

April 11, 2002

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## Assignment #2

**Due:** Tuesday April 16, 2002 by class-time

In this exercise your window system will begin to exhibit functionality that you would expect to find in any modern window system – actual windows that can be displayed onscreen! As before, many of the implementation details are left to you to decide, but here is a list of features that your window system must be able to provide.

- Give applications the ability to create a new, empty window.
- A new window shows up onscreen as soon as it is created, and by default just draws a white box.
- Give applications the ability to draw simple graphical elements to the window (more information about this below)
- Each window remains visible until it is closed, which removes it from the screen and restores what was below it.

As you make design decisions about how to implement these features, you will find tradeoffs that will make certain solutions more elegant than others. As was mentioned in an earlier handout, there is no single way to implement these features. For instance, you could extend your WindowSystem object to have a method that returns an instantiated window. You could alternately require an application writer to instantiate the window him/herself and then pass it to the WindowSystem. Think about the pros and cons of both sides of this and other such design decisions.

In order to give windows the ability to display themselves, and for applications to be able to draw shapes into a window, you will need to know more about the GraphicsEventSystem API. Here are more calls available that you may find useful (All parameters are in global coordinates).

- `public void handlePaint() { }`
- `public final void drawLine(int inStartX, int inStartY, int inEndX, int inEndY)`
- `public final void drawRect(int inX, int inY, int inWidth, int inHeight)`
- `public final void fillRect(int inX, int inY, int inWidth, int inHeight)`
- `public final void setColor(Color inColor)`

**Note:** You should override the empty handlePaint method in your WindowSystem class to paint a gray background, then do whatever else needs to be done to paint the windows. The handlePaint method is inherited from GraphicsEventSystem, and currently does nothing.

You should also create a sample application that shows off the new functionality of your WindowSystem. It should open three overlapping windows, and draw a different design in each one. After pausing for several seconds (so we can see what's there), it should close the windows.

**Submission:** As you did last time, make a directory in the class submission directory with your username (or your usernames, hyphenated together if you are working in a group). The submission directory for this assignment is at:

`/afs/ir/class/cs377a/submit/assn2/`

You can then FTP your files into that directory. Please archive your CodeWarrior project directory (use the DropStuff application on any public cluster macintosh) and submit the archive to us.