OBJECT ORIENTED PROGRAMMING LAB

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Batch: S2 RMCA B

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Experiment No: 15

Aim

Create an interface having prototypes of functions area() and perimeter(). Create two classes Circle and Rectangle which implements the above interface. Create a menu driven program to find area and perimeter of objects.

Procedure

```java
import java.util.*;

import java.lang.*;

interface Shape {

    float pi = 3.14F;

    float area();

    float perimeter();

}

class Circle implements Shape {

    Scanner sc = new Scanner(System.in);

    int r;

 public float area() {

        System.out.print("Enter the radius : ");

        r = Integer.parseInt(sc.nextLine());

        return (pi * r * r);
}
```

```java
public float perimeter() {

    System.out.print("Enter the perimeter : ");

    r = Integer.parseInt(sc.nextLine());

    return (2 * pi * r);

    }
}

class Rectangle implements Shape {

    Scanner sc = new Scanner(System.in);

    int l, b;
public float area() {

    System.out.print("Enter the Length : ");

    l = Integer.parseInt(sc.nextLine());

    System.out.print("Enter the breadth : ");

    b = Integer.parseInt(sc.nextLine());

    return (l * b);
}
    public float perimeter() {

    System.out.print("Enter the Length : ");

    l = Integer.parseInt(sc.nextLine());

    System.out.print("Enter the breadth : ");

    b = Integer.parseInt(sc.nextLine());

    return (2 * (l + b));
    }

}
```

```java
class Prgrm {

  public static void main(String args[]) {

    Scanner sc = new Scanner(System.in);

    Circle c = new Circle();

    Rectangle r = new Rectangle();

    int ch;

    while (true) {

      System.out.println("1:Area of Circle");

      System.out.println("2:Perimeter of Circle");

      System.out.println("3:Area of Rectangle");

      System.out.println("4:Perimter of Rectangle");

      System.out.println("5:EXIT");

      System.out.println("enter choice ");

      ch = Integer.parseInt(sc.nextLine());

      switch (ch) {

        case 1:

          float ar = c.area();

          System.out.println("Area  :" + ar);

          break;

        case 2:

          float pr = c.perimeter();
```

```java
            System.out.println(pr);

            break;

        case 3:

            float a = r.area();

            System.out.println("Area :" + a);

            break;

        case 4:

            float pr1 = r.perimeter();

            System.out.println(pr1);

            break;

        case 5:

            System.out.println("Exiting the Program");

            System.exit(0);

        default:

            System.out.println("invalid!");

        }

    }
}

}
```

Output Screenshot

```
C:\Users\Student\Desktop\MM\java>javac Prgrm.java

C:\Users\Student\Desktop\MM\java>java Prgrm
1:Area of Circle
2:Perimeter of Circle
3:Area of Rectangle
4:Perimter of Rectangle
5:EXIT
enter choice
2
Enter the perimeter : 5
31.400002
1:Area of Circle
2:Perimeter of Circle
3:Area of Rectangle
4:Perimter of Rectangle
5:EXIT
enter choice
1
Enter the radius : 4
Area  :50.24
1:Area of Circle
2:Perimeter of Circle
3:Area of Rectangle
4:Perimter of Rectangle
5:EXIT
enter choice
3
Enter the Length : 4
Enter the breadth : 5
Area :20.0
```