Announcements

- Try to get some help from me and tutors

- Reading assignment for this slide set: Chapter 16
JavaFX UI Controls and Multimedia
JavaFX UI controls

- JavaFX provides many UI controls for developing a comprehensive user interface
- In this lecture we will explore some of the controls that we have not seen yet
Label and Labeled

- We have used the `Label` class to insert textual labels

- `Label` is a subclass of `Labeled`, which has many properties for working with text labels such as the text itself, alignment, spacing, graphics, text color, text wrapping, etc.

- See `LabelWithGraphic.java`
Button

- The `Button` class is also descendant class of `Labeled`

- We can think of a button as a label we can click on

- The `ButtonBase` class (superclass of `Button`) contains the event handler

- See `ButtonDemo.java`
CheckBox

- **A CheckBox** is used for the user to make a selection.

- **Like Button**, **CheckBox** inherits all the properties such as **onAction**, **text**, **graphic**, **alignment**, **graphicTextGap**, **textFill**, **contentDisplay** from **ButtonBase** and **Labeled**.

- See [CheckBoxDemo.java](CheckBoxDemo.java)
RadioButton

- Radio buttons, aka option buttons, enable the user to choose a single item from a group of choices

- RadioButton is a subclass of ToggleButton. The difference between a radio button and a toggle button is that a radio button displays a circle, but a toggle button is rendered similar to a regular button

- See RadioButtonDemo.java
TextField

- A text field can be used to enter or display a string
- TextField is a subclass of TextInputControl
- See TextFieldDemo.java
**TextArea**

- A **TextArea** enables the user to enter multiple lines of text
- See `DescriptionPane.java`
- See `TextAreaDemo.java`
ComboBox

- A ComboBox, aka a choice list or drop-down list, contains a list items from which the user choose
- ComboBox is defined as a generic class. The generic type T specifies the element type for the elements stored in a combo box
- When the user selects an item, the String corresponding to that item can be retrieved with the ComboBox.getValue() method
- See ComboBoxDemo.java
ScrollBar

- **ScrollBar** is a control that enables the user to select from a range of values
- Scroll bars can be horizontal or vertical

![Diagram of ScrollBar]

- See **ScrollBarDemo.java**
Slider

- **Slider** is similar to **ScrollBar**, but **Slider** has more features such as major and minor tick marks
- Using a slider is similar to using a scroll bar

- See **SliderDemo.java**
Example: Tic Tac Toe game

- The design is very object-oriented – each square is implemented as a Cell, which is a subclass of Pane
- Each Cell takes care of displaying itself and handling mouse clicks on itself

- See TicTacToe.java
Video and Audio

- You can use the Media class to obtain the source of the media, the MediaPlayer class to play and control the media, and the MediaView class to display the video.
- Currently JavaFX supports MP3, AIFF, WAV, and MPEG-4 audio formats and FLV and MPEG-4 formats.

- See MediaDemo.java
Case study: National Flags and Anthems

This case study presents a program that displays a nation’s flag and plays its anthem.

- See FlagAnthem.java