Java Week 3: Q3

Due on 2020-10-08, 23:59 IST

A class Shape is defined with two overloading constructors in it. Another class Test1 is partially defined which inherits the class Shape. The class Test1 should include two overloading constructors as appropriate for some object instantiation shown in main( ) method. You should define the constructors using the super class constructors. Also, override the method calculate( ) in Test1 to calculate the volume of a Shape.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status
Test Case 1	2.0 1.0 1.0	4.0\n 2.0	4.0\n 2.0\n	Passed
Test Case 2	1.0 1.0 1.0	1.0\n 1.0	1.0\n 1.0\n	Passed

The due date for submitting this assignment has passed.
2 out of 2 tests passed.
You scored 100.0/100.

Assignment submitted on 2020-10-08, 22:51 IST

Your last recorded submission was :

```
import java.util.Scanner;
class Shape{
   double length, breadth;
   Shape(double l, double b){ //Constructor to initialize a Shape object
      length = l;
      breadth= b;
    }
  Shape(double len){    //Constructor to initialize another Shape object
     length = breadth = len;
   }
  double calculate(){  // To calculate the area of a shape object
    return length * breadth ;
  }
}
public class Test1 extends Shape{
double height;
Test1(double l,double h)
{
 super(l);
 this.length = l;
 this.height = h;
}
//Create a derived class constructor which can call the two parametrized constructor of the base class
Test1(double l,double b,double h)
{
  super(l,b);
  this.length=l;
  this.breadth=b;
  this.height=h;
}
//Override the method calculate() in the derived class to find the volume of a shape instead of finding the area of a shape
double calculate()
{
 return length*breadth*height;
}
public static void main(String args[]){
    Scanner sc = new Scanner(System.in);//Create an object to read input
    double l=sc.nextDouble(); //Read length
    double b=sc.nextDouble(); //Read breadth
    double h=sc.nextDouble(); //Read height
    Test1 myshape1 = new Test1(l,h);
    Test1 myshape2 = new Test1(l,b,h);
    double volume1;
    double volume2;
    volume1 = myshape1.calculate();
    volume2=myshape2.calculate();
    System.out.println(volume1);
    System.out.println(volume2);
    }
}

```

Sample solutions (Provided by instructor)

```
import java.util.Scanner;
class Shape{
   double length, breadth;
   Shape(double l, double b){ //Constructor to initialize a Shape object
      length = l;
      breadth= b;
    }
  Shape(double len){    //Constructor to initialize another Shape object
     length = breadth = len;
   }
  double calculate(){  // To calculate the area of a shape object
    return length * breadth ;
  }
}
public class Test1 extends Shape{
 double height;
    Test1(double length,double h)
        //base class constructor with one parameter is called
    {
        super(length);
        height=h;
    }

    Test1(double length,double breadth,double h)
        //base class constructor having two argument is called
    {
        super(length,breadth);
        height=h;
    }
    double calculate()  {   // calculate the volume of the shape
        return length*breadth*height;
    }
```

```
public static void main(String args[]){
    Scanner sc = new Scanner(System.in);//Create an object to read input
    double l=sc.nextDouble(); //Read length
    double b=sc.nextDouble(); //Read breadth
    double h=sc.nextDouble(); //Read height
    Test1 myshape1 = new Test1(l,h);
    Test1 myshape2 = new Test1(l,b,h);
    double volume1;
    double volume2;
    volume1 = myshape1.calculate();
    volume2=myshape2.calculate();
    System.out.println(volume1);
    System.out.println(volume2);
    }
}
```