S.No: 4	Exp. Name: ***Write a Java program to implement Constructor overloading***	Date:2025-09-18

Aim:

Write a class Box which contains the data members **width**, **height** and **depth** all of type **double**.

Write the implementation for the below **3***overloaded constructors* in the class Box :

- **Box()** - default constructor which initializes all the members with **-1**
- **Box(length)** - parameterized constructor with one argument and initialize all the members with the value in **length**
- the members with the corresponding arguments
- **Box(width, height, depth)** - parameterized constructor with three arguments and initialize

Write a method public double volume() in the class Box to find out the **volume** of the given box.

Write the **main** method within the Box class and assume that it will receive either **zero** arguments, or **one** argument or **three** arguments.

For example, if the **main()** method is passed **zero** arguments then the program should print the output formatted to two decimals as:

```
Volume of Box() is : -1.00
```

Similarly, if the **main()** method is passed **one** argument : **2.34**, then the program should print the output formatted to two decimals as:

```
Volume of Box(2.34) is : 12.81
```

then the program should print the output as: Likewise, if the **main()** method is passed **three** arguments : **2.34, 3.45, 1.59**, then the program should print the output formatted to two decimals as:

```
Volume of Box(2.34, 3.45, 1.59) is : 12.83
```

Note:

- Please don't change the package name.

Source Code:

q11267/Box.java

```
package q11267;
import java.math.*;
public class Box{
   double width, height, depth;
   Box(){
      width = height = depth = -1;
   }
   Box(double length){
      width = height = depth = length;
   }
   Box(double width, double height, double depth){
      this.width = width;
      this.height = height;
      this.depth = depth;
```

```
    }
    public double volume(){
       return width*height*depth;
    }
    private static String fmtArg(String s){
       String orig = s;
       if(orig.endsWith("f") || orig.endsWith("F"))
          orig=orig.substring(0,orig.length()-1);
       if(orig.indexOf('.')>=0){
          try{
             BigDecimal bd = new BigDecimal(orig);
             String stri = bd.stripTrailingZeros().toPlainString();
             if(stri.indexOf('.')>=0)
                return stri;
             else
                return stri+" .0";
          }catch(Exception e){
             return orig;
          }
       }
       else{
          return orig+".0";
       }
    }

    public static void main(String[] args){
       Box b;
       if(args.length==0){
          b = new Box();
          System.out.printf("Volume of Box() is : %.2f%n", b.volume());
       }
       else if(args.length==1){
          String a0= args[0];
          String cld = a0;
          if(cld.endsWith("f") || cld.endsWith("F"))
             cld = cld.substring(0, cld.length()-1);
          double len = Double.parseDouble(cld);
          b = new Box(len);
          System.out.printf("Volume of Box(%s) is : %.2f%n", fmtArg(a0), b.volume());
       }
       else if(args.length==3){
          String a0 = args[0],a1=args[1],a2=args[2];
          String c0=a0, c1=a1, c2=a2;
          if(c0.endsWith("f") || c0.endsWith("F"))
             c0 = c0.substring(0,c0.length()-1);
          if(c1.endsWith("f")||c1.endsWith("F"))
             c1=c1.substring(0,c1.length()-1);
          if(c2.endsWith("f")||c2.endsWith("F"))
             c2=c2.substring(0,c2.length()-1);
          double w = Double.parseDouble(c0);
          double h = Double.parseDouble(c1);
          double d = Double.parseDouble(c2);
          b=new Box(w,h,d);
          System.out.printf("Volume of Box(%s, %s, %s) is : %.2f%n", fmtArg(a0), fmtAr
g(a1), fmtArg(a2), b.volume());
       }
```

```
      else{
         System.out.printf("Volume of Box() is : %.2f%n", -1.00);
      }
   }
}
```

Execution Results - All test cases have succeeded!

Test Case - 1
User Output
Volume of Box(2.3, 3.5, 6.5) is : 52.32

Test Case - 2
User Output
Volume of Box(3.0) is : 27.00

Test Case - 3
User Output
Volume of Box() is : -1.00