Java Swing GUI Programming 3

Questions?

- Anything about our previous material?

Learning Objectives

- Layout management
  - Strategies for positioning components
  - Flow, Border, Box
- Program design, communication across classes

Layout

- Where do all the different components in a GUI go?
  - Dictated by layout manager in Swing
  - There are multiple types of layout managers that all work differently
  - `setLayout` method of a panel controls it

```
JPanel panel = new JPanel();
panel.setLayout(new BorderLayout());
```

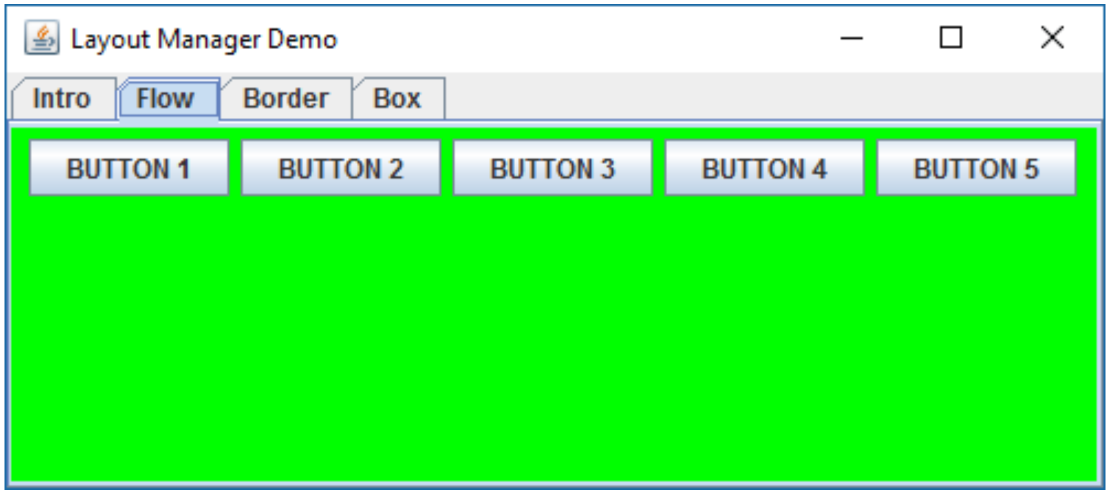
1. FlowLayout

- L->R, with components at preferred size, start a new row when needed
  - Default if no type is specified
- Alignment within a row can be left, center (default), or right aligned
- Can make more/less gap between elements

```
FlowLayout(int align, int hgap, int vgap)
```

$\downarrow$

constants such as `FlowLayout.LEFT`

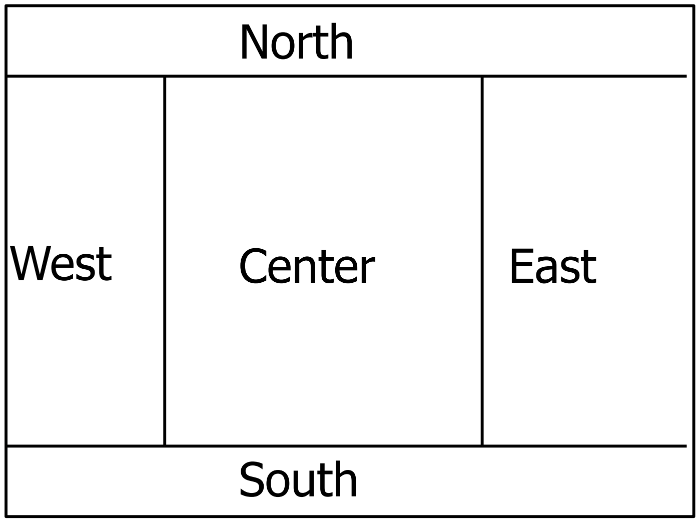

Layout Manager Demo
Intro
Flow
Border
Box
BUTTON 1
BUTTON 2
BUTTON 3
BUTTON 4
BUTTON 5

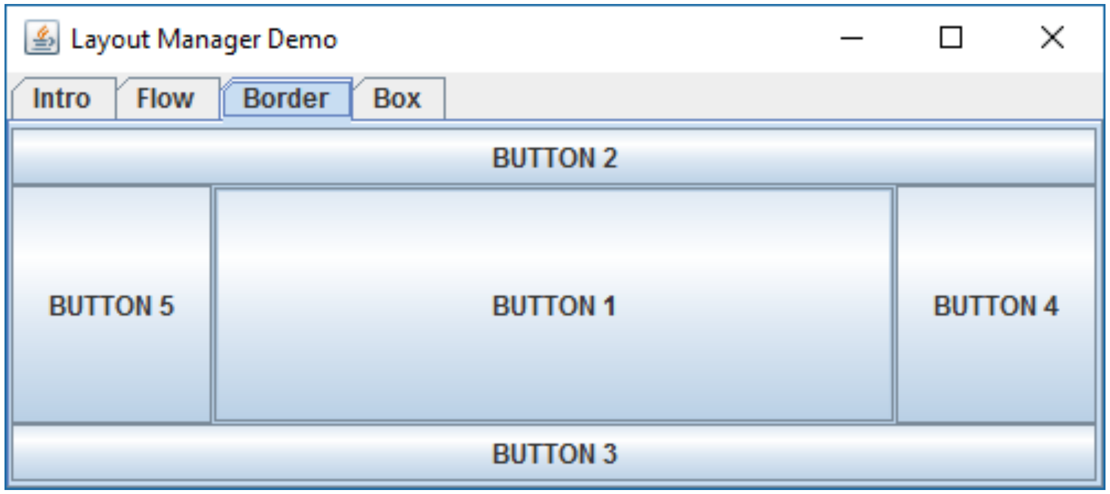
FlowLayout

2. BorderLayout

5 areas
If nothing in N,E,W,S then no area and center expands
Only one component per area
If you add() a second, it replaces first
To get more than one item in a spot, put a panel there
Default is zero gaps, can be changed with a method

add(component, region)
e.g.,
`add(but, BorderLayout.EAST);`





BorderLayout

3. BoxLayout

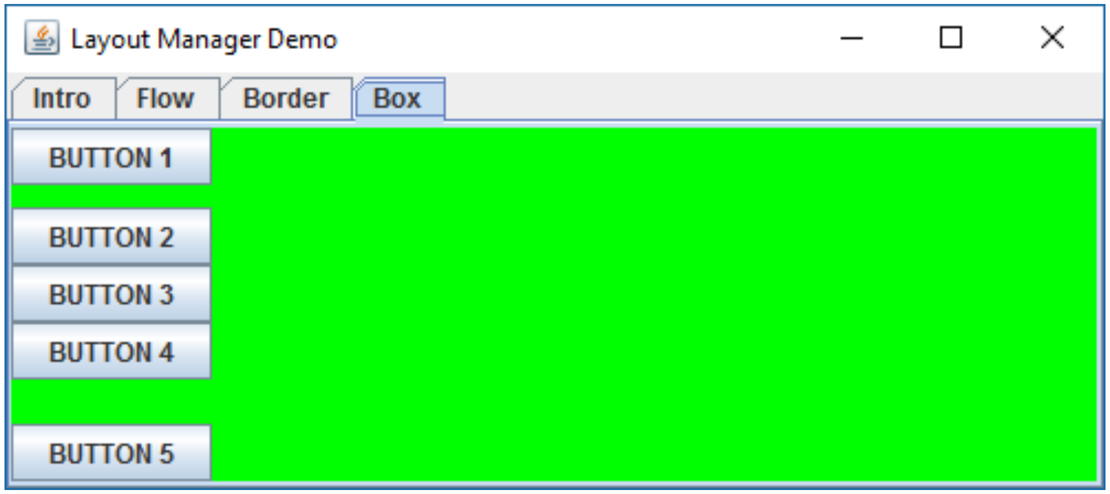
One row or column
Uses different style constructor

```
setLayout(new BoxLayout(this, BoxLayout.Y_AXIS));
```

No gaps between components, but we use invisible components to take up space (`Box` class)

```
add(c1);
add(Box.createRigidArea(new Dimension(0,10)));
add(c2);
add(Box.createVerticalGlue()); // flexible
```

This manager frequently used to manage sub-components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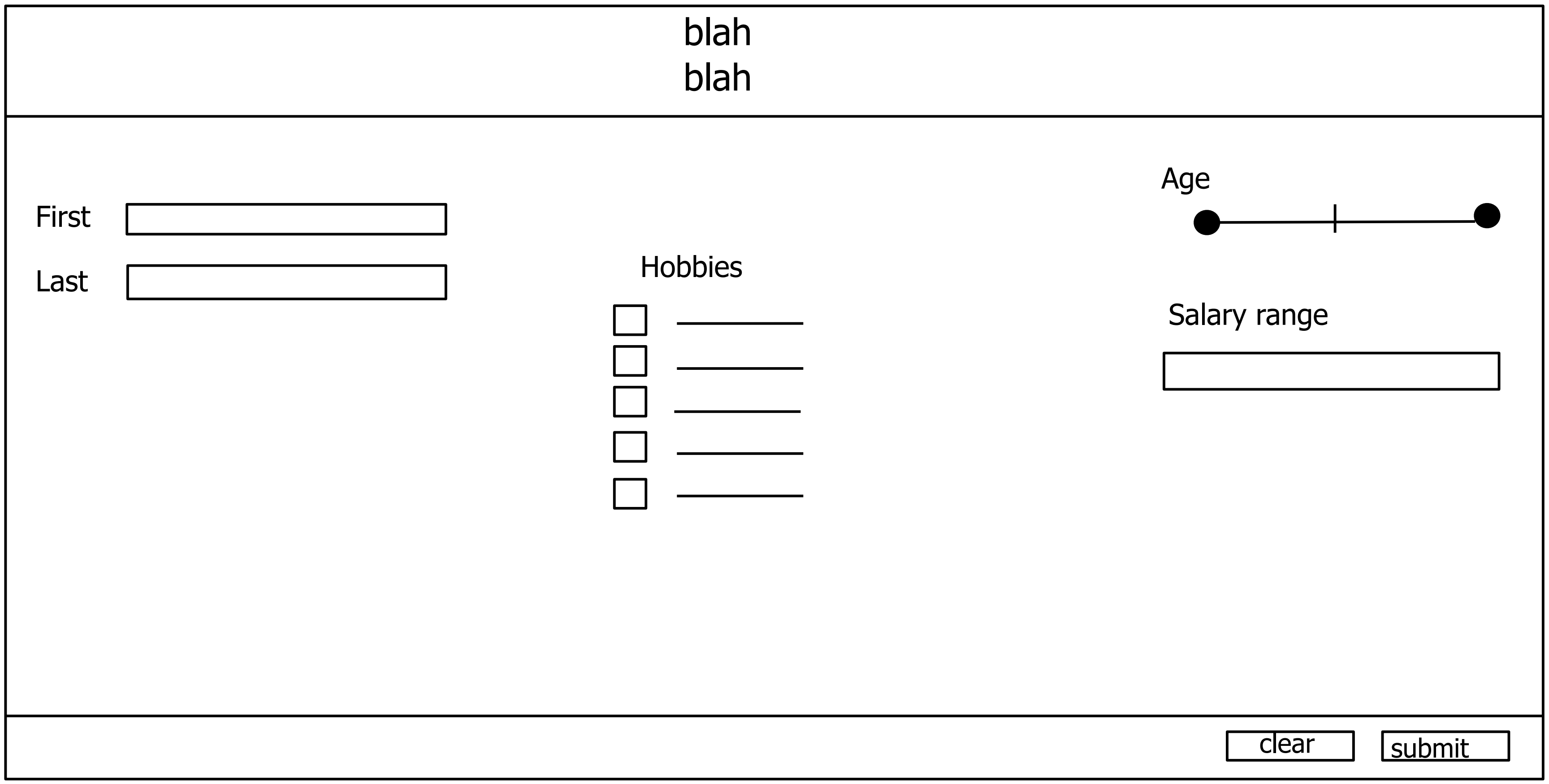
BoxLayout

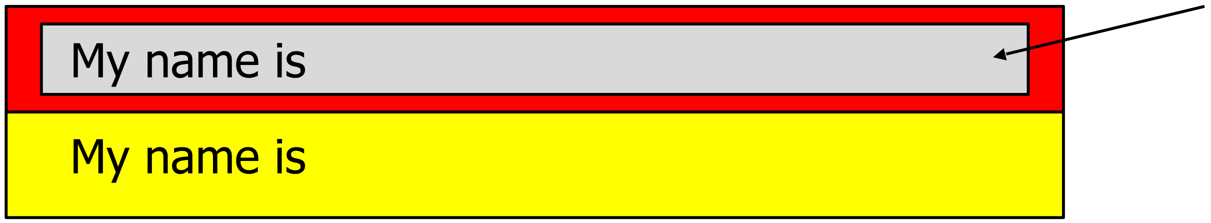
How Done?



Reading Review

- "Picking Pockets on the Lawn: The Development of Tactics and Strategies in a Mobile Game", Barkhuus, et al, Ubicomp '11

Design Challenge



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Make each of the regions be their own panel and class

```
PanelsExample, ParentPanel, InputPanel, LabelPanel
```

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Next Time

- Other components
  - Scrollbars, menus, …
- Mouse and keyboard events