

## Creating GUIs in Java using Swing

### Exercises

1. Modify the program, GroupLayoutDemo.java, available here:

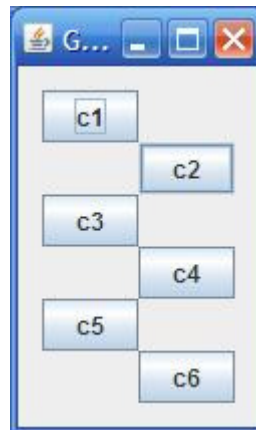
<http://code.google.com/p/guinmp2009/source/browse/trunk/guinmp2009/src/dk/aau/imi/med4/guinmp2009/guis/lesson01/GroupLayoutDemo.java>

to produce each of the following four GUIs

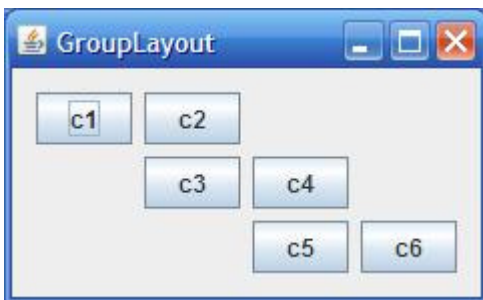
a.



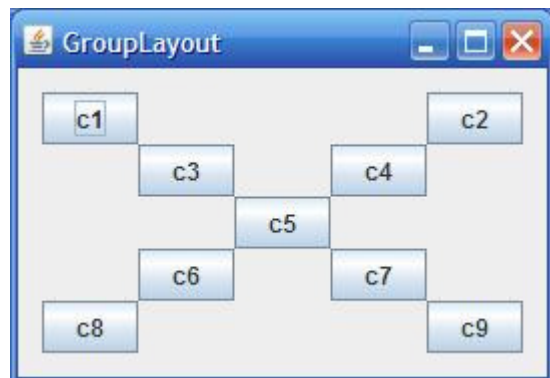
c.



b.



d.



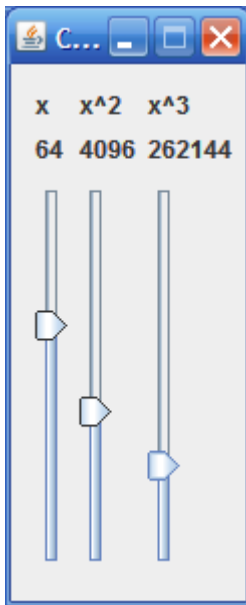
*continued*

2. Study the program SquareSliders.java, available here:

<http://code.google.com/p/guinmp2009/source/browse/trunk/guinmp2009/src/dk/aau/imi/med4/guinmp2009/guis/lesson02/SquareSliders.java>

Then modify this file so that it does exactly the same thing but only uses the SquareSliders class itself as the ChangeListener. You will have to remove the two inner classes, RootChangeListener and SquareChangeListener. Then you will have to change SquareSliders so that it implements ChangeListener. Use the ChangeEvent.getSource() method to find out which slider emitted the ChangeEvent.

3. Modify the program you produced in question 1 so that it now has three sliders, as shown in this diagram:



The third slider gives the cube of  $x$  and covers the range 0 to 1000000. As in SquareSliders, you should be able to move the cubic slider and cause the other sliders to move correctly in synchrony with it.

4. Create a simple calculator application that allows the user to add, subtract, divide and multiply floating point numbers.