The Plan

- Sequential (Single Thread) Model
- Event Model
- Making the GUI interactive
- Examples
- Practice

Sequential (Single Thread) Model

Program Start → Program End

Event Model

AWT Event Loop

Program Thread
Event Model

Making the GUI Interactive

1) import java.awt.event.*
2) implements ActionListener
3) write method
   public void actionPerformed(ActionEvent e)
4) call addActionListener(this) for all JButton
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class AdderGUI
extends JApplet
implements ActionListener

private void makeComponents()
{
    frame=new JFrame("Game Shell");
    addend0=new JTextField(8);
    addend1=new JTextField(8);
    sum=new JTextField(8);
    compute=new JButton("=");
    compute.addActionListener(this);
    plus=new JLabel("+");
    plus.setHorizontalAlignment(SwingConstants.CENTER);
    plus.setHorizontalAlignment(SwingConstants.CENTER);
    sum.setText("\"+answer);
**Examples**

```java
gameShell.java

public void actionPerformed(ActionEvent ae) {
    Object cause = ae.getSource();
    if (cause == pause) {
        if (pause.getText().equals("Pause")) {
            pause.setText("Resume");
            shell.setText("Paused");
        } else {
            pause.setText("Pause");
            shell.setText("Game Running");
        }
    } else {
        if (cause == reset) {
            pause.setText("Start");
            shell.setText("Splash");
        }
    }
}
```

**Exercises**

- Make a 2x2 tic-tac-toe board out of initially blank JButtons.
- Make the JButton text change to X when the user clicks on it.
- Make the JButton text change to X and O alternatively as the user clicks on the buttons. Hint: use a boolean instance variable.
- Make the fonts larger, and maybe add images.
- Look at Splash.java and SplashLoop.java in Splash.jar