

HW to Chapter 14

1. How can we add GUI to a Java program?

To add a Graphical User Interface (GUI) to a Java program, you can use Java's built-in GUI libraries, primarily AWT (Abstract Windowing Toolkit) and Swing.

- Import the necessary packages ('javax.swing' for Swing components).
- Creating a JFrame to hold GUI components.
- Add various GUI components like buttons, labels, text fields, etc., to the container.
- Layouts to arrange the components in the desired way.
- Handle user interactions using event listeners.
- Displaying the GUI by setting the frame's visibility to true.

2. What is AWT - Abstract Windowing Toolkit?

AWT (Abstract Windowing Toolkit) is one of the original GUI libraries in Java and provides a set of platform-dependent components. AWT includes basic elements like buttons, checkboxes, and text fields, and it's part of the Java Foundation Classes (JFC). While AWT components are lightweight, they may not always provide a consistent look and feel across different platforms.

3. What is Swing?

Swing is an extension of AWT. Unlike AWT, Swing components are entirely written in Java and are platform-independent. Swing provides a rich set of GUI components, including advanced components like tables, trees, and tabbed panes. It is widely used for developing modern GUI applications in Java. import classes from the 'javax.swing' package to use swing

HW to Chapter 15

1. What is SDLC and what are its steps?

SDLC (Software Development Life Cycle) is a systematic process for planning, creating, testing, deploying, and maintaining software. It consists of a series of well-defined steps or phases that guide the development process. The standard SDLC phases are:

- Planning: Define the project scope, objectives, timelines, and resources.
- System Design: Create a blueprint of the system, specifying hardware, software, and network requirements.
- Implementation (Coding): Develop the actual code based on the design specifications.
- Testing: Conduct various testing phases (unit, integration, system, acceptance) to identify and fix defects.
- Deployment: Roll out the software to the production environment for end-users.
- Maintenance and Support: Provide ongoing support, fix bugs, and implement updates.

2. List and describe different SDLC types:

Waterfall Model: Sequential process where progress is seen as flowing steadily downwards through phases like a waterfall. Each phase must be completed before moving to the next.

Iterative Model: The development is divided into smaller parts, and each part goes through the whole SDLC cycle. After each iteration, improvements are made, and additional features can be added.

Spiral Model: Combines the idea of iterative development with the systematic aspects of the waterfall model. It allows for incremental releases of the product through each iteration around the spiral.

Agile Model: An iterative and incremental approach to software development that emphasizes flexibility.

V-Model (Verification and Validation): An extension of the waterfall model where each development stage has a corresponding testing phase. It emphasizes testing at each stage to catch errors early but lacks flexibility for changes.

RAD (Rapid Application Development) Model: An incremental software development process that emphasizes an extremely short development cycle. It is a high-speed adaptation of the waterfall model.