

Computer Science 1 : Java Programming

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Program 7: First GUI

Throughout the semester, we have been working on command line applications. While the command line can be a powerful form of interacting with the computer, most modern applications have a graphical user interface, or GUI. This program will give you some initial experience making GUI applications with Swing.

Things you will learn

- How to set up a simple GUI based on JFrame
- Setting up listeners and responding to events
- Drawing simple shapes and images
- Dealing with mouse and mouse motion events

Directions

1. Write a GUI application in Java using Swing that has a three buttons and a drawing area. The buttons should be at the top of the window. The buttons should be labeled as "swap", "center", and your name.
2. Give the window an initial size of 800 x 600 pixels, and put your name in the menu bar.
3. The drawing area should cover the remainder of the window.
4. When it starts, the program should show an oval with your name in the center of it (that is not an image of an oval). Also, it should show an image of your choice read in from a file somewhere on the screen. The background of the drawing area should be a non-white color.
5. Pressing the "center" should cause both the the oval to move to the center of the window.
6. You must also be able to click and drag the oval with your name or the image around the screen independently with the mouse.
7. When you click the "swap" button, the oval and image should swap positions on the screen.
8. When the user presses the button with your name on it, the program should do something else not described in the assignment that is unique to your program, such as change the color of all the things you draw, switch the oval to be outlines instead of filled, or something like that.
9. As always, make sure the proper block comment is at the top of your main file with your name.
10. Once your program is working, pass it off directly to the instructor or TA. Also, turn in your code to D2L.

Suggestions

- Get the skeleton of your GUI working first. First get the buttons drawing properly, then go on to listen to and respond to events.
- Initially, hook up the event listeners so that they print something to the console when a button is pressed. That way you can know that your code is getting events.
- Make a subclass of JPanel called "DrawPanel" or something like that to draw the objects. Override the "paintComponent" method of this class. This class needs boolean variables to decide whether to draw the rectangle, oval, your name, and the special. It may also need other variables to indicate colors, positions of things, etc.
- You can measure a string using the FontMetrics class. This measures how much space (in pixels) the string will take when drawn. You would use this information to determine where to place the text and backing rectangle.

Point Breakdown (20 points total)

	Required for a non-zero score
Compiles and runs on command line	
Proper indentation, spacing, header comment	2 pts
Starts with an oval with your name and image	5 pts
Quits when you press the x on the window	2 pts
Moves oval and image independently using mouse	6 pts
Does button commands and special	5 pts