Swing

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Swing Framework contains a set of classes that provides more powerful and flexible GUI components than those of **AWT**. **Swing** provides the look and feel of modern Java GUI. Swing library is an official Java GUI tool kit released by Sun Microsystems. It is used to create graphical user interface with Java.

Swing classes are defined in javax.swing package and its sub-packages.

Main Features of Swing Toolkit

1. Platform Independent
2. Customizable
3. Extensible
4. Configurable
5. Lightweight
6. Rich Controls
7. Pluggable Look and Feel

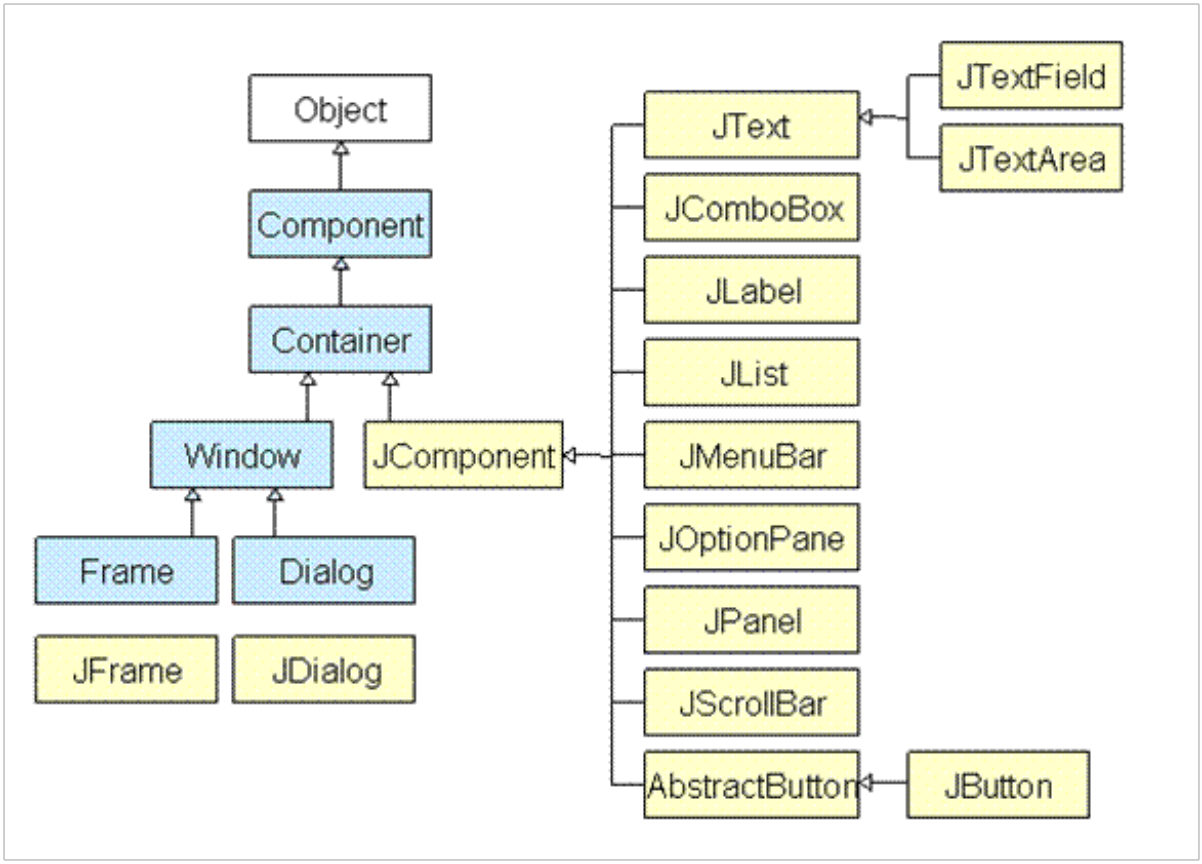
Swing and JFC

JFC is an abbreviation for Java Foundation classes, which encompass a group of features for building Graphical User Interfaces(GUI) and adding rich graphical functionalities and interactivity to Java applications. Java Swing is a part of Java Foundation Classes (JFC).

Features of JFC

- Swing GUI components.
- Look and Feel support.
- Java 2D.

AWT and Swing Hierarchy



Introduction to Swing Classes

JPanel : JPanel is Swing's version of AWT class Panel and uses the same default layout, FlowLayout. JPanel is descended directly from JComponent.

JFrame : JFrame is Swing's version of Frame and is descended directly from**Frame** class. The component which is added to the **Frame**, is refered as its Content.

JWindow : This is Swing's version of Window and has descended directly from**Window** class. Like **Window** it uses BorderLayout by default.

JLabel : JLabel has descended from JComponent, and is used to create text labels.

JButton : JButton class provides the functioning of push button. JButton allows an icon, string or both associated with a button.

JTextField : JTextFields allow editing of a single line of text.

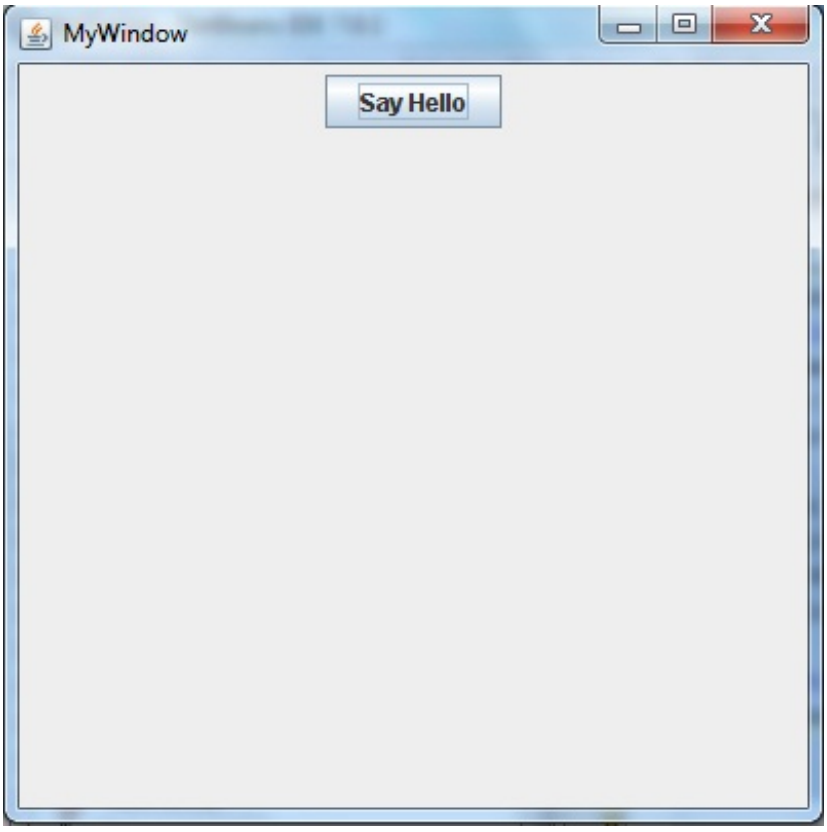
Creating a JFrame

There are two ways to create a JFrame Window.

1. By instantiating JFrame class.
2. By extending JFrame class.

Creating JFrame window by Instantiating JFrame class

```
import javax.swing.*;
import java.awt.*;
public class First
{
 JFrame jf;
 public First() {
 jf = new JFrame("MyWindow");
 JButton btn = new JButton("Say Hello");
 jf.add(btn);
 jf.setLayout(new FlowLayout());
 jf.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
 jf.setSize(400, 400);
 jf.setVisible(true);
}
 public static void main(String[] args)
 {
  new First();
 }
}
```



Creating JFrame window by extending JFrame class

```
import javax.swing.*;
import java.awt.*;
public class Second extends JFrame
{
 public Second()
 {
  setTitle("MyWindow");
  JLabel lb = new JLabel("Welcome to My Second Window");
  add(lb);
  setLayout(new FlowLayout());
  setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
  setSize(400, 400);
  setVisible(true);
 }
 public static void main(String[] args)
 {
  new Second();
 }
}
```

Points To Remember

1. Import the javax.swing and java.awt package to use the classes and methods of Swing.
2. While creating a frame (either by instantiating or extending Frame class), following two attributes are must for visibility of the frame:

   ```
   setSize(int width, int height);
   setVisible(true);
   ```

3. When you create objects of other components like Buttons, TextFields, etc. Then you need to add it to the frame by using the method - **add(Component's Object);**

4. You can add the following method also for resizing the frame - **setResizable(true);**
