Java AWT Notes

AWT Class Hierarchy (partial)

A Simple Java Application

Java Application Notes

Event Handling

Example: Track Mouse
Example:  Track Mouse (cont)

```java
// MouseMotionListener methods
public void MouseMoved( ) { }
public void MouseDragged
    (MouseEvent e){
    locX = e.getX();
    locY = e.getY();
    repaint();
}
// repaint screen
public void paint(Graphics g){
g.drawString("Here!",locX,locY);
}
```

Example:  Button

```java
// constructor - create button,
// add to this Frame
// and register as a listener
public WatchButton( ) {
    belly = new Button("press me");
    add(belly);
    belly.addActionListener(this);
}
```

Example:  Button (cont)

```java
// react to button press
public ActionPerformed
    (ActionEvent e) {
    if (e.getSource()==belly){
        respond to button press
    }
}
```

Example:  Button (concl)

- The test isn’t strictly necessary if we know that belly is the only button that could generate the event.
- Many other UI components (text boxes, dials, …) generate similar events. The ActionEvent contains details of the event (source, kind, data values, locations, …). 

Layout Managers

- A Layout Manager is associated with every Container. The layout manager is responsible for positioning components in the container when the container is redrawn.
- Basic layout manager classes
  - FlowLayout - arranges components from left to right, top to bottom. Nothing fancy
  - GridLayout - regularly spaced rows and columns
  - BorderLayout - Components can be placed in the Center, North, South, East, or West. Useful trick: to place several controls in one of these places, create a Panel containing the controls, then place the Panel in one of the 5 BorderLayout locations.
  - GridBagLayout - General constraint layout. Can create almost any effect, but can take some work to do it. If you’re comfortable with complex HTML tables, you’ll feel at home.

Layout Manager Example

```java
public SomeContainer( ) extends ...
    ...
    button c = new Button("cold");
    button w = new Button("warm");
    setLayout [new BorderLayout( )];
    add(c, "North");
    add(w, "South");
}
```

- Also need to add listeners for the buttons, etc.