A2: Rectangle Class

1. Make a rectangle class. This code will NOT run until all methods are filled in.

```
public class Rectangle {

	//two instance variables, one for height and another for width.

	public Rectangle() {
		//pick default values, any will do
	}

	public Rectangle(int w, int l) {
	}

	public int area(){
	}

	public int perimeter(){
	}

	public int getWidth(){
	}

	public void setWidth(int w){
	}
	public int getLength(){
	}

	public void setLength(int l){
	}

	public boolean equals(Rectangle r){
		if(r.getLength()==side2 && r.getWidth()==side1)
			return true;
		else
			return false;
	}

	public int compareTo(Rectangle r){
		//if they are equal return 0, otherwise return based on relative areas
		if(r.equals(this))
			return 0;
		else if (r.area()>this.area())
			return -1;
		else
			return 1;
	}

	public String toString(){
		return "width="+side1+", length="+side2;
	}

}
```

2. Create a new class. Paste the code in. If you have coded your Rectangle class correctly, it should run.

```
import java.util.Scanner;
public class RectangleRunner {

	public static void main(String[] args) {
		Rectangle one = new Rectangle();
		System.out.println("The dimensions of your rectangle are "+one);
		System.out.println("The area of the rectangle is "+one.area());
		System.out.println("The width is "+one.getWidth());

		Scanner in = new Scanner(System.in);
		System.out.print("\nWhat is the next rectangle's width?");
		int newwidth = in.nextInt();
		in.nextLine();
		System.out.print("What is the next rectangle's height?");
		int newheight = in.nextInt();
		in.nextLine();
		Rectangle two = new Rectangle(newwidth, newheight);
		System.out.println("The dimensions of your new rectangle are "+two);
		System.out.println("The area of the new rectangle is "+two.area());
		if(two.equals(one))
			System.out.println("\nThe two rectangles are equal.");
		else
			System.out.println("The two rectangles are not equal.");

		System.out.print("\nEnter a new width?");
		newwidth = in.nextInt();
		in.nextLine();
		two.setWidth(newwidth);
		System.out.println("The revised dimensions of your new rectangle are "+two);

	}

}
```