

AWT

- Graphics
- Components
- LayoutManagers

■ Graphics

- Dimension

```
Dimension d = myApplet.getSize();  
int width = d.width;  
int height = d.height;
```

- Font

```
FontMetrics f = graphics.getFontMetrics();  
int stringWidth = f.stringWidth(text_);  
int stringHeight = f.getHeight();
```

- Color, Image, Point, Polygon, Rectangle...

Where to get info:

- (1) Your reference book
- (2) The course web page!

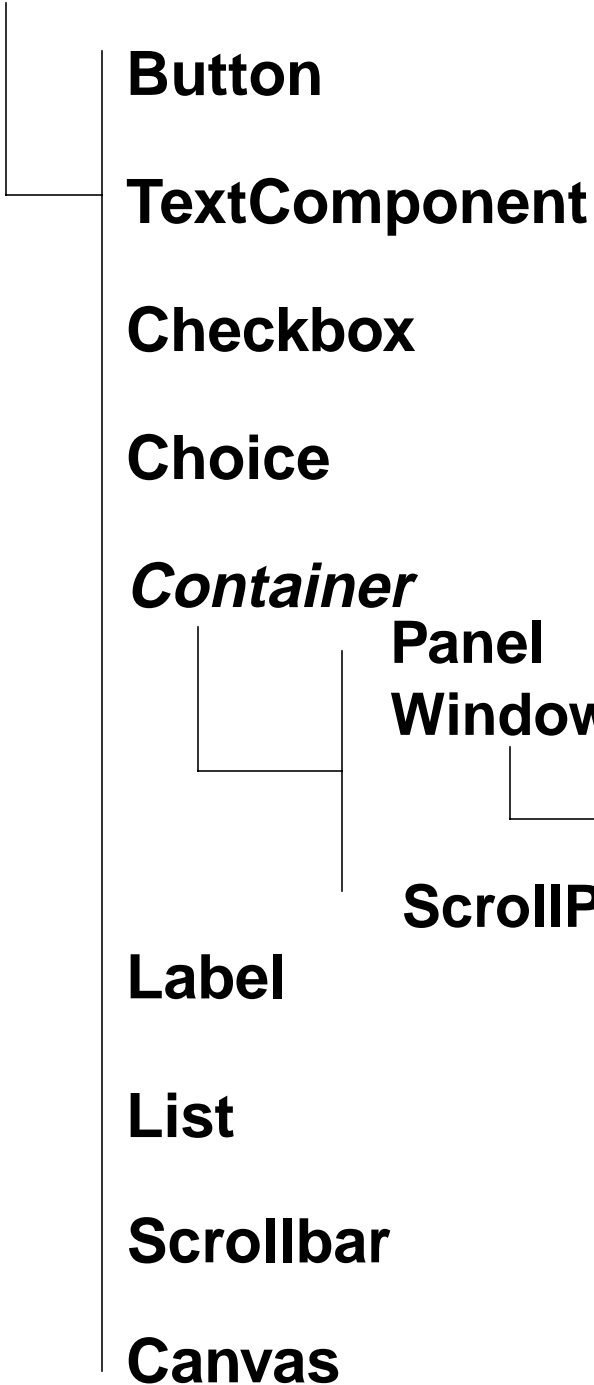


Components

Class Hierarchy

Object

└─ ***Component***



Button

TextComponent

Checkbox

Choice

Container

└─ **Panel**

└─ **Window**

└─ **Dialog Frame**

└─ **ScrollPane**

Label

List

Scrollbar

Canvas

■ A Component is an Object that can

- enable(), disable()
- setLocation(int,int), getLocation
- setSize(int,int), getSize()
- setVisible(boolean)
- setForeground(Color), getForeground(Color)
- setBackground(Color), getBackground(Color)
- setFont(Font), getFont()
- repaint(Graphics)
- paint(Graphics)
- addMouseListener(MouseListener)
- addKeyListener(KeyListener)

■ **A Container is a Component that can**

- `setLayout(LayoutManager)`
- `add(Component)`, `remove(Component)`

A Window is a Container that can

- `show()`
- `ToFront()`
- `toBack()`

A Frame is a Window with a title, menubar, border, and curser that can

- `setTitle(string)`, `getTitle()`
- `setMenuBar(MenuBar)`

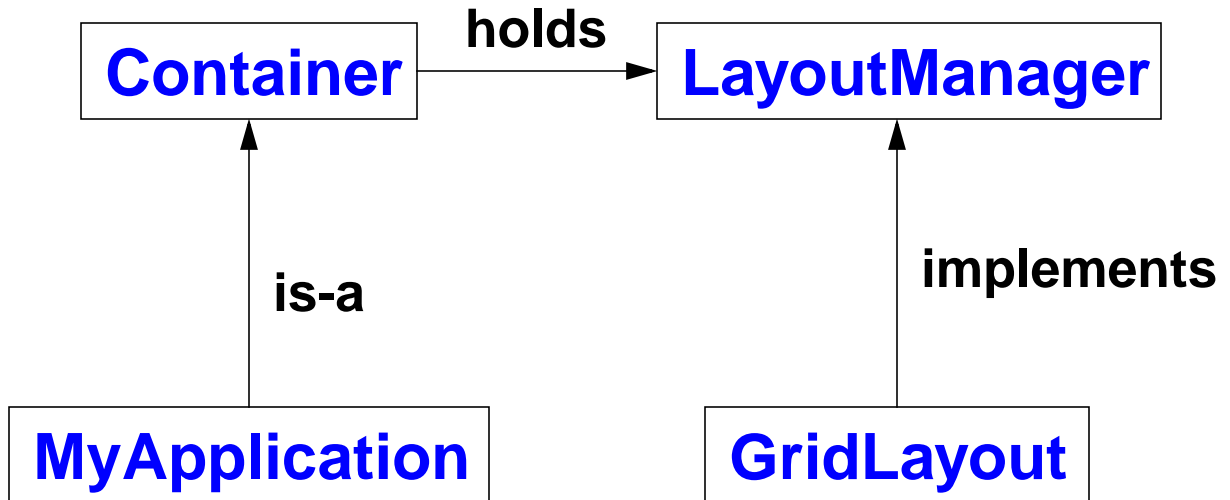
■ A Panel is a Container that..

- Can contain a set of Components that make up a logical portion of a larger interface
- Panels can contain other Panels as well
- An Applet is a subclass of Panel

■ **LayoutManagers**

- determine how your components will appear
- **BorderLayout**
 - places Components in the “North”, “South”, “East”, “West”, and “Center” positions
- **GridLayout**
 - allows you to create a 2D array of components
- **FlowLayout**
 - Components are placed one after the other, left-to-right, top-to-bottom
 - relative sizes of Components determine appearance
- **CardLayout**
 - Components are stacked vertically
 - Only one is visible at a time
- **GridBagLayout**
 - more complex LayoutManager
 - gives the user more control over grid sizes and component positions within a grid

■ Organization...



■ Example

