

## Lab03 - Example Panels

Due: Fri Apr 18, 2014

Please create an example panel on Monday. We'll share and tie it all together on Wednesday.

Concepts in Lab 03 include:

- ❑ Chapter 7 & 13 - GUI goodness
- ❑ Chapter 14.6-14.8 - Mouse events, Timers and Audio

### Monday - Three Example Panels

We'll have three example panels: mouse events example, timer example, audio example.

Each example:

- "is-a" `JPanel`
- is square: 500 by 500 pixels (use `JPanel.setPreferredSize( Dimension )`)
- has its own `main()` that creates a 500x500 `JFrame`, adds the panel and runs

Each 161 ninja will get an example panel out of the hat and run.

Process!

1. Write down your notes on a piece of paper. The steps you will take.
2. Create your GUI objects without listeners. Don't worry about formatting for now.
3. Create your listeners one at a time.
4. Get things working, and as a last step spiff up your GUI formatting

Here are some notes on each example panel.

### Ch 14.6 Mouse Events Example

Basics: Create a button that changes text based on what the mouse does.

- I used a button that detected 3 mouse events: mouse entered, exited and was clicked.
- Use a `MouseAdapter` (p 905, code on p 910) rather than a listener
- You can change the text in a button dynamically, but then you have to tell it to update.

```
exampleButton.setText( "Mouse has entered" );
exampleButton.validate();
exampleButton.repaint();
```

### Ch 14.7 Timer Example

Basics: Create a `Timer` object to do a countdown.

- I used a slider to set the total delay for my countdown. You can use whatever you like.
- I created a `JButton` that showed the countdown. You can use this or whatever you like to show your timer counting down. You have to `validate()` and `repaint()` as shown above
- I countdown each second. That's 1,000 milliseconds... for when you create your `Timer`.

## Ch 14.8 Audio Example

Play an audio clip from the internet.

- I got my audio clip off the internet. Here's how:

```
this.audio = null;    // audio is an AudioClip var
try {
    URL url = new URL( webAddress); // webAddress is a string
    this.audio = Applet.newAudioClip( url);
} catch( Exception exc) {
    System.out.println( exc);
}
```

- Java can't play every WAV file. It has something to do with the type of compression used. So, it's trial and error. If something doesn't play, then try a different clip.

## Wednesday - Bringing it together

On Wednesday, we'll create a class to bring all three example panels together. That means two new classes:

- `ExampleLab` - the biggie who creates and controls two frames: selection and example.
- `Lab03` - just `main()` that creates an `ExampleLab` object and runs it

`ExampleLab` has:

- A selection frame to choose which example you want to run
- An example frame that holds the example frame currently running
- I used radio buttons to select. You choose your fave.
- I created the 3 example panels and held them as variables in my `ExampleLab`, waiting to be chosen, so they can be shown in the example frame.
- How do you swap panels in/out of a frame? `JFrame` has a `remove( JPanel )` method to get rid of the old/previous panel. And we've already used its `add()` method.

```
f.remove( curPanel);    // f is a JFrame, remove current panel
f.add( selectedPanel); // add the selected panel
curPanel = selectedPanel; // accounting
```

- We'll talk in lecture about `LayoutManagers` (p 396-411) to spiff up your formatting a bit. This can be a very frustrating thing, but we'll work on it. Remember - formatting last!
- Your selection frame must have an Exit button to exit the program.
- The Clear button is optional. I was having fun, so I added a button to clear the example frame, setting it to an empty panel.

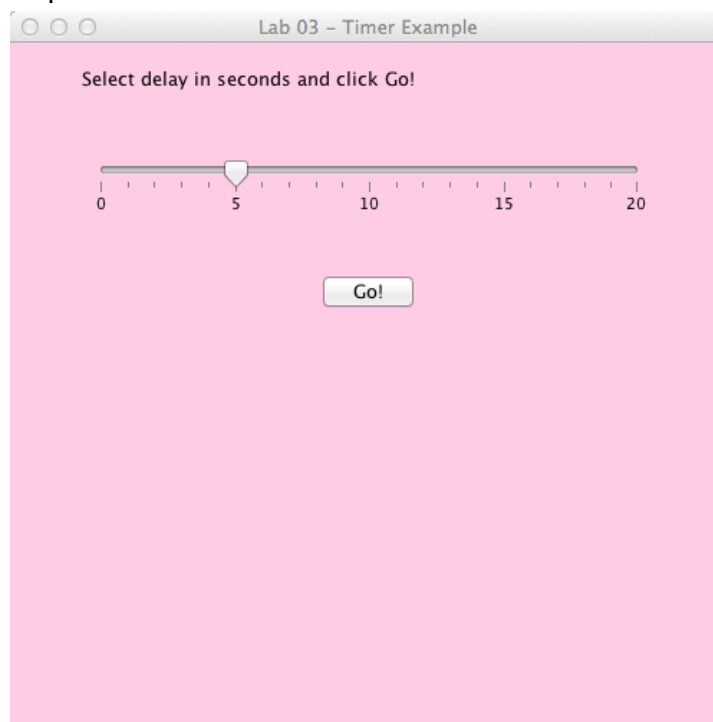
In this lab, I want to show you that `JFrame` and `JPanel` are objects just like any other. They can be easily manipulated to do powerful things in your GUI.

Quick quiz: What's the diff between a `JFrame` and a `JPanel`?

From 14.6, mouse events example:



From 14.7, timer example:



From 14.8, audio example:



Wed - ExampleLab class with 1) a select frame and 2) an example frame (currently empty).

