

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

Test Case 1

Input

2.0 1.0 1.0

Expected Output

4.0\n
2.0

Actual Output

4.0\n
2.0\n

Status

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 :

```
1 import java.util.Scanner;
2 class Shape{
3     double length, breadth;
4     Shape(double l, double b){ //Constructor to initialize a Shape object
5         length = l;
6         breadth= b;
7     }
8     Shape(double len){ //Constructor to initialize another Shape object
9         length = breadth = len;
10    }
11    double calculate(){ // To calculate the area of a shape object
12        return length * breadth ;
13    }
14 }
15 public class Test1 extends Shape{
16     double height;
17     Test1(double l,double h)
18     {
19         super(l);
20         this.length = l;
21         this.height = h;
22     }
23     //Create a derived class constructor which can call the two parametrized constructor of the base class
24     Test1(double l,double b,double h)
25     {
26         super(l,b);
27         this.length=l;
28         this.breadth=b;
29         this.height=h;
30     }
31     //Override the method calculate() in the derived class to find the volume of a shape instead of finding the area of a shape
32     double calculate()
33     {
34         return length*breadth*height;
35     }
36     public static void main(String args[]){
37         Scanner sc = new Scanner(System.in);//Create an object to read input
38         double l=sc.nextDouble(); //Read length
39         double b=sc.nextDouble(); //Read breadth
40         double h=sc.nextDouble(); //Read height
41         Test1 myshape1 = new Test1(l,h);
42         Test1 myshape2 = new Test1(l,b,h);
43         double volume1;
44         double volume2;
45         volume1 = myshape1.calculate();
46         volume2=myshape2.calculate();
47         System.out.println(volume1);
48         System.out.println(volume2);
49     }
50 }
51 }
```

Sample solutions (Provided by instructor)

```
1 import java.util.Scanner;
2 class Shape{
3     double length, breadth;
4     Shape(double l, double b){ //Constructor to initialize a Shape object
5         length = l;
6         breadth= b;
7     }
8     Shape(double len){ //Constructor to initialize another Shape object
9         length = breadth = len;
10    }
11    double calculate(){ // To calculate the area of a shape object
12        return length * breadth ;
13    }
14 }
15 public class Test1 extends Shape{
16     double height;
17     Test1(double length,double h)
18     {
19         //base class constructor with one parameter is called
20         super(length);
21         height=h;
22     }
23     Test1(double length,double breadth,double h)
24     {
25         //base class constructor having two argument is called
26         super(length,breadth);
27         height=h;
28     }
29     double calculate() { // calculate the volume of the shape
30         return length*breadth*height;
31     }
32 }
```

Course outline

How does an NPTEL online course work?

Week 0 : Assignment 0

Week 1 :

Week 2 :

Week 3 :

- Lecture 11 : Java Static Scope Rule
- Lecture 12 : Demonstration-V
- Lecture 13 : Inheritance
- Lecture 14 : Demonstration-VI
- Lecture 15 : Information Hiding
- Quiz: Assignment 3
- Java Week 3: Q1
- Java Week 3: Q2
- Java Week 3: Q3
- Java Week 3: Q4
- Java Week 3: Q5
- Feedback For Week 3

Week 4 :

Week 5 :

Week 6 :

Week 7 :

Week 8 :

Week 9 :

Week 10 :

Week 11 :

Week 12 :

Solution

DOWNLOAD VIDEOS

Text Transcripts

Programming Test - (April 11 - 10AM - 12 PM)

Programming Test - (April 11 - 8PM - 10 PM)

```
33
34 public static void main(String args[]){
35     Scanner sc = new Scanner(System.in); //Create an object to read input
36     double l=sc.nextDouble(); //Read length
37     double b=sc.nextDouble(); //Read breadth
38     double h=sc.nextDouble(); //Read height
39     Test1 myshape1 = new Test1(l,h);
40     Test1 myshape2 = new Test1(l,b,h);
41     double volume1;
42     double volume2;
43     volume1 = myshape1.calculate();
44     volume2=myshape2.calculate();
45     System.out.println(volume1);
46     System.out.println(volume2);
47 }
48 }
49
```