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Title of the Experiment: Implementation of class and its member methods

Experiment No.2 **Date:** 05/10/2020

Problem Statement:

Design a class called Rectangle having two methods. First method named as setDim() takes length and breadth of rectangle as parameters and the second method named as getArea() returns the area of the rectangle. Length and breadth of rectangle are entered through keyboard.

Objectives of the Experiment:

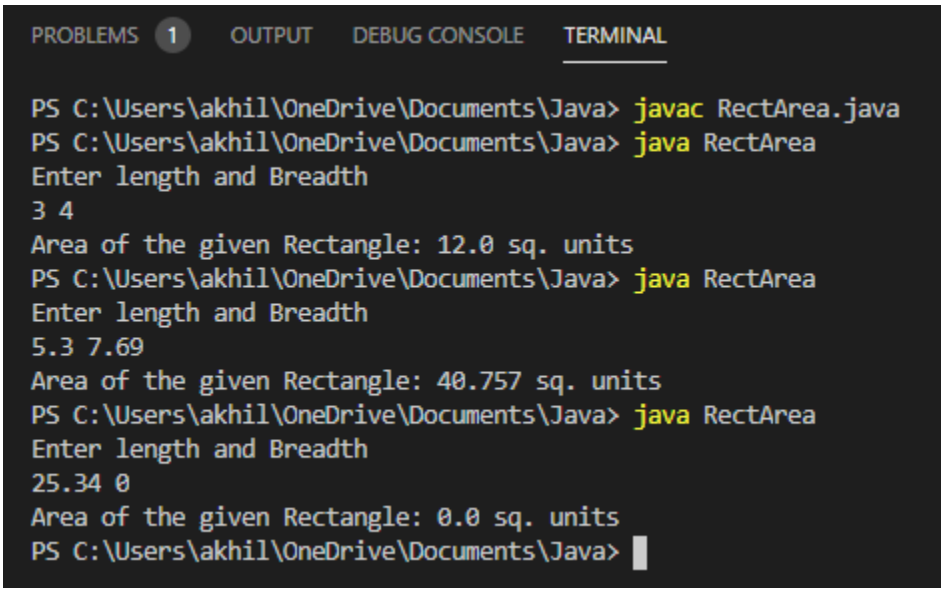
1. Learn declaration and initialization of class and methods in Java
2. Learn how to declare objects of a class and access methods
3. Understand the use of class and methods in a real-life application
4. Learn how to pass parameters to a method
5. Learn to Display the result in a readable/proper format

Program Source Code:

```
import java.util.*;
class Rectangle{
    float length, breadth;
    void setDim(float length, float breadth){
        this.length=length;
        this.breadth=breadth;
    }
    float getArea() {
        return length * breadth;
    }
}

public class RectArea {
    public static void main(String[] args){
        Rectangle r1= new Rectangle();
        Scanner in= new Scanner(System.in);
        float length, breadth;
        System.out.println("Enter length and Breadth");
        length=in.nextFloat();
        breadth=in.nextFloat();
        in.close();
        r1.setDim(length, breadth);
        System.out.println("Area of the given Rectangle: " + r1.getArea() + " sq.
 units");
    }
}
}
```

OUTPUT:



Outcomes of the Experiment: At the end of the laboratory sessions the students should be able to

1. Demonstrate the use of class and methods in solving real-life problems.
2. Identify appropriate method to be used for a particular scenario
3. Learn how to return values from a method
4. Initialize variables of a class using this keyword
5. Identify how to make a call for the method

Conclusions: From the given problem statement, we could identify the necessary variables and use the appropriate class and methods and the necessary program logic. We understood how to calculate the area of rectangle using methods. The program was written in Visual Studio Code by creating a project. We understood the usage of the IDE in typing the code, debugging, running the program and observing the output. We also understood the use of the built-in class System and its method println to display the result. The program was executed for two-three sets of input and results obtained were verified to be correct and recorded.

PRACTICE PROBLEM

Design a class called Circle having the following methods:

getRadius() to read the radius

computeArea() to compute the area of the circle

computePerimeter() to compute the perimeter of the circle

Declare the required instance variables appropriately.

Program Source Code:

```
import java.util.*;

class Circle{
    int radius;
    void getRadius(int radius){
        this.radius= radius;
    }
    float computeArea(){
        return (float) (Math.PI * radius * radius);
    }
    float computePerimeter(){
        return (float) (2 * Math.PI * radius);
    }
}

public class AreaCircle {
    public static void main(String[] args) {
        Circle c1=new Circle();
        Scanner in= new Scanner(System.in);
        int radius;
        System.out.println("Enter the radius");
        radius=in.nextInt();
        in.close();
        c1.getRadius(radius);
        System.out.println("Area: " + c1.computeArea() + " " + "Perimeter: " + c1
.computePerimeter());
    }
}
```

OUTPUT:

```
PROBLEMS 1   OUTPUT   DEBUG CONSOLE   TERMINAL

PS C:\Users\akhil\OneDrive\Documents\Java> javac AreaCircle.java
PS C:\Users\akhil\OneDrive\Documents\Java> java AreaCircle
Enter the radius
3
Area: 28.274334 sq. units
Perimeter: 18.849556 units
PS C:\Users\akhil\OneDrive\Documents\Java> java AreaCircle
Enter the radius
7.56
Area: 179.55333 sq. units
Perimeter: 47.50088 units
PS C:\Users\akhil\OneDrive\Documents\Java> java AreaCircle
Enter the radius
0
Area: 0.0 sq. units
Perimeter: 0.0 units
PS C:\Users\akhil\OneDrive\Documents\Java>
```