

Human-Centric Computing

Java Swing

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GUI - introduction

- GUI: **Graphical user interface**, a system of **interactive visual components** for computer software. A GUI displays objects that convey information, and represent actions that can be taken by the user. The objects change color, size, or visibility when the user interacts with them.
- CUI: Command-line User Interface

GUI elements

- **Windows** - Rectangular section of the computer's display that shows the program currently being used.
- **Button** - A graphical representation of a button that performs an action in a program when pressed
- **Dialog box** - A type of window that displays additional information, and asks a user for input.
- **Icon** - Small graphical representation of a program, feature, or file.
- **Menu** - List of commands or choices offered to the user through the menu bar.

Java Swing

- Java Swing: a GUI toolkit for Java. It provides a rich set of libraries to create **GUIs**. It is one part of the Java Foundation Classes (JFC). Swing includes graphical user interface (GUI) widgets such as text boxes, buttons, split-panes, and tables.
- AWT: **Abstract Windowing Toolkit**, which enables programmers to develop Java applications with GUI components, such as windows, and buttons.

Differences between Swing and AWT

- AWT is **heavy-weight** components (because it is generated by the system's host operating system), but Swing is **light-weight** components.
- AWT is OS dependent because it uses native components, but Swing components are OS independent.

GUI application

- A GUI application consists of:

Container (JFrame)

Components (e.g. JButton, JTextField, JCheckBox)
added to the container

Overview

- **The basic steps of creating and displaying an interface** are as follows:
 - Create a **JFrame** object. A frame component handles basic windowing functionality, for example closing.
 - Create one or more **JPanel** objects. It is a container that can hold other elements.
 - Add **components** to your panel. The swing library provides several types of elements including buttons, labels, and text boxes.
 - Add your panel to the frame.
 - Resize everything.
 - Make the frame visible.

Components

- JButton
- JLabel
- JTextArea
- JTextField

Events

- What Is An Event In Swing?
 - Changing the state of an object is called an event.
- Events include:
 - clicking on the mouse
 - pressing a button
 - typing text into box