**Solution - Assignment on Constructor and methods**

class Rectangle {

double width

double height

Rectangle(double width, double height) {

if (width <= 0 || height <= 0) {

throw new IllegalArgumentException("Width and height must be greater than zero.")

}

this.width = width

this.height = height

}

double getWidth() {

return width

}

void setWidth(double width) {

this.width = width

}

double getHeight() {

return height

}

void setHeight(double height) {

this.height = height

}

double area() {

return width \* height

}

double perimeter() {

return 2 \* (width + height)

}

String isSquare() {

if (width == height) {

return "Square"

} else {

return "Rectangle"

}

}

}

class Main {

static void main(String[] args) {

Rectangle rect1 = new Rectangle(5.0, 5.0)

println "Rectangle 1 - width: ${rect1.width}, height: ${rect1.height}"

println "Area: ${rect1.area()}"

println "Perimeter: ${rect1.perimeter()}"

println "Type: ${rect1.isSquare()}"

println ""

Rectangle rect2 = new Rectangle(8.0, 3.0)

println "Rectangle 2 - width: ${rect2.width}, height: ${rect2.height}"

println "Area: ${rect2.area()}"

println "Perimeter: ${rect2.perimeter()}"

println "Type: ${rect2.isSquare()}"

}

}

Output

Rectangle 1 - width: 5.0, height: 5.0

Area: 25.0

Perimeter: 20.0

Type: Square

Rectangle 2 - width: 8.0, height: 3.0

Area: 24.0

Perimeter: 22.0

Type: Rectangle

The solution includes a Rectangle class with width and height properties, a constructor that initializes these properties with validation, and methods for calculating area, perimeter, and determining if the rectangle is a square. The Main class creates two Rectangle objects with different properties and prints their area, perimeter, and type to the console using the methods defined in the Rectangle class. Additionally, the bonus task of adding validation to the constructor to ensure that the width and height parameters are greater than zero is also implemented.