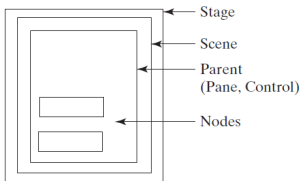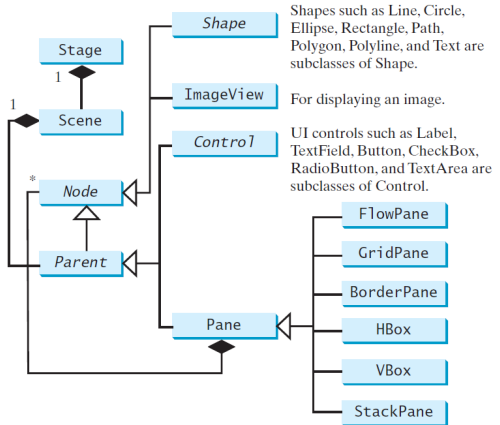# CSC 243 - Java Programming

JavaFX Basics

Basic Structure of a JavaFX Program

- The abstract class `javafx.application.Application` defines the framework for writing JavaFX programs
- When a JavaFX program is launched, the JVM constructs an instance of the class using the no-arg constructor and then invokes the `start` method.
- The `start` method typically places UI controls on in a scene and displays the scene in a stage
    - The `Stage` object is the window
    - The `Scene` object is a container for the UI elements

JavaFX Nodes

(a) Panes are used to hold nodes. (b) Nodes can be shapes, image views, UI controls, and panes.
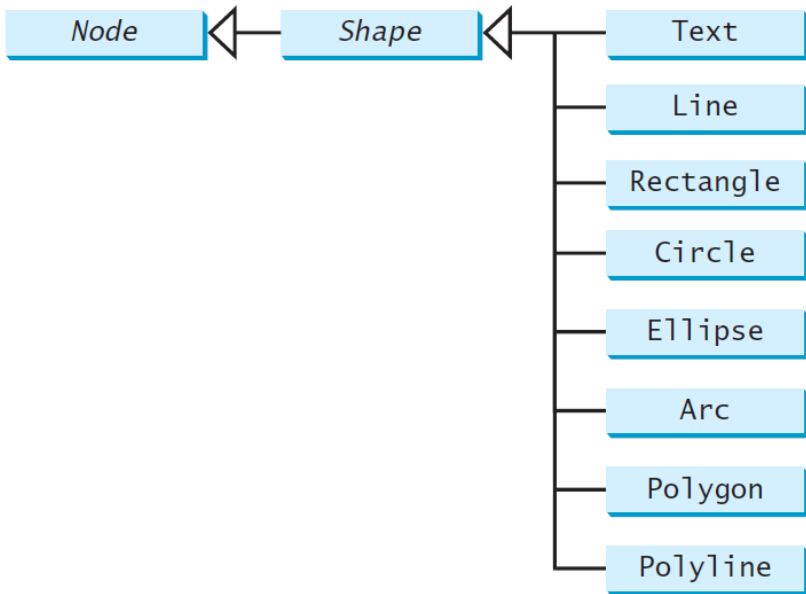
Binding Properties

- A *binding property* enables a *target object* to be bound to a `source object`
- If the value in the source object changes, then the target property is changed automatically
- The target object is called a `binding object` or a `binding property`

Layout Panes

- `Pane`: base class for layout panes
- `StackPane`: places nodes on top of each other in the center of the pane
- `FlowPane`: places nodes row-by-row horizontally of column-by-column vertically
- `GridPane`: places nodes in cells in a two dimensional grid
- `BorderPane`: places nodes in the top right, bottom, left, and center regions
- `HBox`: places nodes in a single row
- `VBox`: places nodes in a single column

Shapes

The setStyle Method

- The setStyle method of javafx.scene.Node allows you to style the node using a CSS syntax
- Javafx setStyle syntax

```
node.setStyle("property1: value1;" +
              "property2: value2; ...");
```

- Javafx CSS properties are prefixed with -fx

Some Javafx CSS Properties

- `-fx-background-color`: sets the background color
- `-fx-text-fill`: sets the text color
- `-fx-border-style`: puts a border around a node
- `-fx-border-color`: sets the border color
- `-fx-text-alignment`: aligns text