

# CENG 497 - Labwork 2

## Rectangles

You are asked to write a rectangle class that consists of constructors, getters, setters and some operations specified below. Properties called *x* and *y* are the coordinates of the left-bottom corner of the rectangle, and when a rotation function is called the rectangle is rotated around its left-bottom corner.

*Listing 1: Rectangles Class Definition*

```
public class Rectangle {

    private int x; // x coordinate of left-bottom corner
    private int y; // y coordinate of left-bottom corner
    private int width;
    private int height;

    // constructs a rectangle with given parameters
    public Rectangle(int x, int y, int width, int height) {
        ...
    }

    // constructs a rectangle which has left-bottom corner on the origin (0,0) with given width
    and height
    public Rectangle(int width, int height) {
        ...
    }

    // returns left-bottom corner's x coordinate
    public int getX() {
        ...
    }

    // returns left-bottom corner's y coordinate
    public int getY() {
        ...
    }

    // returns width of the rectangle
    public int getWidth() {
        ...
    }

    // returns height of the rectangle
    public int getHeight() {
        ...
    }

    // changes the width, height and coordinates of the rectangle according to passed values
    public void reshape(int x, int y, int width, int height) {
        ...
    }
}
```

```

// changes the width and height of the rectangle according to passed values
public void resize(int width, int height) {
    ...
}

// changes the coordinates of the rectangle according to passed values
public void setLocation(int px, int py) {
    ...
}

// prints the coordinates of the left-bottom corner's coordinates (x,y)
public void printLocation() {
    ...
}

// prints the coordinates of every corner
public void printCoordinates() {
    ...
}

// translates the rectangle and changes the coordinates according to passed values
public void translate(int dx, int dy) {
    ...
}

// rotates the rectangle 90 degrees clockwise around its left-bottom corner
public void rotateClockwise() {
    ...
}

// rotates the rectangle 90 degrees counter-clockwise around its left-bottom corner
public void rotateCounterClockwise() {
    ...
}

// returns true if a given point is inside or on the rectangular area else returns false
public boolean contains(int x, int y) {
    ...
}

// contains your function calls
public static void main(String args[]) {
    ...
}
}

```

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Rectangle 1:

Left-Bottom: (0,0)

Left-Top: (0,6)

Right-Top: (5,6)

Right-Bottom: (5,0)

Rectangle 1 rotated clockwise:

Left-Bottom: (0,-5)

Left-Top: (0,0)

Right-Top: (6,0)

Right-Bottom: (6,-5)

Rectangle 1 rotated counter-clockwise:

Left-Bottom: (-5,-5)

Left-Top: (-5,1)

Right-Top: (0,1)

Right-Bottom: (0,-5)

Rectangle 2:

Left-Bottom: (3,5)

Left-Top: (3,7)

Right-Top: (5,7)

Right-Bottom: (5,5)

Rectangle 2: translated 6 units to the right

Left-Bottom: (9,5)

Left-Top: (9,7)

Right-Top: (11,7)

Right-Bottom: (11,5)

True, rectangle contains (10,6)

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