Phase-1 Practice Project: Assisted Practice2

8.Write a program in Java to demonstrate the uses of classes, objects, and the object-oriented pillars in Java

-->Source Code:

```
package main;

//Class definition

class Circle {

// Class variables

private double radius;

private final double pi = 3.14159;

// Constructor

public Circle(double radius) {

this.radius = radius;

}

// Getter and setter methods

public double getRadius() {

return radius;

}

public void setRadius(double radius) {

this.radius = radius;

}

// Class methods

public double getArea() {

return pi * radius * radius;

}

public double getCircumference() {

return 2 * pi * radius;
```

```
}
}
//Main class
public class Ooppiller{
public static void main(String[] args) {
// Object creation and usage
Circle circle = new Circle(5);
System.out.println("Radius of circle: " + circle.getRadius());
System.out.println("Area of circle: " + circle.getArea());
System.out.println("Circumference of circle: " + circle.getCircumference());
// Inheritance example
class Cylinder extends Circle {
private double height;
public Cylinder(double radius, double height) {
super(radius);
this.height = height;
}
public double getHeight() {
return height;
}
@SuppressWarnings("unused")
public void setHeight(double height) {
this.height = height;
}
public double getVolume() {
return getArea() * height;
}
}
```

```
Cylinder cylinder = new Cylinder(5, 10);

System.out.println("Height of cylinder: " + cylinder.getHeight());

System.out.println("Volume of cylinder: " + cylinder.getVolume());

// Polymorphism example

Circle shape = new Circle(5);

System.out.println("Area of shape: " + shape.getArea());

shape = new Cylinder(5, 10);

System.out.println("Volume of shape: " + ((Cylinder)shape).getVolume());

}

}
```