

Toward GUI Design

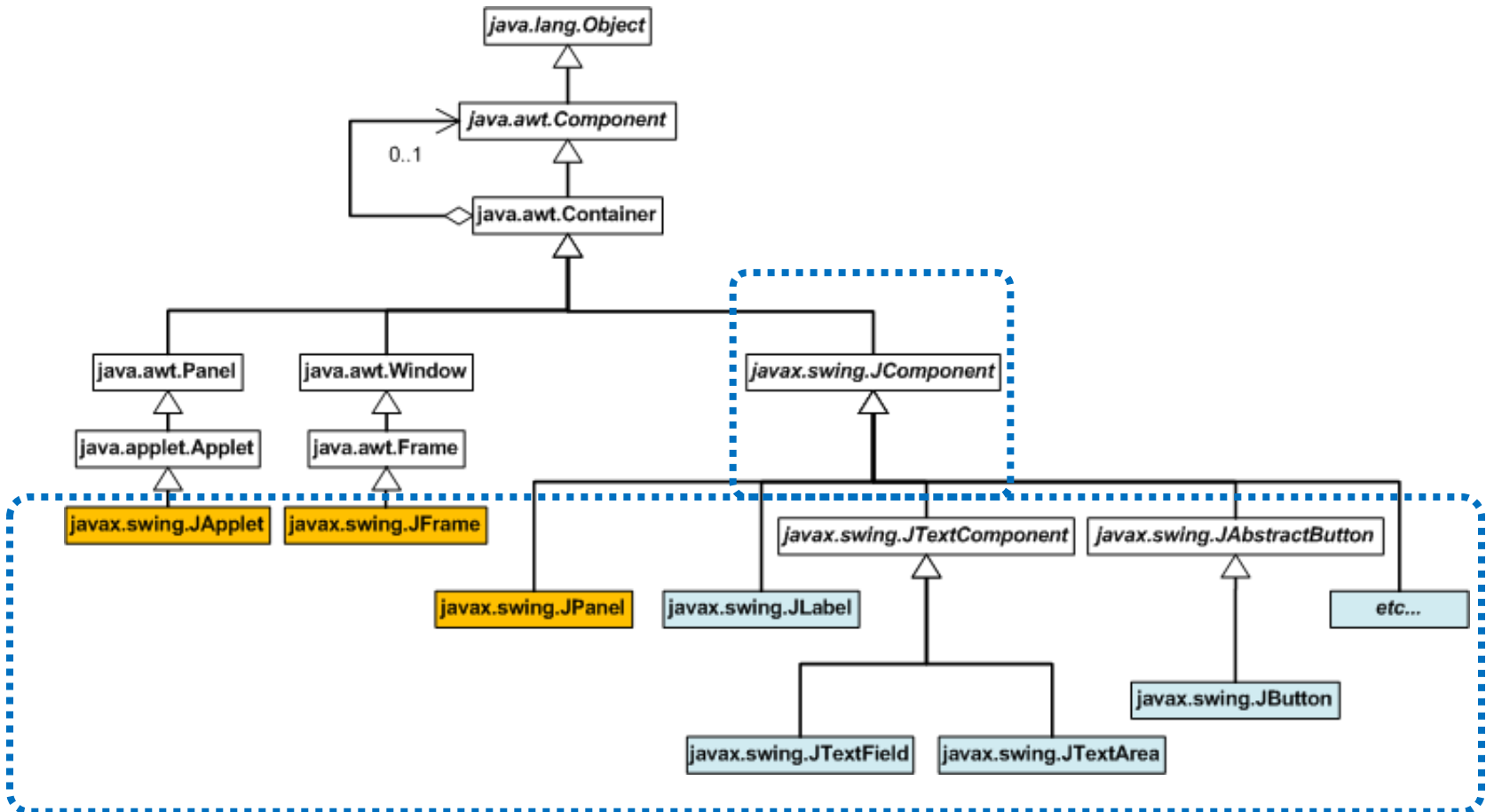
JAVA Swing

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Swing Intro

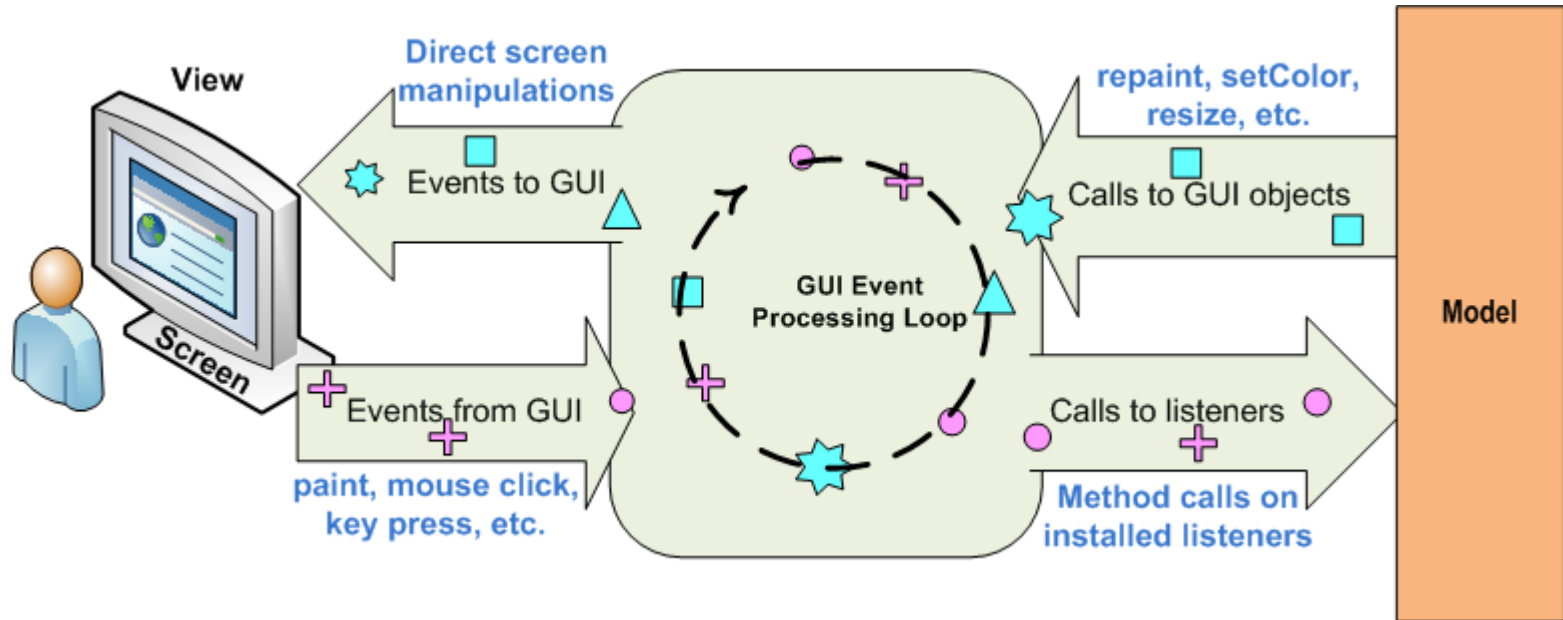
- Swing is the primary **Java GUI widget toolkit**.
- Swing is a platform-independent, **Model-View-Controller** GUI framework for Java.
- Swing was developed to provide a **more sophisticated** set of GUI components than the earlier **Abstract Window Toolkit (AWT)**.
- It has more powerful and flexible components than AWT.
- Swing is a **extension** of the AWT, every Swing interface ultimately exists within an AWT component because all of the top-level components in Swing (**JApplet, JDialog, JFrame, and JWindow**) extend an AWT top-level container.

AWT & Swing Class Hierarchy



Swing Model

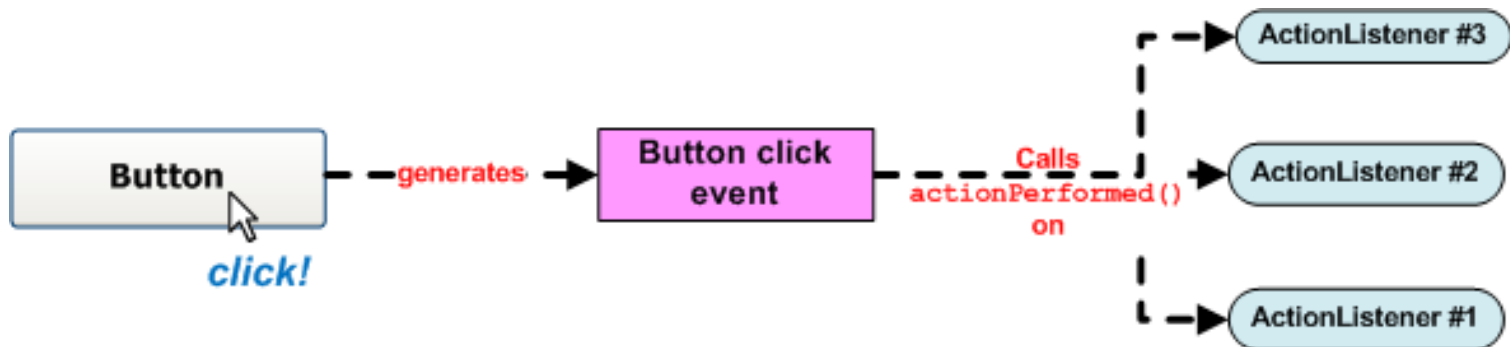
- The Java GUI subsystem consists of a separate, autonomous task execution thread called the "event loop".
- Every action that affects the GUI, e.g. calls to repaint the screen, the user clicks the mouse or hits a key, etc. is encapsulated in the form of an "event" that is placed into a queue for the event loop to process.



GUI Event Example

1. The user clicks on the button.
2. The mouse click sets off a chain of events.
3. The button object responds to the mouse click by creating a button click event that is placed into the event queue.
4. The event loop, when it is free to do so, picks up that event and processes it.
5. The processing of a button click event involves calling methods on specially registered objects called "listeners" who are "listening" for the click event.
6. The listeners for a button click are objects implementing the `java.awt.ActionListener` interface and the button click event processing involves calling the listener's `actionPerformed` method, which the developer has implemented to do whatever is needed when that particular button is clicked.

Note that multiple listeners may be "added" to any given button and the button click processing will call each `ActionListener`'s `actionPerformed` method in turn.



External Resources

- **JAVA Swing Tutorials**

- [Creating a GUI With Swing](#)
- [Swing Tutorial & Examples](#)
- [Swing Video Tutorials](#)

- **JAVA Swing in NetBeans EDI**

- [Introduction to GUI Building](#)
- [Designing a Swing GUI in NetBeans IDE](#)
- [Learning Swing with the NetBeans IDE](#)
- [Swing in NetBeans IDE Video Tutorials](#)

Thank you