# HCI 1/23

*Reagan Shirk*

*January 23, 2020*

## Getting started with Java

- Make sure you have Java 8 JDK, not just a JRE
- Individual homework will use Java 8, or it at least must build and run on Java 8

## Developing Java Projects in Gradle

- Gradle is a build automation tool like Make, Ant, and Maven
- It uses custom scripts written in Groovy or Kotlin to compile, link, run, test, and bundle projects
- Eclipse is fine for what we've done in the past but it won't help us much for larger projects so we need something different
- It was easy integration with Eclipse using Buildship

## Java Swing for UI Development

- Features
    - Object oriented
    - Strong typing with both primitive types and object classes
    - Generics
    - Threads
    - Extensive APIs
        * Has pretty much everything you might need for anything you want to do
- I don't think I actually have to write this down for most of you but I guess I will
- Essential libraries for UI development
    - Core APIs
    - Bundled APIs
    - Graphics APIs
    - Windowing APIs
- UI Elements and Features
    - Layout
    - Components
    - Events

## Java FX for UI Development

- Included in Java 8 JDK
- Languages features - exactly the same as Swing
- Essential Libraries for FX UI Development
    - Core and bundled APIs
    - Application APIs
    - Scene APIs
- Elements and Features
    - Controls
    - Layout

- Styling/skinning
- Interaction
- Animation

## Applications, Stages, Scenes, and Scene "Graphs"

- I'll upload a picture
- Build a tree of nodes in parents
  - Same as Swing components in panels, but more elegantly and has cleaner code

```
public class FXHelloWorld extends Application
{
    public static void main(String[] args)
    {
        laungs(args);
    }

    public void start(Stage stage)
    {
        Button button = new Button();
        button.setText("Hello World!");
        //I'll finish the example code later
    }
}
```

- Common UI Widgets
  - Label
  - Button
  - List
  - Checkbox
  - RadioButton
  - Slider
  - Spinner
  - TextField
  - TextArea
  - ScrollPane

- Swing Widget Table

| Widget | Class | Listener/Event | Useful things |
| --- | --- | --- | --- |
| label | JLabel | None | ImageIcon |
| button | JButton | Action | setEnabled() |
| list | JList | ListSelection | setSelectionMode(), clearSelection(), setSelectedIndex() |
| checkbox | JCheckbox | Action | constructor |
| radio button | JRadioButton | Action | ButtonGroup, setSelected() |
| slider | JSlider | Change | setLabelTable(), setSnapToTicks(), setValue() |
| spinner | JSpinner | Change | setValue() |
| text (short) | JTextField | Action | setText() |
| text (long) | JTextArea | Caret | setLineWrap(), setText() |
| scrollable | JScrollPane | Adjustment | constructor that takes the component to wrap and V&H scroll bar policies |

- FC Widget Table

| Widget | Class | Listener/Event | Useful things |
| --- | --- | --- | --- |
| label | Label | None | Can use any Node as the graphic |
| button | Button | onActionProperty | setDisabled() |
| list | ListView | selectedItemProperty | setSelectionMode(), setSelectedIndex() |
| checkbox | CheckBox | onActionProperty | setSelected(), setIndeterminate() |
| radio button | RadioButton | onActionProperty | ToggleGroup, setSelected() |
| slider | Slider | valueProperty | setValueFactory() |
| spinner | JSpinner | Change | setValue() |
| text (short) | TextField | onAction, textProperty | setText() |
| text (long) | TextArea | textProperty | setLineWrap(), setText() |