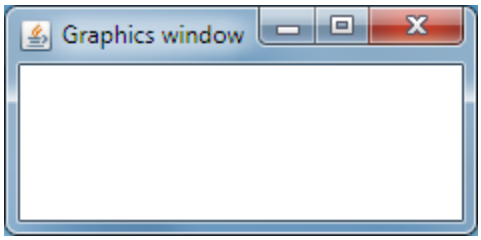
Java Graphics Reference



In class, we saw the `ResizeDrawing` program which lets you draw in a rectangular window on the screen as shown to the right.

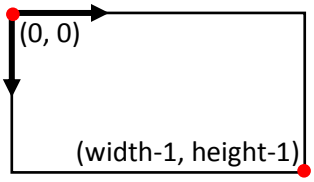
In the `ResizeDrawing` class, there is a method named `draw` which you can customize with your own Java code:

```
public static void draw(Graphics g, int width, int height) {
    // Drawing code goes here!
}
```

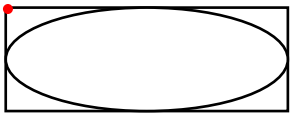
This method is called every time the window needs to draw itself. This can happen if the window is resized, minimized, maximized, covered up, exposed, etc.

The `width` parameter indicates the number of horizontal pixels in the **content pane** (white rectangular area) of the window. If you have a high DPI display (Retina-style), each pixel may be very tiny. The `height` parameter indicates the number of vertical pixels in the content pane.

The upper left corner pixel of the content pane has coordinate (0, 0). The x coordinates increase as you go to the right and the y coordinates increase as you go down. This coordinate system is commonly used on computers and descends from the way old televisions used to work: the electron beam would scan each row of the screen left to right, top row first. Because the upper left has coordinate (0, 0), the lower right pixel actually has the coordinate (width-1, height-1).



The `Graphics g` object lets you draw on the screen. The `g` object is attached to the content pane of the window. By putting a dot to the right of `g` and naming a method, we call on the object to perform the method which results in drawing in the content pane of the window. Here are some common commands:

`g.drawOval(x, y, width, height);` (x, y) 	Draw the outline of an ellipse. The bounding box (rectangle) that surrounds the ellipse would have its upper left corner at the given x and y coordinates, and the given width and height. Remember that Java can pass the result of an expression for a parameter. For example, **width and height don't have to be the window width and height!**
`g.fillOval(x, y, width, height);`	Fill in the ellipse defined as above with `drawOval`.
`g.drawRect(x, y, width, height);`	Draw the outline of a rectangle with its upper left corner at the given x and y coordinates, and the given width and height.
`g.fillRect(x, y, width, height);`	Fill in the rectangle defined as above with `drawRect`.
`g.drawLine(x1, y1, x2, y2);`	Draw the line segment from (x1, y1) to (x2, y2).
`g.setColor(Color.X);`	Change the pen color for graphics drawing and filling. Common English color words are defined for X, such as Color.red, Color.blue, Color.green, Color.yellow, Color.black, Color.white, Color.pink, Color.orange, etc.