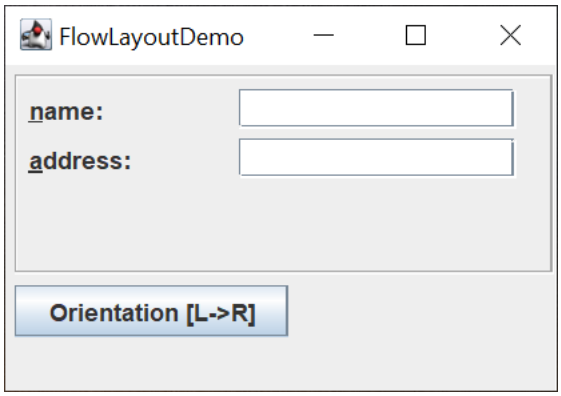
Tutorial 7 – GUI Programming (2)

In this tutorial, you will apply the GUI programming techniques learned in the lecture. You should create a package named `tutes.gui2` for the exercises below.

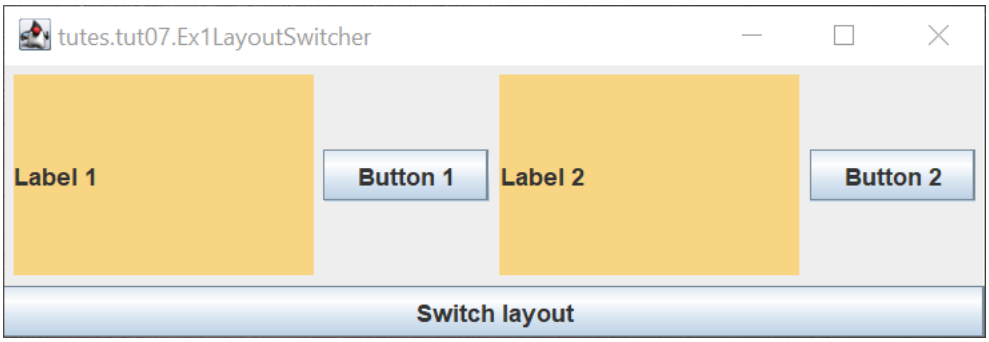
Exercise 1: Layout Manager

Create a program that allows a user to switch among the three layout managers: `FlowLayout`, `BorderLayout` and `GridLayout`. The program displays a `JFrame` that has two labels and two buttons (similar to the `FlowLayoutDemo` program shown below). In addition, it also has a command button labelled "Switch layout...", which cycles through the layouts mentioned and update the frame's layout when the user clicks on it.

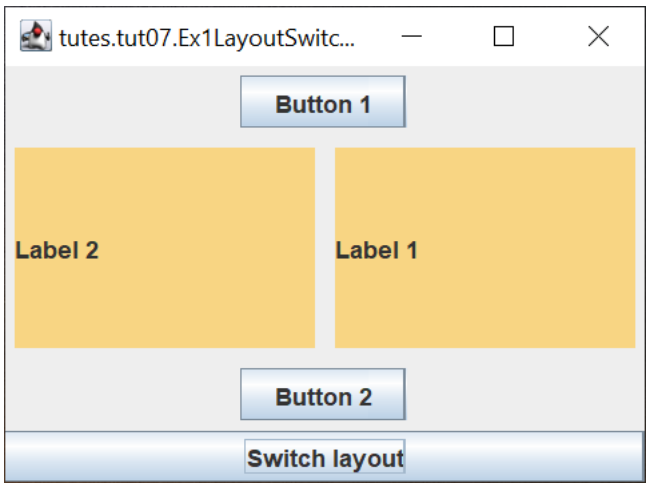


FlowLayoutDemo program's GUI

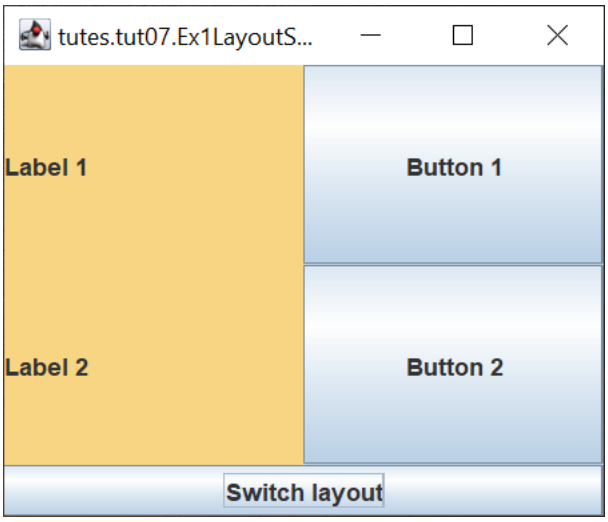
Observe what happens on the `JFrame` when the user clicks on the command button. Does the layout change three times? If not, which layout(s) do not work and how do you improve the code to simulate the default behaviour of this layout? How do you change this default behaviour to make sure that all the components are displayed on the frame?



Screenshot 1: FlowLayout



Screenshot 2: BorderLayout



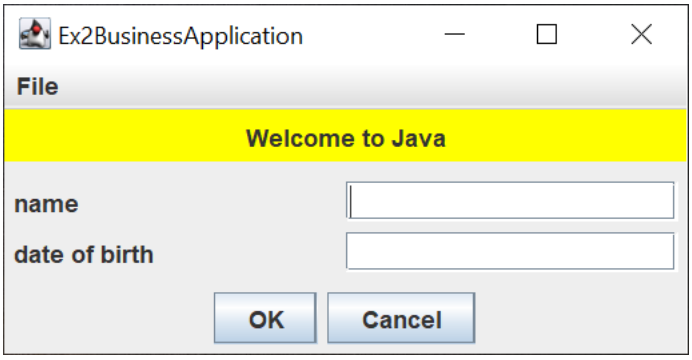
Screenshot 3: GridLayout

Exercise 2: A common GUI

In this exercise, you will create a program called BusinessApplication that displays a GUI commonly found in a business-type application. The program has a single JFrame on which the following components are displayed:

- a menu bar with a File menu, which contains an Exit menu item
- a title to describe the program, e.g. “Welcome to Java”
- a set of labels and text fields, e.g. for name and date of birth
- a button panel consisting of two buttons an OK and a Cancel button

The program should layout the components to make it easy for the user to understand what the program is about and to read the labels to understand the data that they need to enter into the text fields. The OK button will print out the text field values on the console and the Cancel button will clear the text fields. When the user clicks on the File/Exit menu item or the window’s close button, the program should dispose the frame and terminate.



Common businness GUI

Exercise 3: A calculator program

Write a `Calculator` program that displays an interface similar to the one shown in the screenshot below. You need a label to display the user input and the output, the numbers (0-9), a dot (.), the four basic operators (/, x, - +) and the equality (=) symbol.

Improve the code to perform the calculations. For example, when user clicks 1 followed by + followed by 2 followed by =, the program must display 3 on the text field.