

# Chapter 13

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## Window Interfaces Using Swing Objects

- 13.1 Background
- 13.2 Basic Swing Details
- 13.3 Buttons and Action Listeners
- 13.4 Container Classes
- 13.5 Text I/O for GUIs



# Objectives

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- 1) Learn the basics of event-driven programming
- 2) Learn to design and code a simple GUI that includes buttons and text. (Menus are covered in Chapter 15)
- 3) Learn about the SWING(or Swing related) classes – BorderLayout, Color, Container, FlowLayout, GridLayout, JButton, JComponent, JFrame, JLabel, JPanel, JTextArea, JTextField, WindowAdapter, and others.



# Swing

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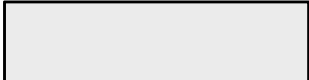
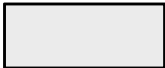

- **Special library** of classes that allows Java programs to have **a windowing interface**
- Part of larger collection called *Java Foundation Classes* or *JFC*
- An **improved** version of older library called *Abstract Window Toolkit (AWT)*
- Standard part of all versions of Java 2 (JDK 1.2)

# 13.1 Background : GUIs – Graphical User Interfaces


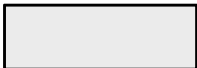
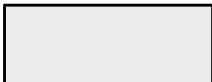
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Most modern programs use a GUI

GUI (pronounced “gooey”):

- —not just text or characters: windows, menus, buttons, etc.
- —person using the program
- —way to interact with the program


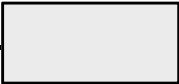

Typical graphical elements:

- —portion of screen that serves as a smaller screen within the screen
- —list of alternatives offered to user
- —looks like a button that can be pressed



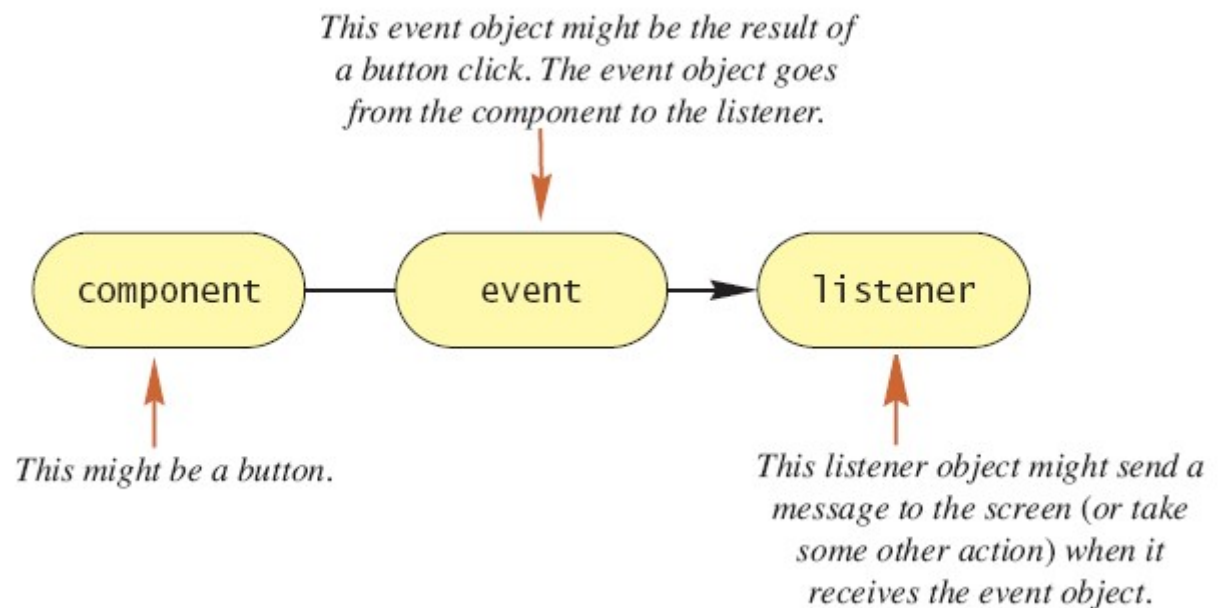
# Event-Driven Programming

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- Programs with GUIs often use *Event-Driven Programming*
- Program waits **for events** to occur and then responds
- Examples of events:
  - » Clicking a mouse button
  - » Dragging the mouse
  - » Pressing a key on the keyboard
- —when an object generates an event
- **Listener**— that waits for events to occur
- **Event handler**— that responds to an event

# Event Driven Programming

- An **event** is an object that represents an action
  - » An object "fires" an event
- Figure 13.1  
Event Firing  
And An  
Event  
Listener



# Event Firing and Event Listener

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- 1) Component
  - » This might be a button
- 2) event
  - » This event object might be the result of a button click. The event object goes from the component to be listener.
- 3) Listener
  - » this listener object might send a message to the screen(or take some other action) when it receives the event object.

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