CS 2410 – Spring 2018
Assignment #5 – Somewhat Decent Drawing Tablet

Introduction
Congratulations! You're about to create something that is actually fun to use! (If you're a kindergartener). You may want to enhance this one afterwards to make it really cool. Once you get the requirements done, adding things will be easy.

The purpose of this assignment is to get experience:
- **Using basic GUI components**
  - **Path**
  - **Ellipse**
  - **Rectangle**
  - **ColorPicker**
  - **ComboBox**
- **Using EventHandlers**
  - **Mouse Drag Events**
  - **Mouse Events**
  - **ComboBox Events**

Tasks

Create one project for this assignment. There is a single task to complete.

In order to receive full credit your code must follow appropriate class conventions

Task – Drawing Tablet (175 points)

You will create an advanced drawing tablet that will let you draw different shapes with varying colors. The tablet will have the following functionality (Items in bold should be done in preparation for the exam):
- **A toolbar area at the top or left side that includes**
  - **ColorPicker for**
    - **Fill**
    - **Stroke**
  - **ComboBox for Stroke Width**
  - **Buttons for**
    - **Editing**
    - **Erasing**
    - **Drawing an Ellipse**
    - **Drawing a Rectangle**
    - **Drawing Freehand Lines**
- **A drawing area of size 500 x 500 (or what seems reasonable to you)**
  - **The application should not be resizable**
- **The drawing area should be a separate Pane from the toolbar**
- **Functionality**
  - **ColorPickers**
    - **Newly drawn shapes should use the appropriate colors from the ColorPickers**
    - **ColorPickers should change to the color of the selected object when in Edit mode**
    - **In Edit Mode, the selected shape should change colors when a new color from a ColorPicker is selected.**
  - **Stroke Width**

- Use a ComboBox with stroke widths of at least 1, 3, and 5. You can do more if you'd like.
- Newly drawn shapes should use the appropriate stroke width
- Stroke width should change the width of the selected object when in Edit mode
- In Edit Mode, the selected shape should change colors when a new stroke width is selected.
- Drawing General
  - Use the current fill and stroke colors
  - Use the current stroke width
- Drawing Ellipses
  - The first mouse press indicates a corner of a rectangle that will contain the ellipse
  - Drag the mouse to the opposite corner to determine the final size
  - While the mouse is dragged an ellipse should appear and resize appropriately.
  - When the mouse button is released the ellipse remains the final size
  - Another shape may be drawn immediately
- Drawing Rectangles
  - The first mouse press indicates a corner of the rectangle
  - Drag the mouse to the opposite corner to determine the final size
  - While the mouse is dragged a rectangle should appear and resize appropriately.
  - When the mouse button is released the rectangle remains the final size
  - Another shape may be drawn immediately
- Drawing Freehand
  - The first mouse press indicates the start of a line
  - Drag the mouse to draw a line
  - When the mouse button is released the line remains the final size
  - Another shape may be drawn immediately
- Edit Mode
  - Selecting a shape should modify the ColorPickers and Stroke Width to match that of the selected shape
  - Selected shape comes to the top of the drawing area (nothing layered above it)
  - Drag and drop shape to different location
  - After selecting shape, can modify color and stroke as described above
  - (I should have made the shape that was just drawn be selected automatically if you go into edit mode, but that didn't occur to me until I made the video. You might want to add that)
- Erase Mode
  - Click on a shape and remove it from the drawing
- Drawing Area
  - Clip should prevent from drawing into tool area
- **Draw a picture using every shape and include it in your submission (do a screenshot). You can place it in a project folder called "image".**

Tips

Watch the video! It's much easier to see how it should work. You may use the ToolPane.java file that I have included, but it is not required to do so. If you use it, make sure it's part of your assignment submission. It does not have much commenting so you can read the code and learn what's happening.

The ToolPane.java file is an example of inheritance. Notice that it extends HBox, which is a type of

Pane. We'll be talking about Layout Managers soon, so this is a sneak peek. Note that I didn't have to specify where each Node is inside the Pane.

Check out the demo code for how to do drag and drop. You can go ahead and copy the setShapeHandler (and setShapeSettings) method and use it in your program. You probably won't need to delete anything, but you may want to add some stuff (Hint: add some stuff).

Note in the demo code that the methods are somewhat generic. That is, they can take any Shape object, which means an Ellipse, Path, Rectangle, and more, will work. This is an example of polymorphism, and will make programming much easier for you.

What/How To Turn In

Submit your files on Canvas according to class conventions.

Due: March, 2018