

<b>Experiment Number</b>	3
<b>Date of Experiment</b>	09/01/2025
<b>Date of Submission</b>	09/01/2025
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<b>Section</b>	ECSc-6

- **Title of the experiment :**

Class, Objects and Methods in Java

- **Aim of The experiment :**

To learn Java programs related to class, objects and methods.

- **Programming Language used :**

Java

- **Problem Statement & Solution :**

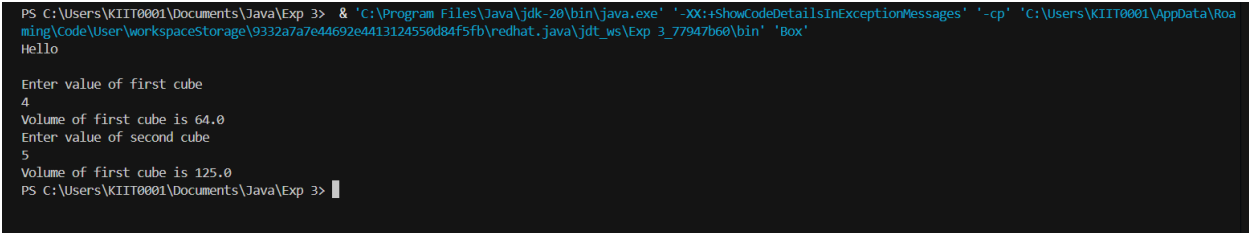
1. Modify the Java program BoxDemo.java to do the following:

1. create two objects of class Box
2. assign values to two objects using objects' instance-variables and get the volumes of two boxes
3. set values to two objects using parameterized methods and get the volumes of two boxes

### Solution :

```
import java.util.*;
class box1
{
    double side;
    double volume()
    {
        return side * side * side;
    }
}
public class Box {
    public static void main(String args[])
    {
        System.out.println("Hello \n");
        box1 cube_a = new box1();
        box1 cube_b = new box1();
        try(Scanner sc=new Scanner(System.in))
        {
            System.out.println("Enter value of first cube");
            cube_a.side=sc.nextDouble();
            System.out.println("Volume of first cube is "+cube_a.volume());
            System.out.println("Enter value of second cube");
            cube_b.side=sc.nextDouble();
            System.out.println("Volume of first cube is "+cube_b.volume());
        }
    }
}
```

### Output :



```
PS C:\Users\KIIT0001\Documents\Java\Exp 3> & 'C:\Program Files\Java\jdk-20\bin\java.exe' '-XX:ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\KIIT0001\AppData\Roaming\Code\User\workspaceStorage\9332a7a7e44692e4413124550d84f5fb\redhat.java\jdt_ws\Exp_3_77947b60\bin' 'Box'
Hello

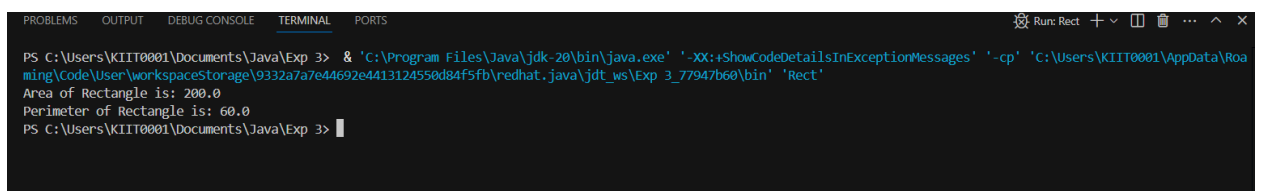
Enter value of first cube
4
Volume of first cube is 64.0
Enter value of second cube
5
Volume of first cube is 125.0
PS C:\Users\KIIT0001\Documents\Java\Exp 3> |
```

2. Write a Java program to calculate the area and perimeter of a rectangle using the concepts of class, objects and methods.

**Solution :**

```
class Rectangle
{
    double length;
    double breadth;
    double area()
    {
        return length*breadth;
    }
    double perimeter()
    {
        return 2*(length+breadth);
    }
}
public class Rect
{
    public static void main(String[] args)
    {
        Rectangle r = new Rectangle();
        r.length = 10;
        r.breadth = 20;
        System.out.println("Area of Rectangle is: "+r.area());
        System.out.println("Perimeter of Rectangle is: "+r.perimeter());
    }
}
```

**Output :**

A screenshot of a Java IDE's terminal window. The terminal shows the command to compile and run the 'Rect' class. The output displays the area and perimeter of a rectangle with length 10 and breadth 20. The area is calculated as 200.0 and the perimeter as 60.0.

```
PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
Run: Rect + - [ ] ... ^ x
PS C:\Users\KIIT0001\Documents\Java\Exp 3> & 'C:\Program Files\Java\jdk-20\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\KIIT0001\AppData\Roaming\Code\User\workspaceStorage\9332a7a7e44692e4413124550d84f5fb\redhat.java\jdt_ws\Exp_3_77947b60\bin' 'Rect'
Area of Rectangle is: 200.0
Perimeter of Rectangle is: 60.0
PS C:\Users\KIIT0001\Documents\Java\Exp 3> |
```

3. Create a Java class called uniMember which has instance-variables name and gender. Within this class, create two more classes, Student with instance-variable roll number and Faculty with instance-variable employee id. Write the Java methods to enter the details (name, gender, roll number, employee id) of a student and a faculty and display the same on the console.

**Solution :**

```
class UniMember {
    String name;
    char gender;
    class Student {
        int Roll_No;
    }
    class Employee {
        int Emp_ID;
    }
}

public class display{
    public static void main(String[] args) {
        UniMember std = new UniMember();
        UniMember.Student student = std.new Student();

        std.name = "Rahul";
        std.gender = 'M';
        student.Roll_No = 101;

        UniMember empMember = new UniMember();
        UniMember.Employee empEmployee = empMember.new Employee();
        empMember.name = "Umesh Yadav";
        empMember.gender = 'M';
        empEmployee.Emp_ID = 2001;

        System.out.println("Detail Of Student are: ");
        System.out.println("Name: " + std.name);
        System.out.println("Gender: " + std.gender);
        System.out.println("Roll No: " + student.Roll_No);
    }
}
```

```

        System.out.println("\nDetail Of Employee are: ");
        System.out.println("Name: " + empMember.name);
        System.out.println("Gender: " + empMember.gender);
        System.out.println("Emp ID: " + empEmployee.Emp_ID);
    }
}

```

### **Output :**

```

PS C:\Users\KIIT0001\Documents\Java\Exp 3> & 'C:\Program Files\Java\jdk-20\bin\java.exe' '-XX:+ShowCodeDetailsInExceptionMessages' '-cp' 'C:\Users\KIIT0001\AppData\Roaming\Code\User\workspaceStorage\9332a7a7e44692e4413124550d84f5fb\redhat.java\jdt_ws\Exp_3_77947b60\bin' 'display'
Detail Of Student are:
Name: Rahul
Gender: M
Roll No: 101

Detail Of Employee are:
Name: Umesh Yadav
Gender: M
Emp ID: 2001
PS C:\Users\KIIT0001\Documents\Java\Exp 3>

```

- **Conclusion :**

Learned to develop to develop Java programs using classes , objects and methods.

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**Faculty Signature**