PEMROGRAMAN BERORIENTASI OBYEK
(JURNAL 07 – ABSTRACT CLASS DAN INTERFACE)

Disusun oleh:

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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());


    }
}
```

```
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Circle
original area: 314.16
original perimeter: 62.83
After adding 20% of size, area: 452.39
After adding 20% of size, perimeter: 75.40

rectangle
original area: 50.0
original perimeter: 30.0
adding 20% of size, area: 72.0
adding 20% of size, perimeter: 36.0
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```