Lab 11 C212 FA22

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Summary

The goals of this lab are as follows:
- Part A - Flag, country name, and capital display
- Part B - How to do this
- Part C - Show us what you've done
    - Get checked off before leaving lab

Part A - Flag, country name, and capital display

The task for lab this week is pretty simple. All you have to do is create a Java program that displays a GUI with a few simple elements. You'll draw a flag, set the frame's dimensions appropriately, set the frame's title to be the country name, and add a button which toggles a label showing the country's capital city's name.

It's almost International Education Week, so choose some country to design your program for. The countries you can pick are based on how complex their flag is to draw. We won't restrict you from trying to draw any really complicated flags if you want, but the flags you draw should be at least as complex as France's – which is to say, not very complex, but you should use at least three colors. You can also choose a state or province, too, but you should base your program off of some real place.

The frame itself should be sized appropriately for this program and for the GUI elements. In other words, the overall display shouldn't be super tiny or super big, and its default size should be big enough to show all the contents without the user having to resize anything. The frame should cause the program to end when the user closes it. The frame's title should be the name of the country.

The comments in the starter code walk you through how to do this pretty well, but Part B goes into more detail about the steps you can take to complete the lab.

Part B - How to do this

We provided some starter code that helps especially for the GUI layout and for the inner button listener class. Not doing these GUI layout steps will probably make your output not show the flag, so we gave you the code to avoid this problem.

As part of the steps we take to do layout management, we use two separate JPanels in the one JFrame. One contains only the custom Flag component, and the other contains the button and label. Remember, the label's text should be the country's capital's name, and it should be hidden by default. Once a user clicks the button, the label's visibility will be toggled.

When we want our buttons to do something, we have to give them a custom event listener method that handles what to do when they're clicked. This is often done with an inner static class that implements the ActionListener interface and its primary method. In this case, we want the button to modify something back in the JFrame, but since (normally) we would create the label in the main method, it would be out of scope from another method. A workaround is to define the label statically, which is done for you, which means the event handler can refer to it.

Do the actual drawing of the flag in another class Flag, which extends JComponent. Here, it should have the paintComponent(Graphics g) method that gives the commands for drawing, such as g.fillRect() and g.setColor().
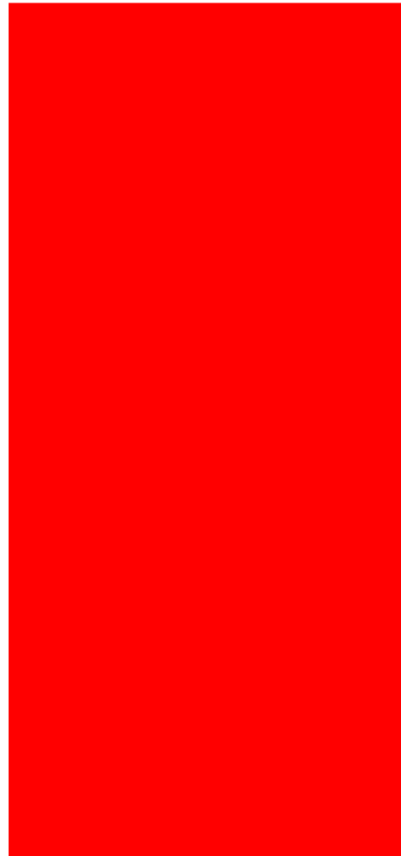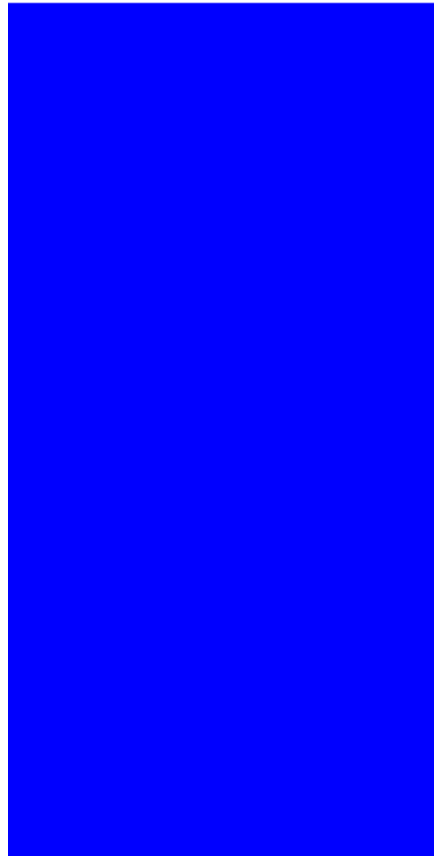
Part C - Show us what you've done

As announced recently on Canvas, we want to try and expedite grading, especially for labs as they should be a way to recap and practice recent lecture topics so you're ready for the assignment.

To that end, assuming you're working on the lab at your lab section, show your TAs your final product and they'll check you off and give you the full points. Otherwise, submit your work to Canvas before the deadline.

Sample program output follows for a program based on France. Don't worry about the formatting, again, as long as everything is visible with the default frame size.

Paris

Toggle...