

Java GUI Programming (4 Days)

Audience Application developers, programmers and other technical professionals that will be developing Java GUI applications.

Course Abstract Through a combination of instructor-led discussions and hands on workshops the course will explore the various User Interface Toolkits (UI Toolkits) available within the Java language, focusing primarily on the Java Foundation Classes, also known as Swing. It begins with a base level discussion around rich-client development, event-based programming, and Java's event model, within the context of the Abstract Windowing Toolkit (AWT). Then transitions into an in-depth exploration of the core Swing component library, covering everything from JFrames to JTables.

The course concludes with a discussion about general user-interface design principles and packaging Java GUI applications.

Objectives Upon conclusion, each participant will have acquired these skills:

- Define fundamentals of optimum user-interface design
- Identify the key elements of a Java Foundation Component
- Describe how the model-view-controller pattern is applied within Java Swing
- Create a simple stand-alone Swing-based GUI
- Develop and deploy platform independent Java GUI applications
- Design and implement a robust user interface using Layout Managers and JComponents
- Apply Swing utilities to create a more responsive UI
- Illustrate event handling tasks with Java GUI components

Prerequisites Each student should have a basic understanding of application development and have been exposed to the Java programming language.

Course Topics The following list represents the sections and topics discussed in this onsite instructor-led course offering:

GUI Development with Java

- Introduction to Abstract Windowing Toolkit
- Observer and Observable
- Event objects, Event Sources, and Event Listeners

Introduction to Java Foundation Classes / Swing

- Comparing Swing to AWT
- Key JFC components
- Working with JComponent

Swing Component Structure

- Review of M-V-C pattern
- Swing and M-V-C
- Swing Events and Event Listeners

Core Swing Components

- Swing class hierarchy
- JComponent
- JButton, JLabel, JTextField, JList, JScrollBar, JSlider, JSplitPane
- JPanel, JWindow, and JFrame
- Other Swing components

Advanced Swing UI Components

- Overview of textual input with JTextComponent
- Simple input with JTextField
- Using JTextArea
- Complex text input using JEditorPane

Creating Functional Stand-Alone Applications

- Menus (JMenu)
- Menubars (JMenuBar)
- Shutdown hooks
- JFrame and JWindow

Portable Java Applications

- Explore Java portability
- Use of Java on portable devices
- Exporting JARS

User Interface Design with Swing

- User interface design concepts
- Layout Managers
- JPanel, JLayeredPane, JInternalFrame and Z-ordering
- Utilizing View Ports
- Image support

Popup Elements

- Dialogs and Message Boxes
- File and Color Choosers
- Custom Dialogs
- Tooltips

Working with Swing

- Threading issues with Swing
- Using Swing utilities
- Pluggable-look-and-feel (PLAF)
- Introduction to Java 2D
- Printing
- Internationalization