

CMPU 102 - Spring 2017

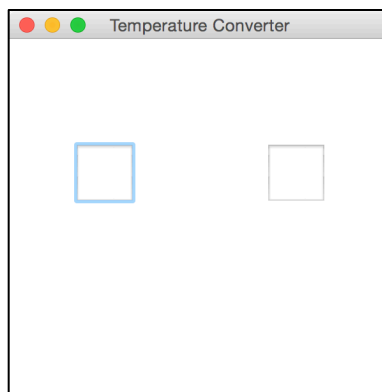
Lab 7: Writing a temperature converting GUI

To begin, create a lab7 directory in your cs102 directory.

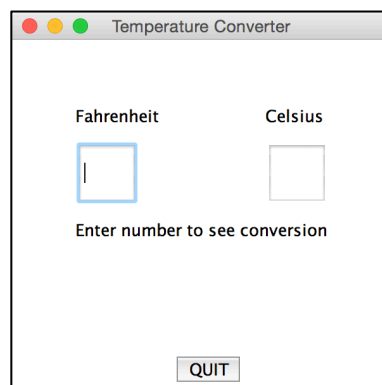
Part 1: Download the starter file TempConvGUIStarter.java

Download the file tempconvguistarter.java from the course web site and store it in folder lab7. I recommend using DrJava for this lab and saving the file as TempConvGUIStarter.java. Read through this file and complete the five tasks at the specified locations. Note that the only components that generate ActionEvents are the JTextFields and the Quit JButton. The file should run after downloading with no errors.

For this lab, you will write a Java Graphical User Interface that takes input from the user and converts the temperature in Fahrenheit to Celsius and vice versa. The program should generate a JFrame that initially looks like the figure shown below. This JFrame contains two JTextFields that are positioned at (50, 80) and (200, 80). This is what the window should look like when you start:

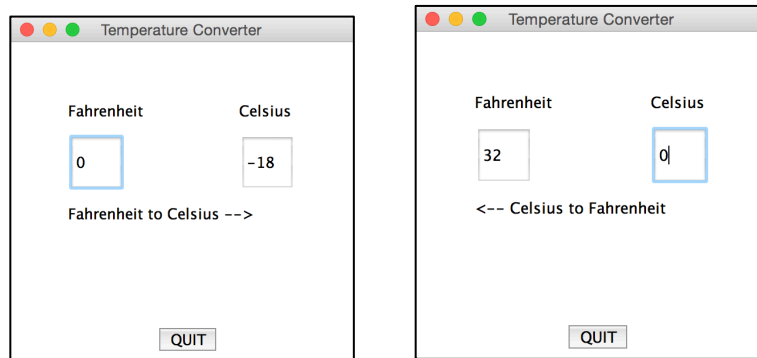


Notice that this class extends JFrame and implements ActionListener. The entire surface of the JFrame is accessed by a call to getContentPane() in the constructor and all the components are added in the constructor. The layout manager of the holder variable should be null. You should add 3 JLabels and a JButton. This will require you to use code like the setBounds method shown for the JTextFields.



This figure has three JLabels, two JTextFields, and one JButton. The result of entering a number in the box labeled Fahrenheit is shown above on the left and the result of entering a number in the box labeled Celsius is shown above on the right. An ActionEvent is generated when the user types something in the boxes and then presses return (enter). You can access text entry in the actionPerformed method by using the getText() method on the JTextField objects. NOTE: The getText() method returns a String and the string entered must be a number. If the strings are

not convertible to numbers, you should have try blocks around the lines that get the text and the Double.parseDouble() to catch NumberFormatExceptions. If a NumberFormatException is thrown, the program should change the text in the middle of the scene to say "Enter a number to see conversion."



In the second line of the main method, add a call to JOptionPane.showMessageDialog with the instructions:

Enter a temperature in degrees
Fahrenheit in the left box and press
enter to see the equivalent temperature
in degrees Celsius in right box.

Enter a temperature in degrees
Celsius in the right box and press
enter to see the equivalent temperature
in degrees Fahrenheit in left box.

All the instruction text shown above should be entered in the same showMessageDialog box and should not be entered all on one line.

Change the JLabel to say "Fahrenheit to Celsius --> " when a number is entered in the left JTextField and to say "<-- Celsius to Fahrenheit" when a number is entered in the right JTextField.

The formulas to do the temperature conversions can be found on-line (google "temperature conversion formulas").

Show your working program to a coach or your professor and get checked off before leaving the lab.

Submit your file when you are finished and have tested your program.