

## Rectangle Class

1. Open your Animal Program.
  - Edit the button so it read “Animal” instead of Show.
  - Add a new button – “Rectangle”. Make it’s onClick showRectangle.
2. Make a rectangle class.
  - You need to make a new Java class.
  - **Do not just cut and paste this into the MainActivity.**
  - As well, 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;
    }
}
```

### 3. Add to the MainActivity

```
public void showRectangle (View view) {
    TextView textArea = (TextView) findViewById(R.id.TextArea);

    Rectangle one = new Rectangle();
    textArea.append("\nThe dimensions of your rectangle are " + one);
    textArea.append("\nThe area of the rectangle is " + one.area());
    textArea.append("\nThe width is "+one.getWidth());

    Rectangle two = new Rectangle(20, 30);
    textArea.append("\nThe dimensions of your new rectangle are " + two);
    textArea.append("\nThe area of the new rectangle is " + two.area());
    if(two.equals(one))
        textArea.append("\nThe two rectangles are equal.");
    else
        textArea.append("\nThe two rectangles are not equal.");

    two.setWidth(100);
    textArea.append("\nThe revised dimensions of your new rectangle are " + two);
}
```