

Some of the features of the UW graphics library

To create a graphics window, we instantiate the GWindow class. The class comes with several constructors. The most useful one takes the width and the height of the window.

```
GWindow w = new GWindow(300, 400); // a 300 x 400 window
```

The full name of the class is uwcs.graphics.GWindow, which means that the class GWindow is in the package graphics, which is itself in the package uwcs. A package in Java is a folder that contains classes (and possibly other packages). Packages are useful to avoid name collisions between classes.

To avoid having to type the full name of the class in a program, we write an import statement at the start of the program such as

```
import uwcs.graphics.GWindow;
```

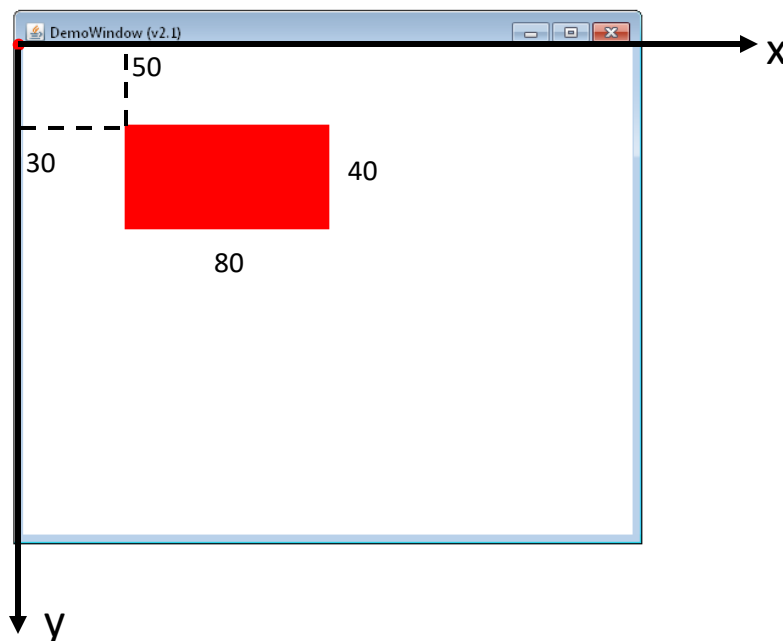
When the compiler encounters the name GWindow in the code, it understands that we mean uwcs.graphics.GWindow.

Graphics objects such as Rectangle, Triangle, etc. may be placed in a graphics window. Their location is based on the coordinate system of the window. The origin is the top left corner of the area within the frame of the window. The x-axis is directed left to right and the y-axis is directed top to bottom (which is different from the usual math convention). Coordinates are given in pixels. A Rectangle object is defined by its location (its top left corner), its width and height, its color, and whether it is filled or not by that color.

The code

```
Rectangle r = new Rectangle(50,30,80,40,Color.RED,true);  
w.add(r);
```

adds a filled red rectangle to the graphics window at location(50,30) with width = 80, and height=40;



The Color class belongs to the package java.awt (awt is an acronym for abstract windowing toolkit). It contains predefined colors (available as for instance Color.BLUE). We can also create our own color using one of the many constructors, e.g. we can use the constructor that takes amounts of red, green and blue specified as integers between 0 and 255: `Color c = new Color(123, 108, 55)`.

The predefined colors are defined as constants in the Color class. The Java style is to use names that are all uppercase for constants. However that convention was not initially used in the first release of the Color class. For that reason, the class features also constants whose names are lowercase (e.g. `Color.blue` which is the same as `Color.BLUE`).