

## COMS W1114 - Java Lab

Lab 13  
Wednesday, April 28, 2004  
&  
Thursday, April 29, 2004

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## Notes

- HW5 ready
- Your grades are now up off of a link on the course website. Report any errors to Janak!
- HW6 Due Wed, May 5 @ 5p.
- Check bboard for OH changes

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## What we are covering today

- Go over HW5 solution
- Review from Lab 12
  - Event based programming
- Applets
- Packages
- Review

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## Simple Event

- Make a button do something
- We have our button myButton and we've added it  
`Button myButton = new Button("Submit");`  
`add(myButton);`
- Now need to "listen" for actions/events we care about  
`myButton.addActionListener (this);`  
*this* means the current frame will be responsible for the code for some *ActionPerformed* method(what?! pretty easy....)

```
public void actionPerformed (ActionEvent e){  
    if (e.getSource() == buttonname1) {  
        statements;  
    } else  
    if (e.getSource() == buttonname2) {  
        statements;  
    } //etc  
}
```

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## Different Kinds of events

Event	Listener	methods
ActionEvent	ActionListener	actionPerformed
MouseEvent	MouseListener	mouseClicked, mousePressed etc..
KeyEvent	KeyListener	keyPressed, keyTyped
TextEvent	TextListener	textValueChanged
WindowEvent	WindowListener	windowClosed, windowActivated ...

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## Interfaces

- so you want to use one of the event listeners?
- java has Listener interfaces which specifies the methods that the listener MUST defined (listed on previous slide and on pg 423)
- if you want to detect any of the actions, you need to implement its Listener, and then be sure to define all its methods!
- see code example for syntax

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## Applets (1)

- Want to display your programs/GUIs in a web browser?
- Write an applet! Really simple since we know how awt works
  - Import Applet and Graphics

```
import java.applet.Applet;  
import java.awt.Graphics;
```
  - Extend the Applet class
    - public class HelloWorld extends Applet{}
  - Implement some Applet methods (paint!)

```
public void paint(Graphics g) {  
    g.drawString("Hello World", 50, 25);  
}
```

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## Applets (2)

- Run it in a Browser

```
html here  
<APPLET CODE="HelloWorld.class" WIDTH=150 HEIGHT=25>  
</APPLET>  
more html
```
- That's it!
- <http://java.sun.com/docs/books/tutorial/applet/>

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## Packages

- We've seen package use already

```
import java.awt.*;
```
- What if we want to write a class that conflicts with an existing name?
  - We package our code
  - Use the package command
  - Check out [java.sun.com/docs/books/tutorial/java/interpack/packages.html](http://java.sun.com/docs/books/tutorial/java/interpack/packages.html)

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## Congratulations!

- We've covered the fundamentals of programming:
  - Datatypes: Primitives, Objects, Arrays
  - Iteration/Looping: While, For, do...while
  - Conditionals: if...else...elseif, switch statement
  - Objects: Constructors, Methods, a Variable's Scope
  - Basic I/O: interactive I/O, file I/O, Basic Exception Handling
- How to do things:
  - Coding practices, Debugging tools, advanced I/O
  - Object Oriented (OO) Design
    - properties, references, abstraction, inheritance
  - GUIs, Event based programming

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## Congratulations!

- You've built:
  - A simple calculator reading program arguments
  - A palindrome checker reading keyboard input
  - Bank Account Manager w/ interactive interface
  - Shape calculator w/ interactive interface
  - Shape plotter w/GUI
- What are you going to build next?

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## End Notes

- Thank you! (from Maryam too)
- Fill out the course evaluation! Win your iPod  
<http://oracle.seas.columbia.edu/wces/>
- Please also remember to rate your TAs (*you can rate any TA in this class, not just your lab instructor!*)
- OH changes - check bboard

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