

MCA Sem –II, 2020-2021
CSC26: Lab-III (OOP)

Assignment IV (Last Date: 18-6-2021)

1. Class **student** contains roll number, name and course as data members and *Input_student()* and *display_student()* as member functions. A derived class **exam** is created from the class student with **publicly inherited**. The derived class contains *mark1*, *mark2*, *mark3* as marks of three subjects and *input_marks()* and *display_result()* as member functions. Create an array of objects of the exam class and display the result of 5 students.
2. Result of a student is dependent on his/her examination marks and extracurricular marks. Create four classes **Student**, **Examination**, **Extracurricular** and **Result**. The data members and methods of different classes are given below.

Student Class Data Member: Name Roll Number Method: get_details() display_details() //To get and display Name and Roll Number of a student	Examination Data Member: test1, test2 Method: cal_average() display_average() //To calculate and display the average mark of a student	Extracurricular Data Member: painting, music Method: get_score() display_total() //To get and and display the total marks in painting and music	Result Data Member: total Method: cal_total() comment() //To calculate total marks and display comment whether the student have passed or not
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Class Examination and Extracurricular are inherited from Student and Result is multiply inherited from Examination and Extracurricular. Write a program to generate the results for N students.

3. Class **polygon** contains data members- width and height and public method *set_value()* to assign values to width and height.
Classes **Rectangle** and **Triangle** are inherited from **polygon** class. Both the classes contain public method *calculate_area()* to calculate the area of Rectangle and Triangle. Use base class pointer to access the derived class object and show the area calculated. Write a suitable program to illustrate virtual functions.
 4. Write a program with **Student** as *abstract class* and create derive classes- **Engineering**, **Medicine** and **Science** from base class **Student**. Create the objects of the derived classes and process them and access them using array of pointers of type base class Student. Include the relevant data members, constructors/destructors and member functions in each of the above classes.
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