

The background of the slide is a reproduction of a painting, likely Vincent van Gogh's 'Olive Trees with Yellow Sky and Sea'. It depicts a landscape with several olive trees in the foreground and middle ground, their trunks rendered in dark, expressive brushstrokes. The foliage is a mix of green and yellow. In the distance, there are blue mountains under a bright, yellowish sky. The overall style is characteristic of Impressionism, with visible, energetic brushwork.

X01 JavaFX 1

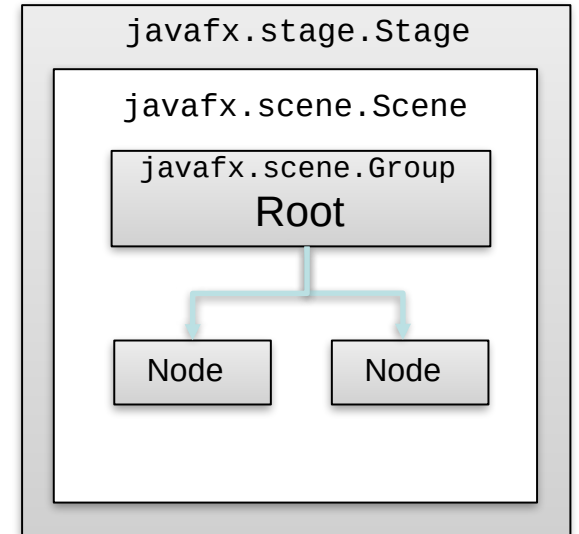
Introduction to JavaFX

JavaFX

- Designed for rich client applications
 - Graphics, UI's, video, audio, etc.
- Replaces Swing
- JavaFX HelloWorld

JavaFX

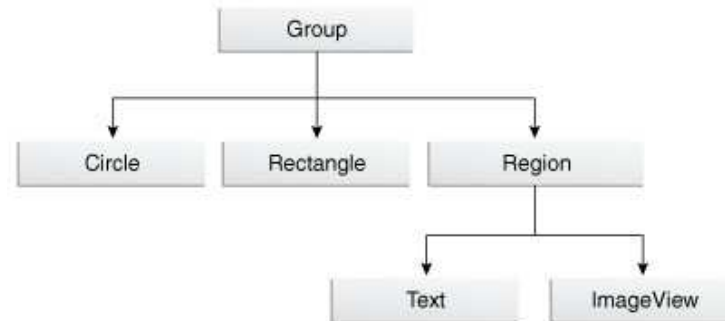
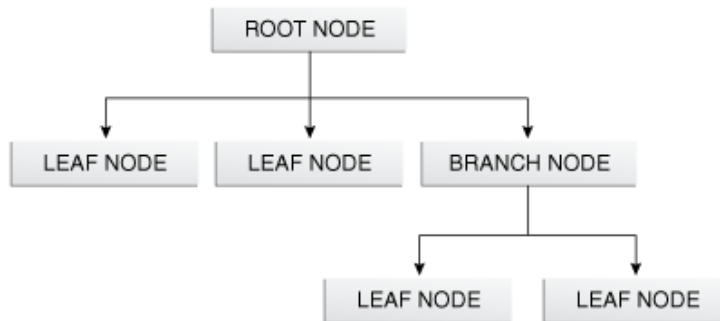
- Extend `javafx.application.Application`
 - Override the `start()` method
- Stage: the window
- Scene: container for a scene graph
- Node: object or group of objects in scene
- Pane: organizer of nodes in scene graph:
FlowPane, TilePane, GridPane, HBox, VBox, etc.



Java FX Scene Graph

Tree of nodes, with a single 'branch' at the root

- **branch** (may have children e.g. Group, Region)
- **leaf** (may not have children e.g. Rectangle, Circle)



Copyright Oracle (<http://docs.oracle.com/javafx/2/scenegraph/jfxpub-scenegraph.htm>)

Nodes and Properties

Can set node properties programmatically:

```
Text message = new Text("Hello");  
message.setFont(Font.font("Tahoma", FontWeight.NORMAL, 40));  
message.setFill(Color.RED);
```

or declaratively using FXML / CSS:

```
#text {  
    -fx-font-family: Tahoma, sans-serif;  
    -fx-font-style: normal;  
    -fx-font-size: 40;  
    -fx-fill: red;  
}
```



X02 JavaFX 2

JavaFX and Event Handling

Event Handling

Event handling is another control flow construct.

- Branches (a conditional or switch selects control flow)
- Loops (a loop repeats control flow)
- Methods (a method call nests control flow)
- Events (the occurrence of event changes control flow)
 - Event handling in UIs
 - Exception handling (later)

Events and Passing Code in Java

An event handler executes some code when a certain event occurs.

Q: How do I pass code as an argument in Java?

A: Lambda expressions, see unit J09

Events in JavaFX

Events are instances of `javafx.event.Event`

- Event properties:
 - Event type
 - Source
 - Target
- Event handlers
 - Pass a Lambda expression. For example:

```
scene.setOnKeyTyped(event -> { ...your code... })
```