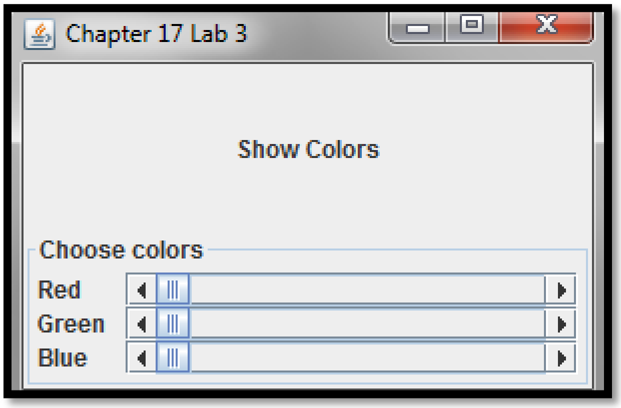
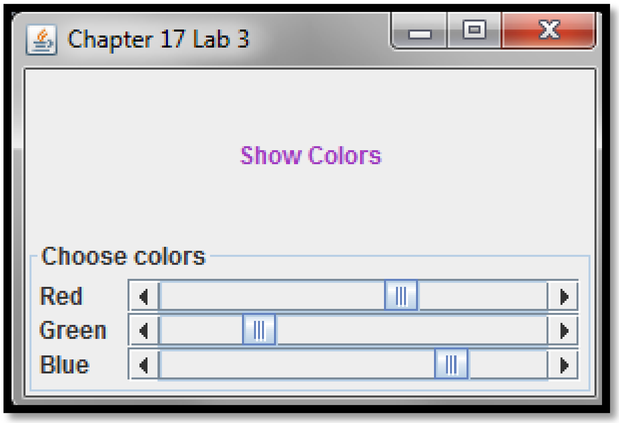
CIT 249: Java II
Chapter 17 Lab 3

In this program we will complete #15 under Programming exercises on page 669.   In this assignment we will create JScrollBar objects that will increase the amount of red, green and blue, and display the text in the desired color combination. When displayed:





1. Open a new document window and save the file as Ch17Lab3.java.
2. First we will want to include documentation as to the purpose of the program. Type:

```
/*  Purpose:  Adjust the color of text using the JScrollBar class
*/
```

3. First we need to include our import statements. Type:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import javax.swing.border.*;
```

4. Type the class header and opening brace, having the class extend the JFrame class.
5. Next we constructor our objects. Type:

```
// Declare scrollbars
```

```
private JScrollBar jscbRed, jscbGreen, jscbBlue;

 // Create a label
private JLabel jlbl = new JLabel("Show Colors", JLabel.CENTER);

// Declare color component values
private int redValue, greenValue, blueValue;
```

6. We create our main method by typing:

```
// Main method
public static void main(String[] args)
{
    Ch17Lab3 frame = new Ch17Lab3();
    frame.setSize(300, 200);
    frame.setTitle("Chapter 17 Lab 3");
    frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    frame.setLocationRelativeTo(null); // Center the frame
    frame.setVisible(true);
}
```

- We construct an instance of our class, which will be the frame.
- Set the size.
- Set the title to appear on the title bar.
- Set it so the program ends when the close button is pressed.
- Set the location of the frame.
- Set the visibility of the frame.

7. Within the constructor method, we first construct the labels and the first panel. Type:

```
public Ch17Lab3()
 {
   // Panel p1 to hold labels
   JPanel p1 = new JPanel(new GridLayout(3, 1));
   p1.add(new JLabel("Red"));
   p1.add(new JLabel("Green"));
   p1.add(new JLabel("Blue"));
```

8. We create the next panel and construct the scrollbars and set attributes for them. Type:

```
// Panel p2 to hold scroll bars
  JPanel p2 = new JPanel(new GridLayout(3, 1));
  p2.add(jscbRed = new JScrollBar());
  jscbRed.setOrientation(JScrollBar.HORIZONTAL);
  jscbRed.setMaximum(255);

  p2.add(jscbGreen = new JScrollBar());
  jscbGreen.setOrientation(JScrollBar.HORIZONTAL);
  jscbGreen.setMaximum(255);
  p2.add(jscbBlue = new JScrollBar());
  jscbBlue.setOrientation(JScrollBar.HORIZONTAL);
  jscbBlue.setMaximum(255);
```

- The setOrientation() method sets the positioning.
- The setMaximum() method specifies the maximum scrolling.

9. Create another panel, add the other panels to it and add this final panel to the frame. Type:

```
// Create a panel to hold p1 and p2
  JPanel p = new JPanel(new BorderLayout(10, 10));
  p.add(p1, BorderLayout.WEST);
  p.add(p2, BorderLayout.CENTER);

  add(jlbl, BorderLayout.CENTER);
  add(p, BorderLayout.SOUTH);
```

10. We need listeners for the scrollbars. Type:

```
// Register listener for the scroll bars
  jscbRed.addAdjustmentListener(new Listener());
  jscbGreen.addAdjustmentListener(new Listener());
  jscbBlue.addAdjustmentListener(new Listener());
```

11. Set the border for the last panel and close the method. Type:

```
p.setBorder(new CompoundBorder(new TitledBorder("Choose colors"), new EmptyBorder(2,
2, 2, 2)));
}
```

12. Next we create an inner class for the listening of when the scrollbars are adjusted. Type:

```
class Listener implements AdjustmentListener
{
        public void adjustmentValueChanged(AdjustmentEvent e)
        {
          if (e.getSource() == jscbRed)
            redValue = jscbRed.getValue();
          else if (e.getSource() == jscbGreen)
            greenValue = jscbGreen.getValue();
          else
            blueValue = jscbBlue.getValue();

          Color color = new Color(redValue, greenValue, blueValue);
          jlbl.setForeground(color);
        }
}
```

13. Finally close the original class.
14. Compile the program, fix any errors and run the program to test it.
15. Compress ALL files into a single zip or rar file and submit.