Programming in Java

Assignment Set 5

Date: 12/02/2019

1. Design a “Student” class having fields like “name”, ”rollno” and “address”. Write a derived class called “BSc_Student” having fields like dept and semester. Write proper constructors for both the classes and proper display() method in the derived class to display the details of BSc_Student. Use a Demo class to demonstrate the above.

2. Write a Java program which overloads methods. There is a Shape class having an overloaded method called “area()” with different signatures for different shapes like circle, rectangle and square. Demonstrate the above overloading problem by writing appropriate main() method.

3. Develop an abstract class “TwoDFigure” which will have two variables color and weight. The inherited class, “Circle” which will have a radius attribute. The super class should have two abstract methods findArea() and findCircumferences(). The Circle class should override both of the abstract methods of the super class.

4. Create a class ‘Area’. Define constructors and respective methods to calculate the area of a square and rectangle. Inherit the properties length and breadth to the class ‘Volume’ to calculate volume of the respective objects like Cubes and Cuboids.

5. Define a base class person and a derived class employee with single inheritance.-
   - Define SetData()member functions in each of the class with different signatures to set the data members and demonstrate overloading of member functions.
   - Define GetData() member functions in each of the class with same signatures to display data and demonstrate overriding of member functions.

6. Modify program 5 to define a parameterized constructor and finalizer in each class. Demonstrate calling the constructor of the base class from the constructor of the derived class.
   - Create objects of person and employee classes to show the order of invocation of constructors.

7. Modify program 6 to define another class manager that derives from employee to create a chain of multi-level hierarchy. (manager inherits from employee & employee inherits from person).
   - Create objects of person, employee, and manager classes to show the order of invocation of constructors.).

8. Modify program 6 to define another class student that derives from person, to create a hierarchical inheritance. (employee and student inherit from person)
   - Create objects of person, employee, and student classes to show the order of invocation of constructors.