

OBJECT ORIENTED PROGRAMMING LAB

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.

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Procedure

```
import java.util.Scanner;
public interface Shapes {

    void getdata();
    void area();
    void perimeter();

class Circle implements Shapes{
int r;
double pi=3.14,q,p;
public void getdata() {
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter the radius of circle");
    r=sc.nextInt();

}
public void area() {
    q=pi*r*r;
    System.out.println("Area of the circle is          :  "+q);

}
public void perimeter() {
    p=2*pi*r;
    System.out.println("Perimeter of the circle is      :  "+p);

}
}
class Rectangle implements Shapes{
int l,b,p,q;
public void getdata() {
    Scanner sc1=new Scanner(System.in);
    System.out.println("Enter the length of rectangle");
    l=sc1.nextInt();
    System.out.println("Enter the breadth of rectangle");
    b=sc1.nextInt();
}
public void area() {
    q=l*b;
    System.out.println("Area of the rectangle is          :  "+q);
```

```
}
public void perimeter() {
    p=2*(l+b);
    System.out.println("Perimeter of the rectangle is : "+p);
}
}

    public static void main(String[] args) {
        int ch=0;
        Circle obj=new Circle();
        Rectangle obj1=new Rectangle();

        while(ch<=3) {
            Scanner sc2=new Scanner(System.in);
            System.out.println("CHOICES          : \n      1.Circle          \n
2.Rectangle      \n      3.Exit");
            System.out.println("Enter your choice : ");
            ch=sc2.nextInt();
            switch(ch) {
                case 1:
                    obj.getdata();
                    obj.area();
                    obj.perimeter();
                    break;
                case 2:
                    obj1.getdata();
                    obj1.area();
                    obj1.perimeter();
                    break;
                case 3:
                    System.out.println("exit");
                    break;
                default:
                    System.out.println("Wrong choice");
            }
        }
    }
}
```

```
C:\Users\Student\Documents>java Shapes
CHOICES      :
    1.Circle
    2.Rectangle
    3.Exit
Enter your choice :
1
Enter the radius of circle
2
Area of the circle is      : 12.56
Perimeter of the circle is : 12.56
CHOICES      :
    1.Circle
    2.Rectangle
    3.Exit
Enter your choice :
2
Enter the length of rectangle
4
Enter the breadth of rectangle
3
Area of the rectangle is   : 12
Perimeter of the rectangle is : 14
CHOICES      :
    1.Circle
    2.Rectangle
    3.Exit
Enter your choice :
3
exit
CHOICES      :
    1.Circle
    2.Rectangle
    3.Exit
Enter your choice :
```

