

# JAC444 - Lecture 13

## JavaFX Segment 2- GUI

# JavaFX Programming

**In this lesson you will be learning about:**

- History of GUI in Java
- Principles of using JavaFX
- JavaFX as library of JDK 8

# New Technologies for GUI

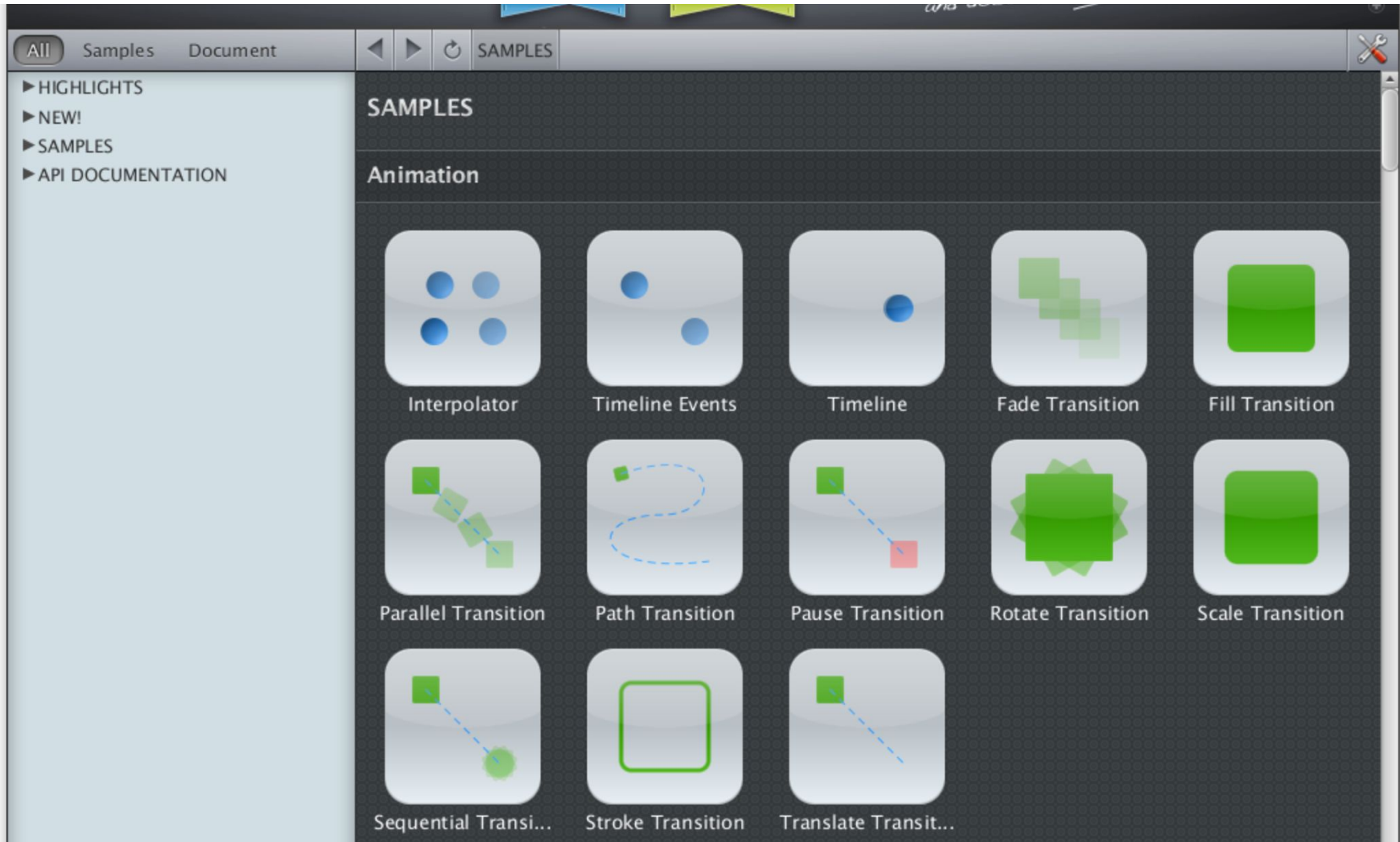
- Java is an evolving language together with its microsystem
- GUI programming requires use of all the basic knowledge and Java concepts before one could start doing GUI
- JavaFX is a new framework for developing Java GUI applications

# History of GUI in Java

## Java GUI History:

- Old GUI Framework: AWT (Abstract Window Toolkit)
- Until Java 7: Swing - many current applications use it
- Java 8 and later: JavaFX

# JavaFX Look & Feel



# JavaFX - HelloWorld

```
public class HelloWorld extends Application {  
    public static void main(String[] args) { launch(args); }  
  
    // Override the start method in the Application class  
    @Override  
    public void start(Stage stage) {  
        // Create a scene with a button in it  
        Button bOK = new Button("OK");  
        Scene scene = new Scene(bOK, 150, 300);  
        stage.setTitle("Example JavaFX"); // set the stage title  
        stage.setScene(scene); // place the scene  
        stage.show();  
    }  
}
```

# Concepts

- **Stage**

Represents windows, top level container

Setter and getter methods: setTitle(), setWidth()

- **Scene**

Each stage has a scene

Scene holds GUI controls such as buttons, lists, etc

- **Pane**

Panes for better layout design and presentation

# Actions as Lambda Expression

```
//Lambda Expression
```

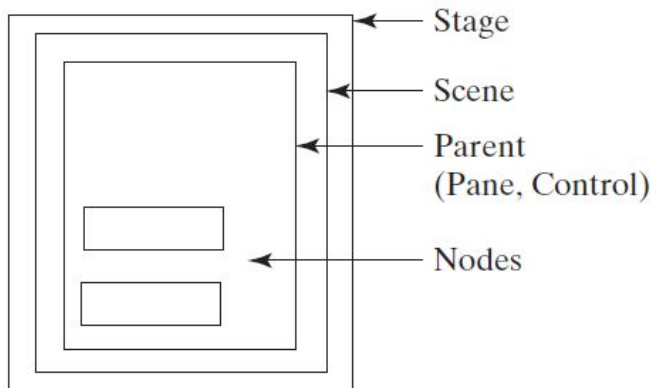
```
onAction ((ActionEvent e) -> {  
    element.displayFromStart();  
})
```

```
//Lambda Expression with parameter type inferred
```

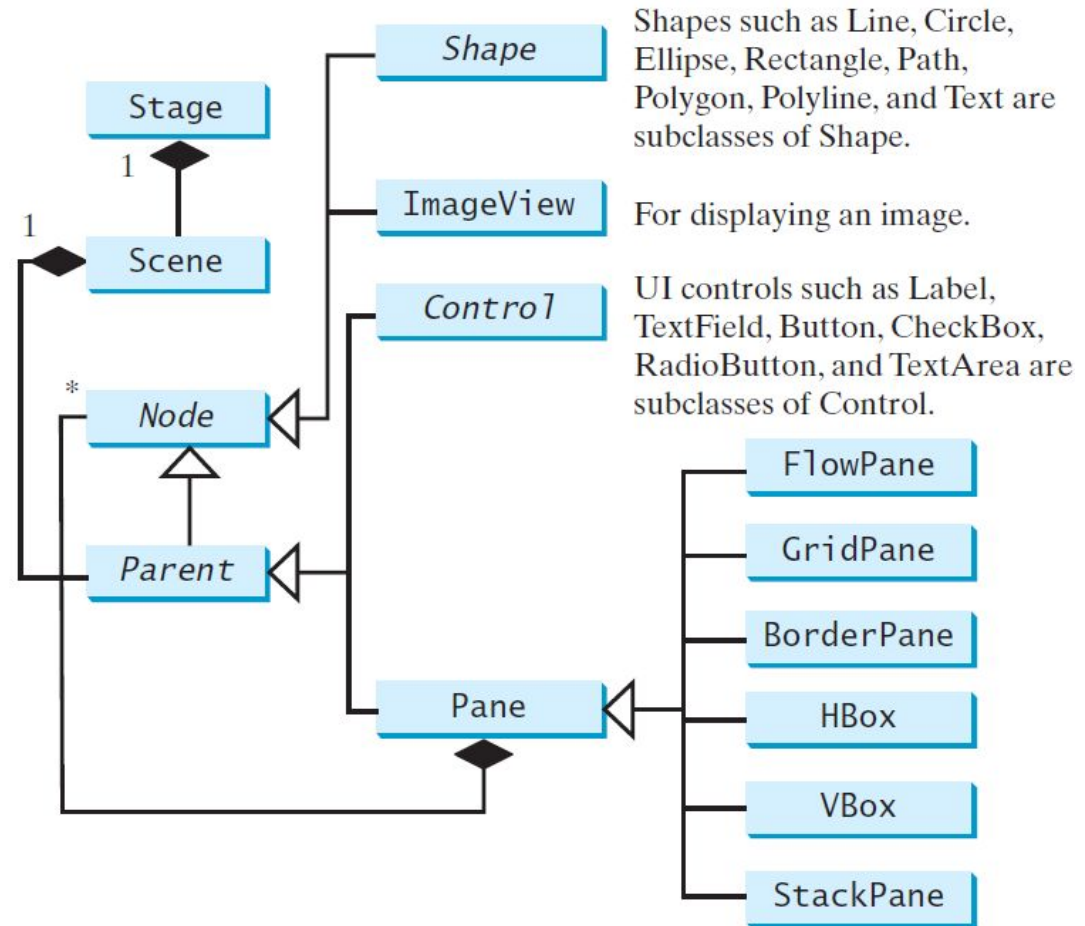
```
onAction (e -> element.displayFromStart());)
```



# JavaFX Structure



(a)



(b)

<http://docs.oracle.com/javafx/2/scenegraph/jfxpub-scenegraph.pdf>

# JavaFX or Swing

## JavaFX Advantages:

1. GUIs are created a lot faster than in Swing and AWT
2. Easy integration of sounds, images and videos and of web content
3. Code is simplified in JavaFX by strict MVC Architecture
4. JavaFX can be integrated in Swing applications, allowing for a smoother transition

# Conclusion

**After completion of this lesson you should know:**

- History of GUI programming in Java
- Principles of programming in JavaFX