


Lecture 4: Standard  
Java Graphics

+ Today



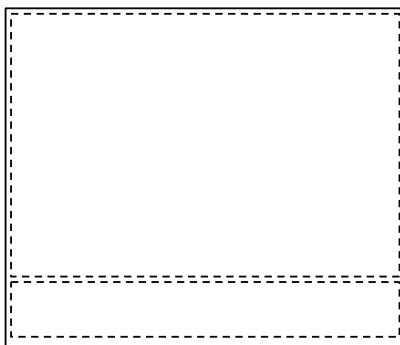
- Reading
  - JS Ch. 3 (Vectors), Ch. 4 (Generics)
- Objectives
  - More Java Graphics
  - Events

## + Reminders

- Friday quizzes
  - 5-8 minutes, 2-3 questions, easy to answer if you've done reading/attended lectures
- Lab today!
- Our current pace!
  - Review for some, not for others
  - Don't panic

## + PostItStdApplication

- JFrame contains two JPanel: canvas and buttons



- DrawingCanvas extends JPanel
  - Registers a MouseListener and a MouseMotionListener
  - Note these are implemented as inner classes
- Buttons held in JPanel
  - Top-level class PostItApplication implements ActionListener

## + Handling Mouse Events

- If want program to react to mouse press, click, or release on a component
  - send `addMouseListener(mlo)` to component (usually in the constructor of the component)
  - See `PostItApplication.java`
  - For motion or drag, send `addMouseMotionListener(mlo)`
- When user presses mouse on a component
  - Computer looks for registered "MouseListener" for component or its containers.
  - If found, sends `mousePressed(evt)` to listener

## + Mouse Listeners

- Object designated as mouse listener must
  - implement `MouseListener` (& implement `mousePressed`, `mouseReleased`, & `mouseClicked`) *or*
  - extend `MouseAdapter` (which has default implementations of all 3)
- Second is easier unless class already extends another.
- Similarly, for mouse motion listener
  - implement `MouseMotionListener` *or*
  - extend `MouseMotionAdapter`

## + GUI Objects & Events

- Similar to handling mouse events, but must also install components in a container.
- See GUI cheat sheet in Documentation & Handouts.