism in programs by overloading methods and operators. CO4: Able to design and implement well-built class hierarchies.
Solution must contain	Program with comments and output
Nature of submission	Handwritten on A4 size blank papers
References for solving the problem	Venugopal, Rajkumar, Ravishankar. Mastering C++, Tata McGraw Hill.
Post Laboratory questions	1. List all the type of inheritance with its graphical representation. 2. Class Y has been derived from class X. The class Y does not contain any data members of its own. Does the class Y require constructors? If yes, why? 3. What type of C++ class members (data members and member function) are not inherited? Justify you answer. 4. When must a member initialization list be used? 5. What is containership? How does it differ from inheritance? 6. Can a derived class get access privilege for a private member of the base class? If yes, how? 7. How do the default constructors and destructors behave in an inheritance hierarchy?
Assessment	
Faculty Signature	
Date	