

Putting it all Together

In the News Today

Facebook Files for IPO:

<http://dealbook.nytimes.com/2012/02/01/facebook-files-for-an-i-p-o/?hp>

Assignment 3 Demo

Breakout!

- Due next Friday, February 10.
- YEAH hours tonight, 7-8PM in Herrin T175.
- **Start Early!**
 - There is a nice breakdown of the required tasks suggested in the handout.
 - This program is not as hard to write as it may seem.
- **Have Fun!**
 - There are a **lot** of fun extensions you can add onto the basic functionality.
 - We love giving extra credit on this one. ^_^

Review From Last Time

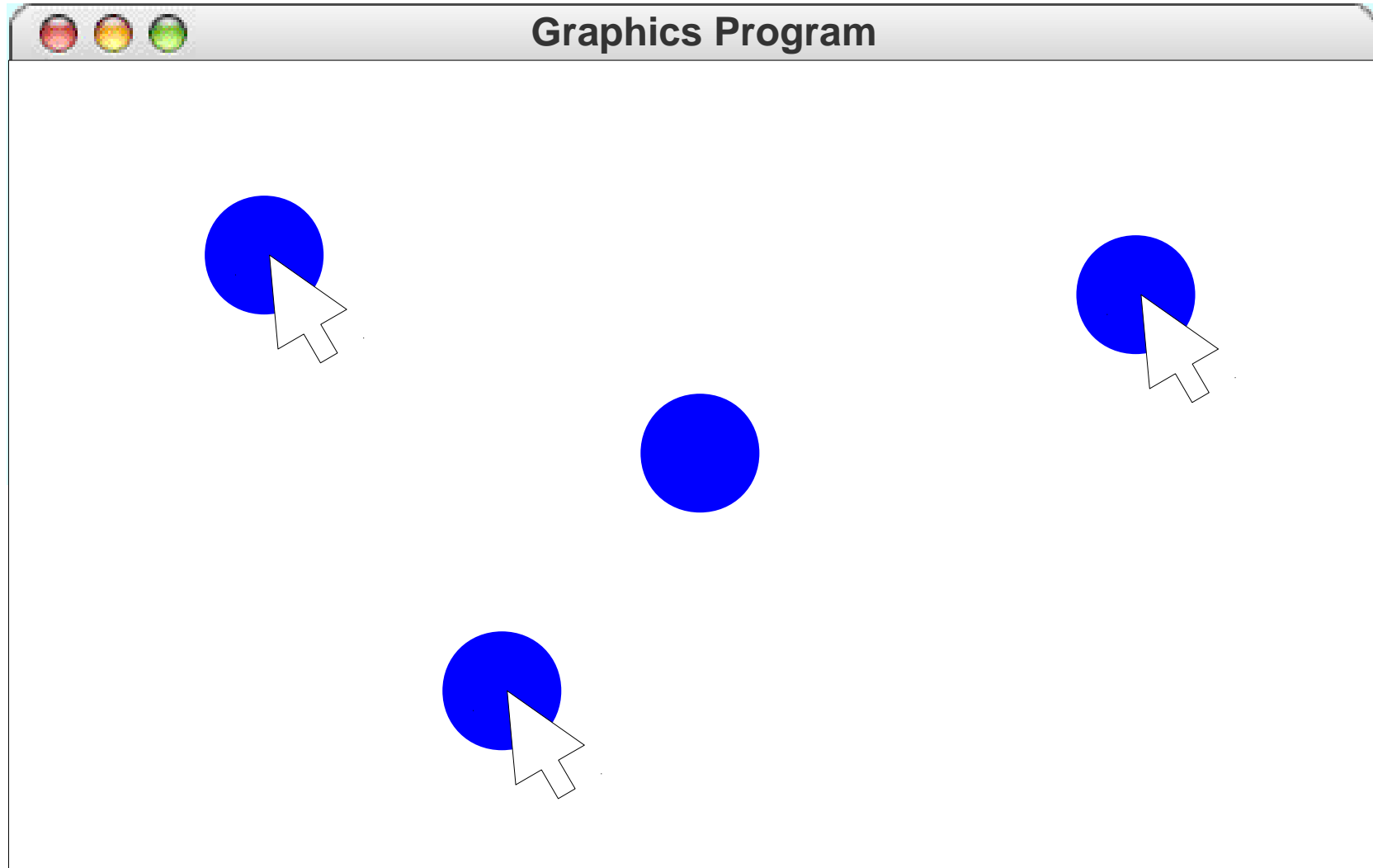
Responding to Mouse Events

- To respond to events, your program must
 - Indicate that it wants to receive events, and
 - Write methods to handle those events.
- Call the **addMouseListeners()** method to have your program receive mouse events.
- Write appropriate methods to process the mouse events.

Methods for Handling Events

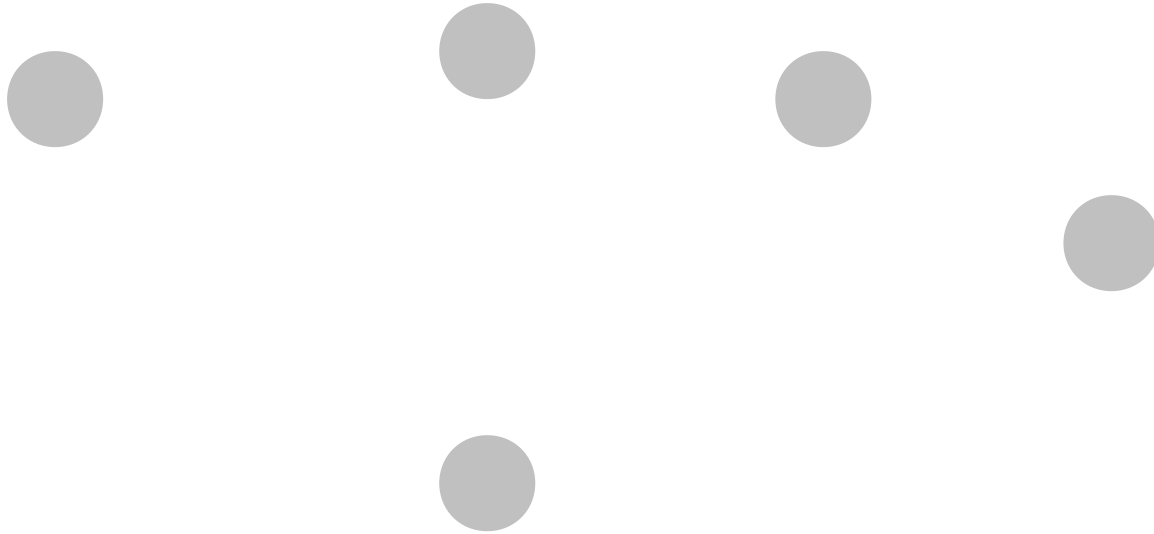
- Define any or all of the following mouse event handlers to respond to the mouse:
 - `public void mouseMoved(MouseEvent e)`
 - `public void mouseDragged(MouseEvent e)`
 - `public void mousePressed(MouseEvent e)`
 - `public void mouseReleased(MouseEvent e)`
 - `public void mouseClicked(MouseEvent e)`
 - `public void mouseEntered(MouseEvent e)`
 - `public void mouseExited(MouseEvent e)`
- You must also `import java.awt.event.*;` for the `MouseEvent` class.

A Friendly Circle



Combining Animation and Events

A Snowfall Simulation



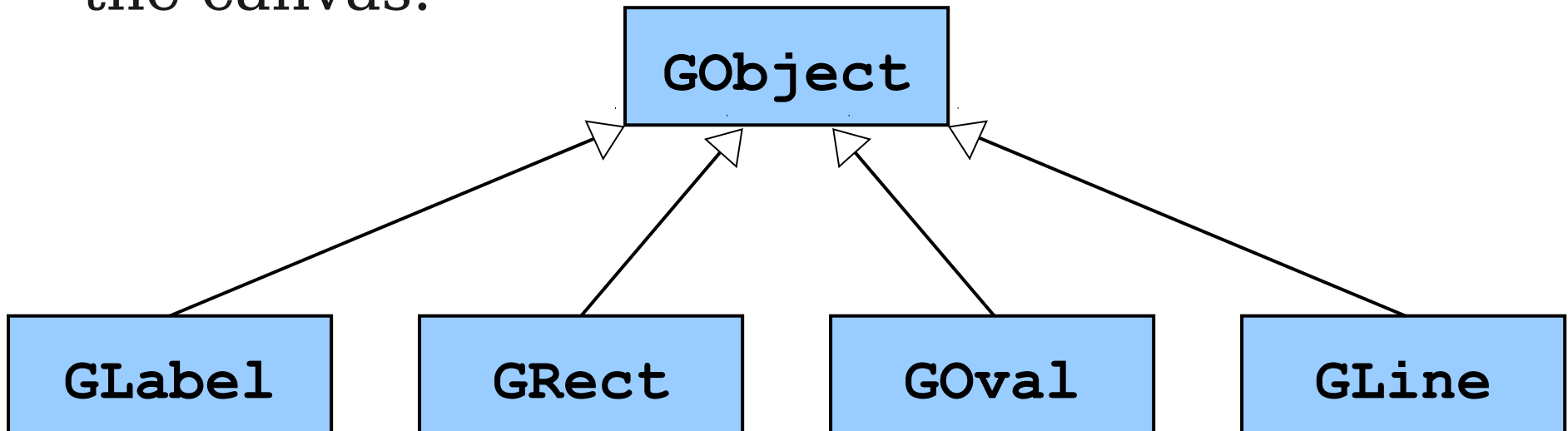
Let it Snow!

Accessing the Canvas

- It is possible to determine what, if anything, is at the canvas at a particular point.
- The method

```
GObject getElementAt(double x, double y);
```

returns which object is at the given location on the canvas.



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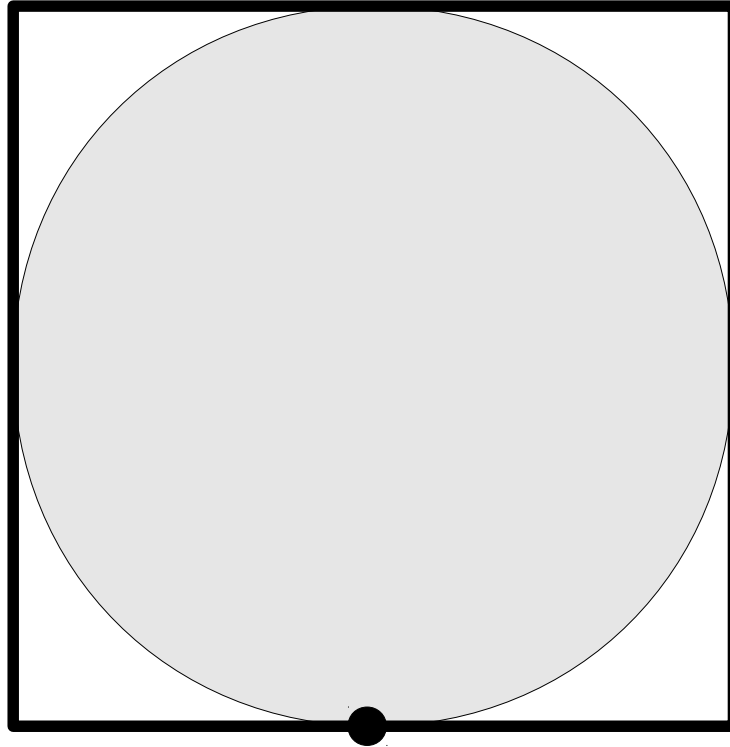
```
GObject getElementAt(double x, double y);
```

returns which object is at the given location on the canvas.

- The return type is `GObject`, since we don't know what specific type (`GRect`, `GOval`, etc.) is really there.
- If no object is present, the special value `null` is returned.

A Simple Collision Detector

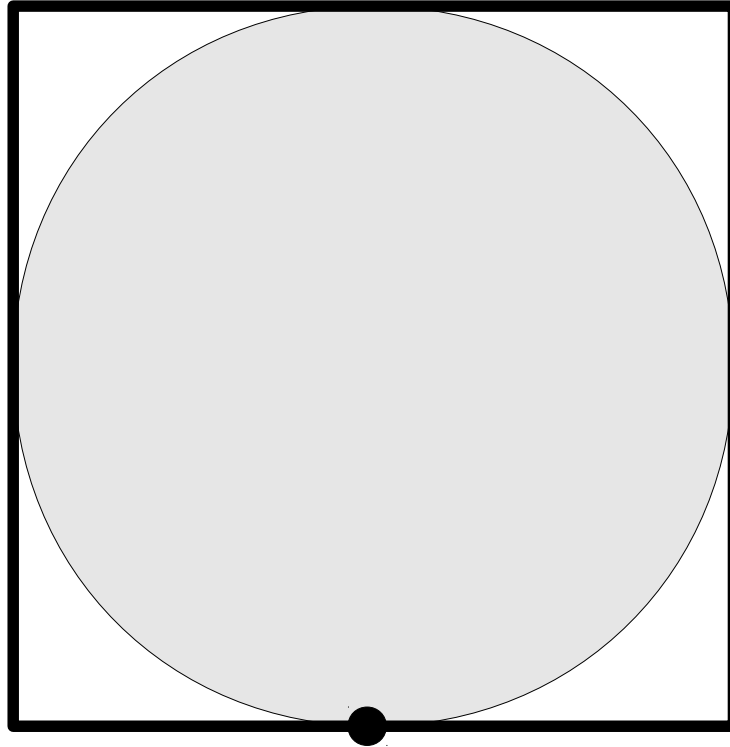
(x, y)



$(x + 2r, y + 2r)$

A Simple Collision Detector

(x, y)



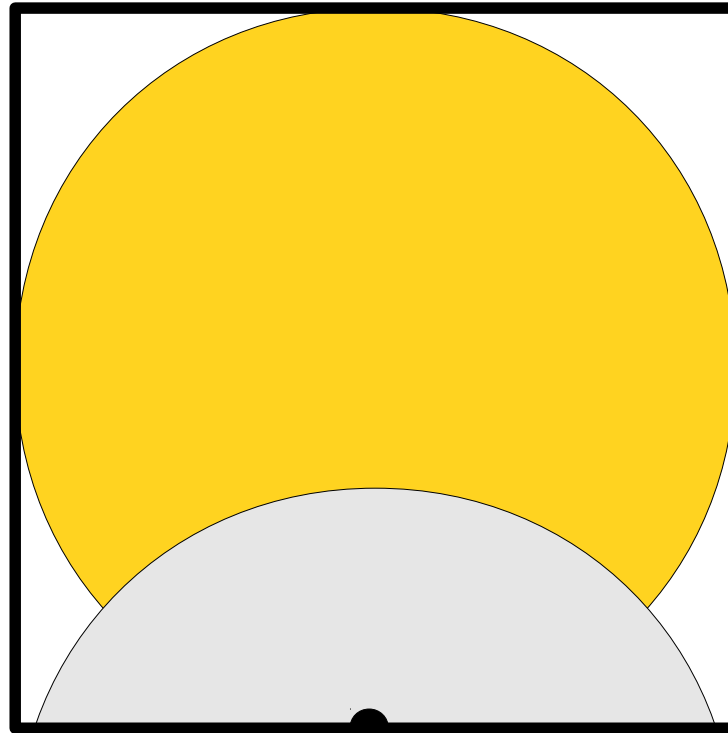
$(x + r, y + 2r)$

$(x + 2r, y + 2r)$

What Went Wrong?

A Simple Collision Detector

(x, y)



$(x + r, y + 2r)$

$(x + 2r, y + 2r)$

Reordering Objects

- Each GObject can have its **z-order** adjusted.
- The method

***object*.sendToBack () ;**

moves the object to the back of the z-order.

- **getElementAt** will return the topmost object where it hits.

The Importance of Style

- General rule of thumb:

Don't make a variable an instance variable unless you have to.

- Use local variables for temporary information.
- Use parameters to communicate data into a method.
- Use return values to communicate data out of a method.

The Chaos Game

- Pick any three points.
- Starting at any of the points:
 - Choose one of the three points randomly.
 - Move halfway from your current location to the chosen point.
 - Draw a dot at your current location.
 - Repeat.

Sierpinski Triangle

