**PEMROGRAMAN BERORIENTASI OBYEK**

**(JURNAL 07 – ABSTRACT CLASS DAN INTERFACE)**



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Class abstract GeometricObject

public abstract class GeometricObject {

    public abstract double getPerimeter();

    public abstract double getArea();

}

Class Circle

public class Circle extends GeometricObject {

    protected double radius = 1.0;

    public Circle(double radius) {

        this.radius = radius;

    }

    @Override

    public double getPerimeter() {

        return 2 \* Math.PI \* radius;

    }

    @Override

    public double getArea() {

        return Math.PI \* radius \* radius;

    }

}

Class Rectangle

public class Rectangle extends GeometricObject {

    protected double width = 1.0;

    protected double length = 1.0;

    public Rectangle(double width, double length) {

        this.width = width;

        this.length = length;

    }

    @Override

    public double getPerimeter() {

        return 2 \* (length + width);

    }

    @Override

    public double getArea() {

        return length \* width;

    }

}

Interface Resizable

public interface Resizable {

    public void resize(int percent);

}

Class ResizableCircle

public class ResizableCircle extends Circle implements Resizable {

    public ResizableCircle(double radius) {

        super(radius);

    }

    @Override

    public void resize(int percent) {

        double pctValue = percent / 100.0;

        radius \*= 1 + pctValue;

    }

}

Class ResizableRectangle

public class ResizableRectangle extends Rectangle implements Resizable {

    public ResizableRectangle(double width, double length) {

        super(width, length);

    }

    @Override

    public void resize(int percent) {

        double pctValue = percent / 100.0;

        width \*= 1 + pctValue;

        length \*= 1 + pctValue;

    }

}

Class Main

public class Main {

    public static void main(String[] args) {

        ResizableCircle circle = new ResizableCircle(10);

        System.out.println("Circle");

        System.out.printf("original area: %.2f%n", circle.getArea());

        System.out.printf("original perimeter: %.2f%n", circle.getPerimeter());

        int resize = 20;

        circle.resize(resize);

        System.out.printf("After adding %d%% of size, area: %.2f%n", resize, circle.getArea());

        System.out.printf("After adding %d%% of size, perimeter: %.2f%n", resize, circle.getPerimeter());

        System.out.println();

        ResizableRectangle rectangle = new ResizableRectangle(10, 5);

        System.out.println("rectangle");

        System.out.println("original area: "+ rectangle.getArea());

        System.out.println("original perimeter: " + rectangle.getPerimeter());

        // int resize = 20;

        rectangle.resize(resize);

        System.out.println("adding " + resize + "% of size, area: " + rectangle.getArea());

        System.out.println("adding " + resize + "% of size, perimeter: " + rectangle.getPerimeter());

    }

}

A computer screen shot of a number

Description automatically generated