

Week 7 Exercise GUI Components

For this exercise we will try to create and use some simple GUI components. Using a `JPanel`, `TextField`, and `Button` you are going to write a small GUI which permits the user to enter some text into a text field and changes all the letters between upper and lower case on each button press. Study the slides 26 and 30 of the GUI lectures at https://studres.cs.st-andrews.ac.uk/CS5001/Lectures/CS5001_L11-13_GUIs.pdf.

1. **Setting up**

Make a new Java project, called 'W07-Exercise-GUI-Components'. Create a class *GUIComponents* as a subclass of *JFrame* and a class *TestGUIComponents* with a main method.

2. **Adding Attributes**

Add private *JPanel*, *TextField*, *Button* attributes and a *boolean* attribute (to represent whether text is in upper case or not) to your *GUIComponents* class using suitable identifiers for each.

3. **Constructor**

Add a constructor to your *GUIComponents* class which

- instantiates the *JPanel*, *TextField* (with 20 columns look at the java API for *TextField*) and *Button* attributes
- calls a method *setupComponents()*; (which you will write in the section below)
- calls the methods *setVisible* and *setDefaultCloseOperation* as shown in lecture slides and calls *setSize* with suitable horizontal and vertical size (look at the API for *Window*)

4. **Adding *setupComponents()* { }**

Add a method public void *setupComponents()* to your *GUIComponents* class which adds the *JPanel* object to this *GUIComponents*' *ContentPane* (look at lecture slides) and then adds the *TextField* and *Button* to the panel. Finally, add a new *ActionListener()* to the button changes the text in the *TextField* between upper and lower case on each button press.

5. **Running your program**

Write a single line in your main method in the *TestGUIComponents* class to instantiate a *GUIComponents* object and try to enter some text in the text field and press the button.

If all is working, consider trying to add

- a new button which flips the case of the text label in the first button between upper and lower case
- a new text field and button which adds up all the integers in the text field and displays the result