

# **Event-driven Programs**

# Event-driven Programs

- When users interact with computer they generate events (e.g., moving/clicking the mouse, typing, etc.)
- Can respond to events by having **listener** for events

`addMouseListeners()`

`addKeyListener()`

- Use Java library the deals with events:

```
import java.awt.event.*;
```

- Methods of a listener get called *asynchronously* when events occur

# Responding to Mouse Events

- General steps:
  1. `init` or `run` method should call `addMouseListeners`
  2. Write definitions of any listener methods needed

<code>mouseClicked(<i>e</i>)</code>	Called when the user clicks the mouse
<code>mousePressed(<i>e</i>)</code>	Called when the mouse button is pressed
<code>mouseReleased(<i>e</i>)</code>	Called when the mouse button is released
<code>mouseMoved(<i>e</i>)</code>	Called when the user moves the mouse
<code>mouseDragged(<i>e</i>)</code>	Called when the mouse is dragged with the button down

The parameter *e* is **MouseEvent** object, which provides more data about event, such as the location of mouse.

# Responding to Keyboard Events

- General steps:
  1. `init` or `run` method should call `addKeyListener`
  2. Write definitions of any listener methods needed

<code>keyPressed(e)</code>	Called when the user presses a key
<code>keyReleased(e)</code>	Called when the key comes back up
<code>keyTyped(e)</code>	Called when the user types (presses and releases) a key

The parameter  $e$  is a **KeyEvent** object, which indicates which key is involved.

# **MouseTracker Example**