TASK - 5

1. Demonstrate the concept of single inheritance. Create a class account with members name, employee_id and salary. Create a derive class developers with member bonus. The company give bonus of Rs. 15000 to each developer with salary greater than 500000 and Rs. 8000 to others. In main create the object of developer and display the name, employee_id and total annual income of that employee including bonus.
2. Demonstrate the concept of multilevel inheritance. Create a class Student with data members enrol_no, name, class and memeber functions for getting the data and display data. Derive a class Test from Student with members as marks of five subjects, functions for getting the data and display. Derive class Result from Test with total and percentage as members and calculate() function as member function to calculate percentage of student. In main create the object and display all the student details.
3. Create a class simplecalc which has two data members and functions for operation +,-,* and /. Create class scientificcalc with one member and function for calculating sin a, cos a and tan a. Derive a class hybrid from both the classes and calculate (5*sin a + 2 * cos a).
4. Create a Book class with attributes for title, author, and price. Implement a copy constructor to create a new book object as a copy of an existing one. Show the working of the copy constructor by copying a book object.
5. Create a base class Shape with a method to calculate the area. Derive two classes Circle and Square from Shape. Implement the area calculation for each derived class and demonstrate polymorphism by calculating the area of different shapes using a Shape pointer.
6. Create a ComplexNumber class with real and imaginary parts. Implement multiple constructors to initialize a complex number with no arguments, one argument, and two arguments. Show how constructor overloading works by creating complex number objects using different constructors.