TA Programming of Interactive Systems

https://www.lri.fr/~cfleury/teaching/ISI2014/

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The presentation is based on last year's presentation by David Bonnet and Cédric Fleury.

Layout Example

Exercise 1

Building the interface

Always start by **laying out** the widgets in the window.

Handle the functionality with the event listeners **after**.

Use **JPanels** to **structure** and **sub-divide** the layout.

Assign **LayoutManagers** to JPanels to define a specific layout.

Building the interface

Example of structure and resulting code:

```
Window
   JPanel
     JLabel "A"
     JTextField
  JPanel
     JLabel "B"
     JTextField
```

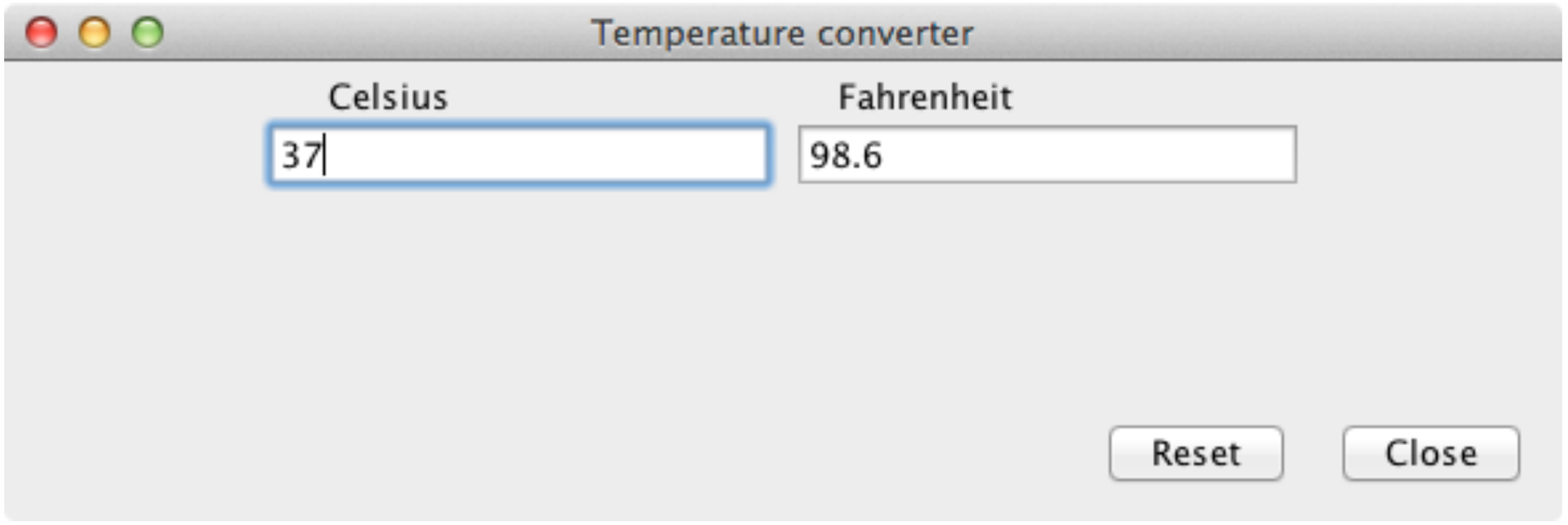
Structure

```
Container panel = getContentPane();

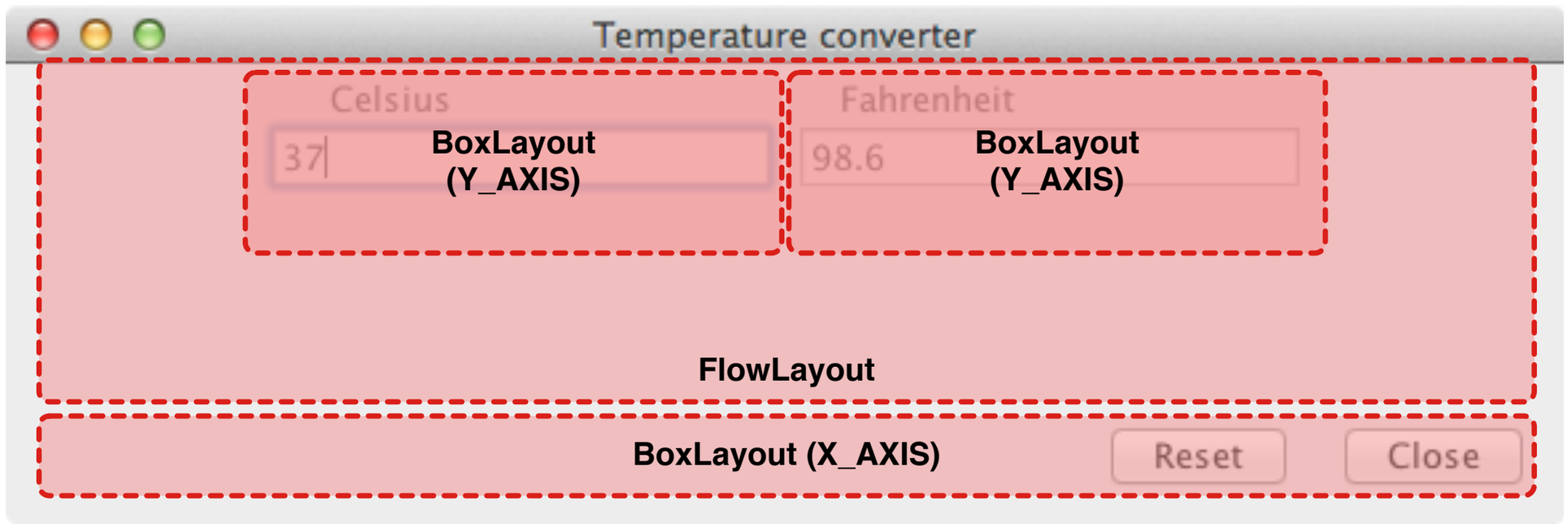
JPanel panelA = new JPanel();
panel.add(panelA);
panelA.add(new JLabel("A"));
panelA.add(new JTextField(5));

JPanel panelB = new JPanel();
panel.add(panelB);
panelB.add(new JLabel("B"));
panelB.add(new JTextField(5));
```

Code

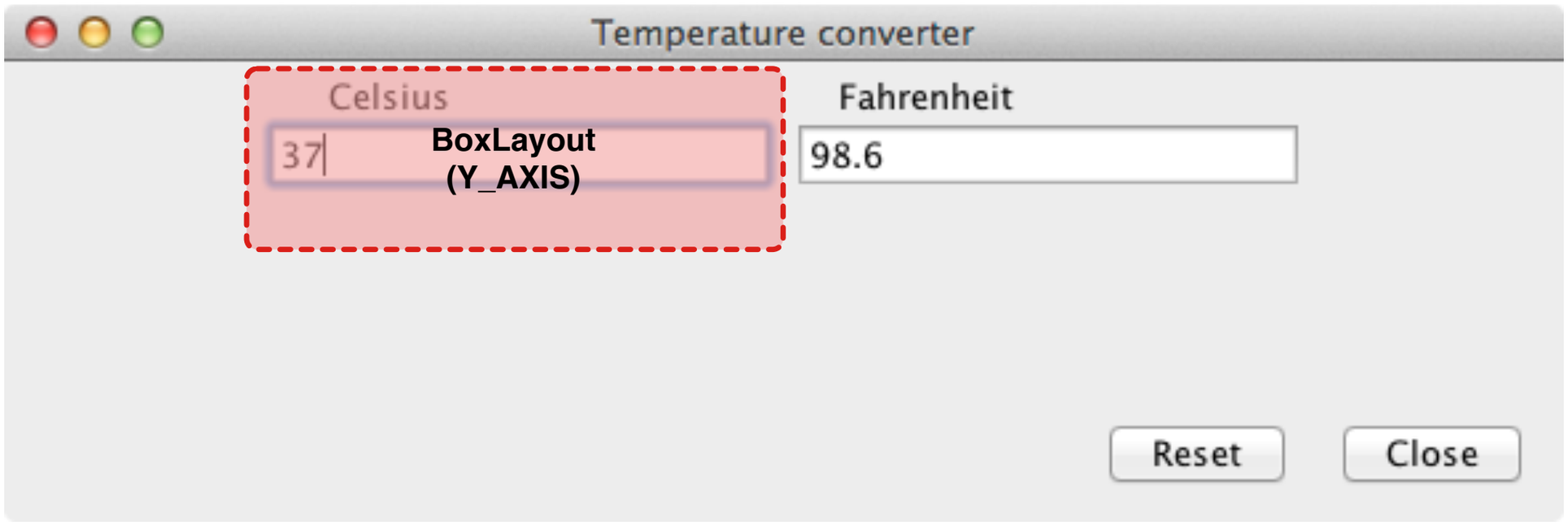


Before writing any code for the layout, **identify a structure** that sub-divides nicely into rectangular areas.

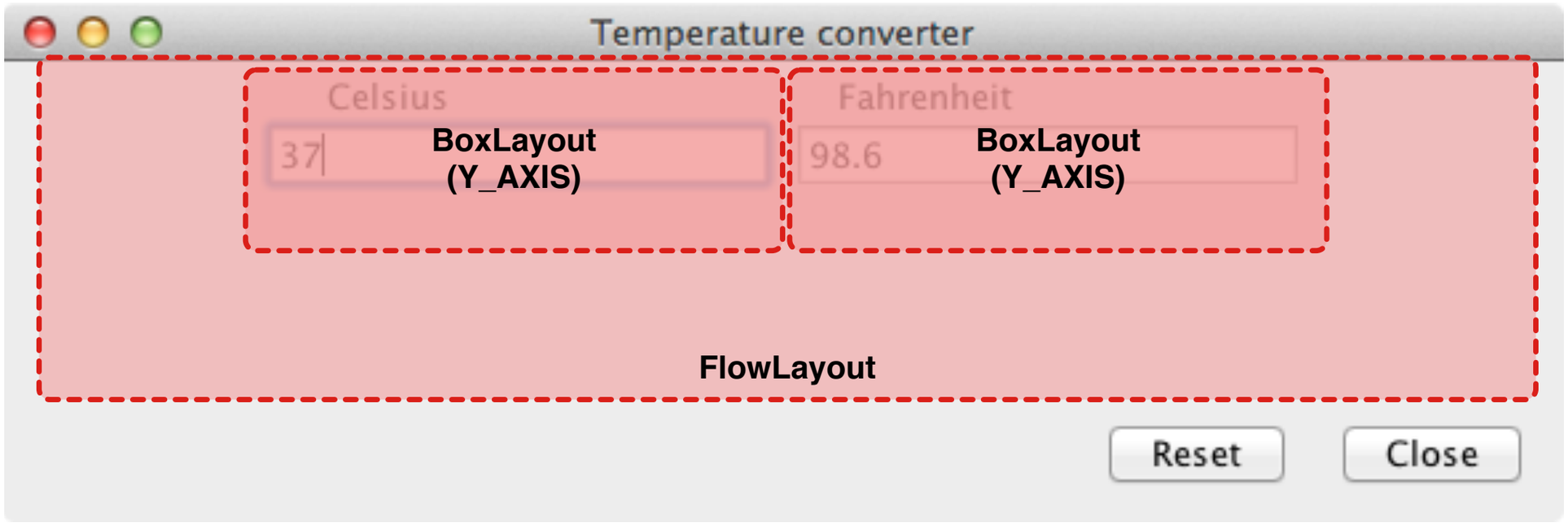


In this example, we have sub-divided the layout into different JPanels and chosen a specific layout (BoxLayout and FlowLayout) for each of them.

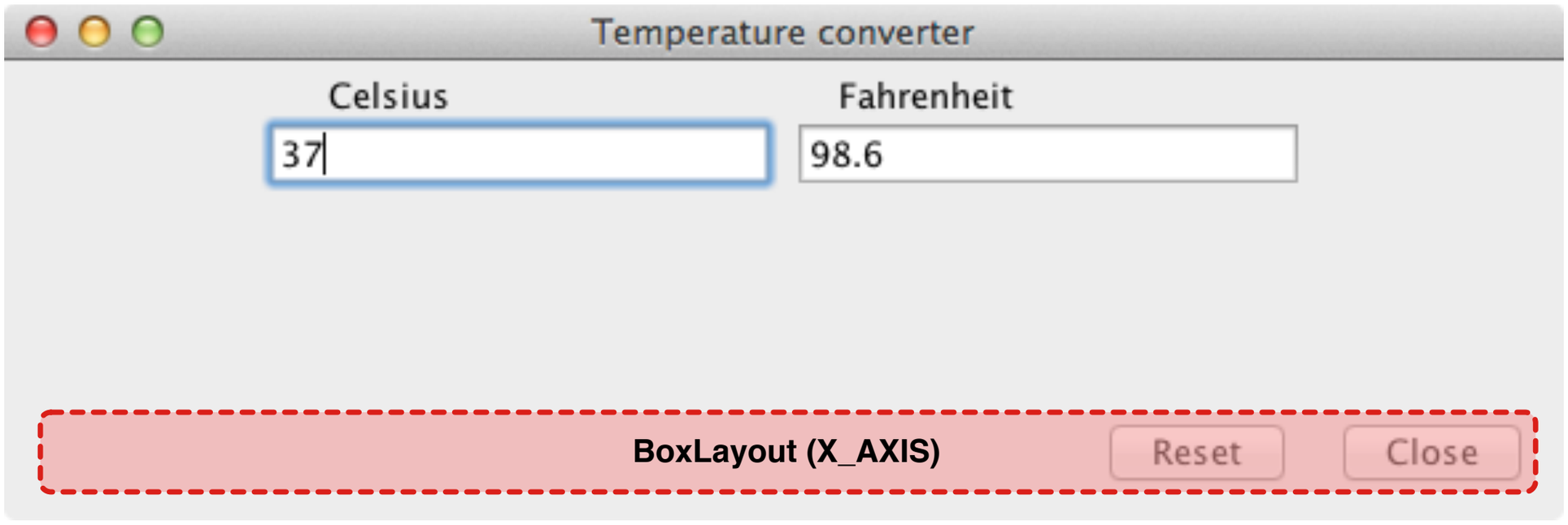
Note that there is not a unique solution.



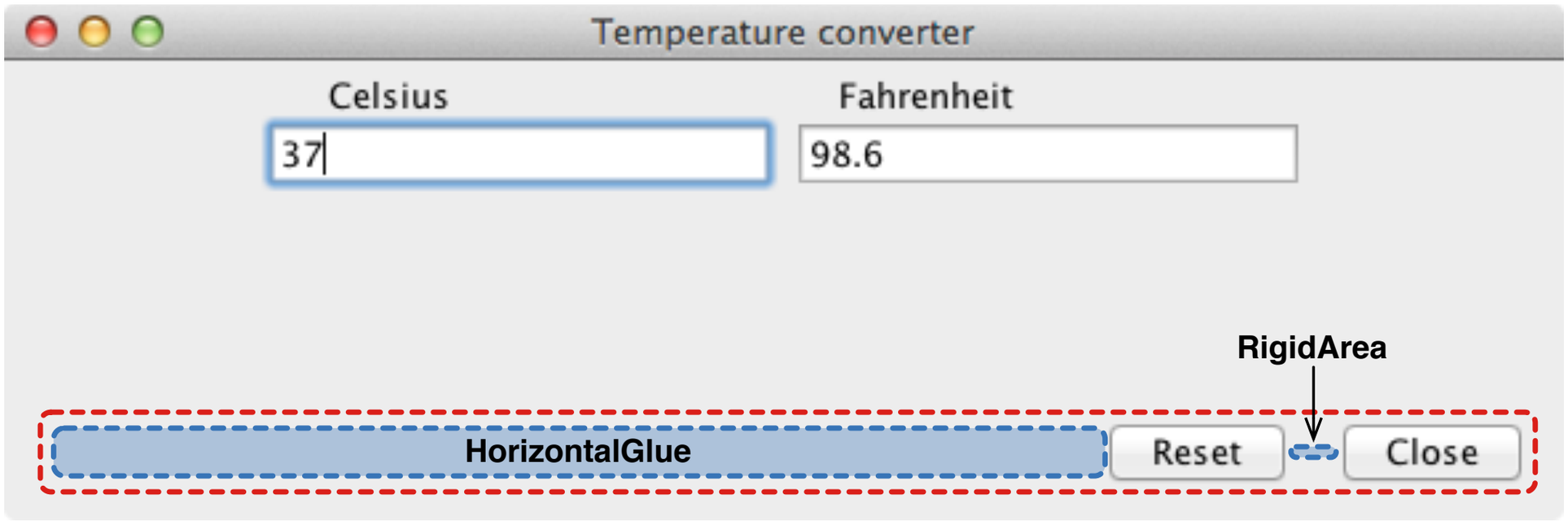

```
JPanel paneC = new JPanel();
paneC.setLayout(new BoxLayout(paneC, BoxLayout.Y_AXIS));
paneC.add(labelC);
paneC.add(textFieldC);
```




```
JPanel tempPane = new JPanel();
tempPane.add(paneC);
tempPane.add(paneF);
```




```
JPanel buttonPane = new JPanel();
buttonPane.setLayout(new BoxLayout(buttonPane, BoxLayout.X_AXIS));
buttonPane.setBorder(BorderFactory.createEmptyBorder(5, 10, 10, 10));
buttonPane.add(Box.createHorizontalGlue());
buttonPane.add(buttonReset);
buttonPane.add(Box.createRigidArea(new Dimension(10, 0)));
buttonPane.add(buttonClose);
```

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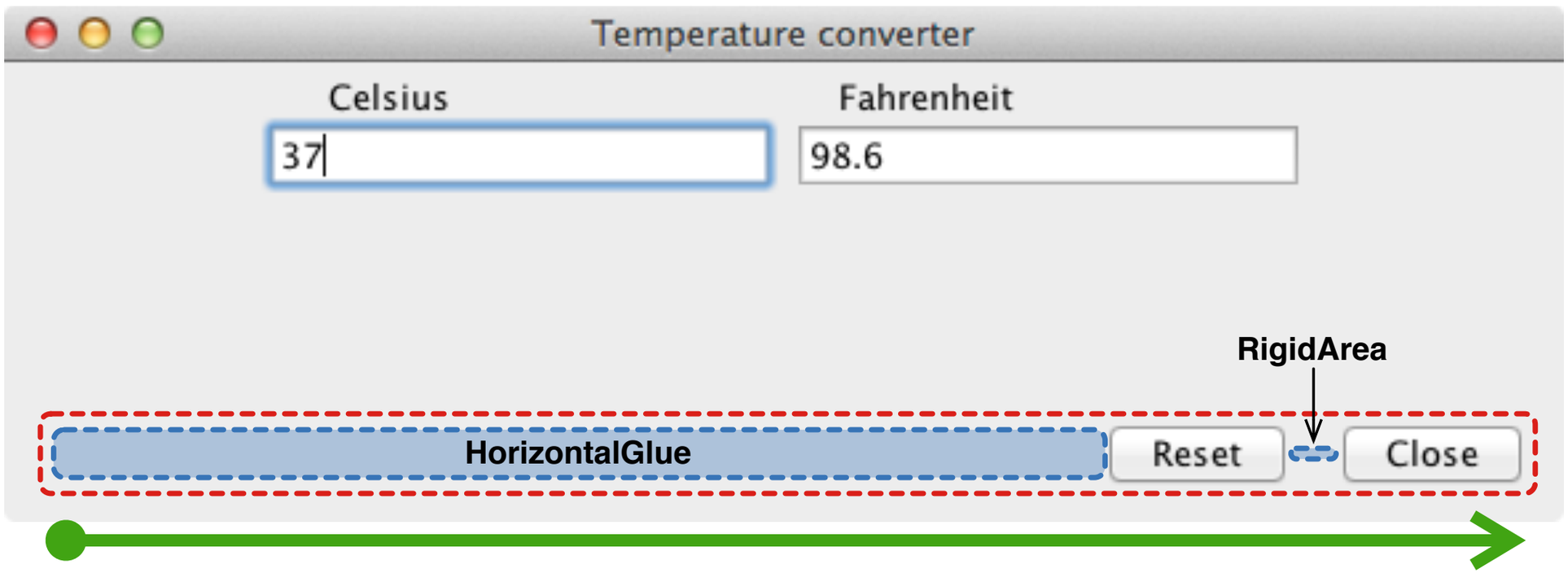


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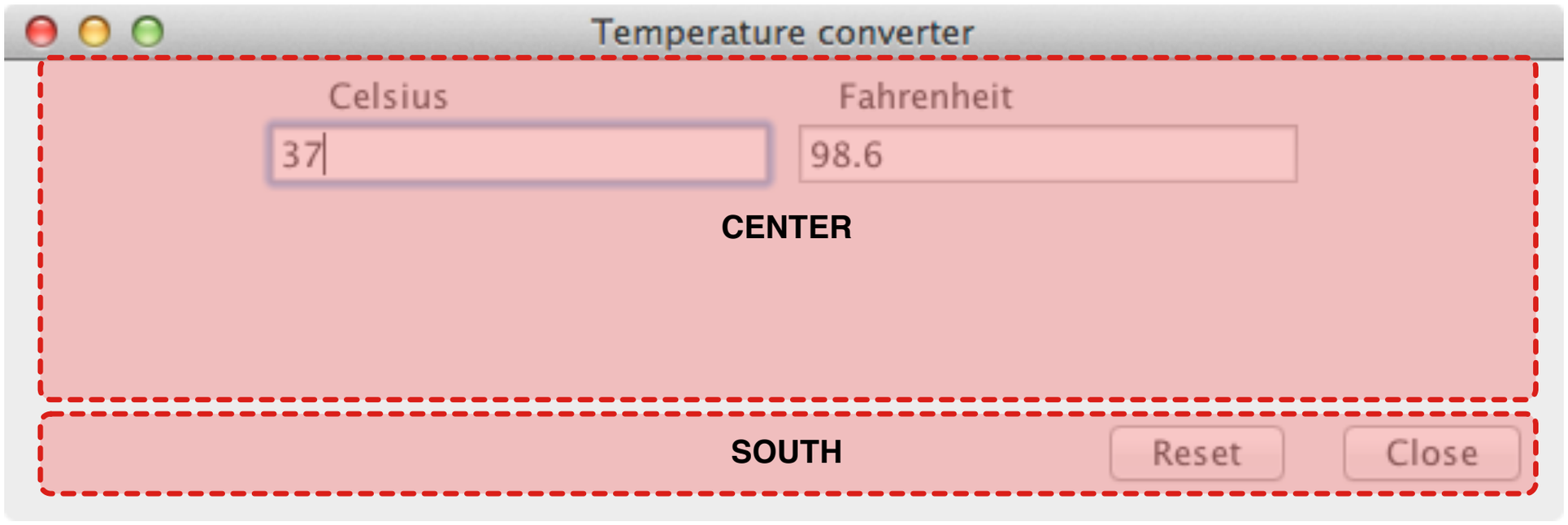
```

Insertion order is important: items are added from **left to right** for horizontal layouts and **top to bottom** for vertical layouts.




```
Container mainPane = getContentPane();
mainPane.setLayout(new BorderLayout());
mainPane.add(tempPane, BorderLayout.CENTER);
mainPane.add(buttonPane, BorderLayout.SOUTH);
```

Adding listeners

Once the interface is laid out, add the event listeners.

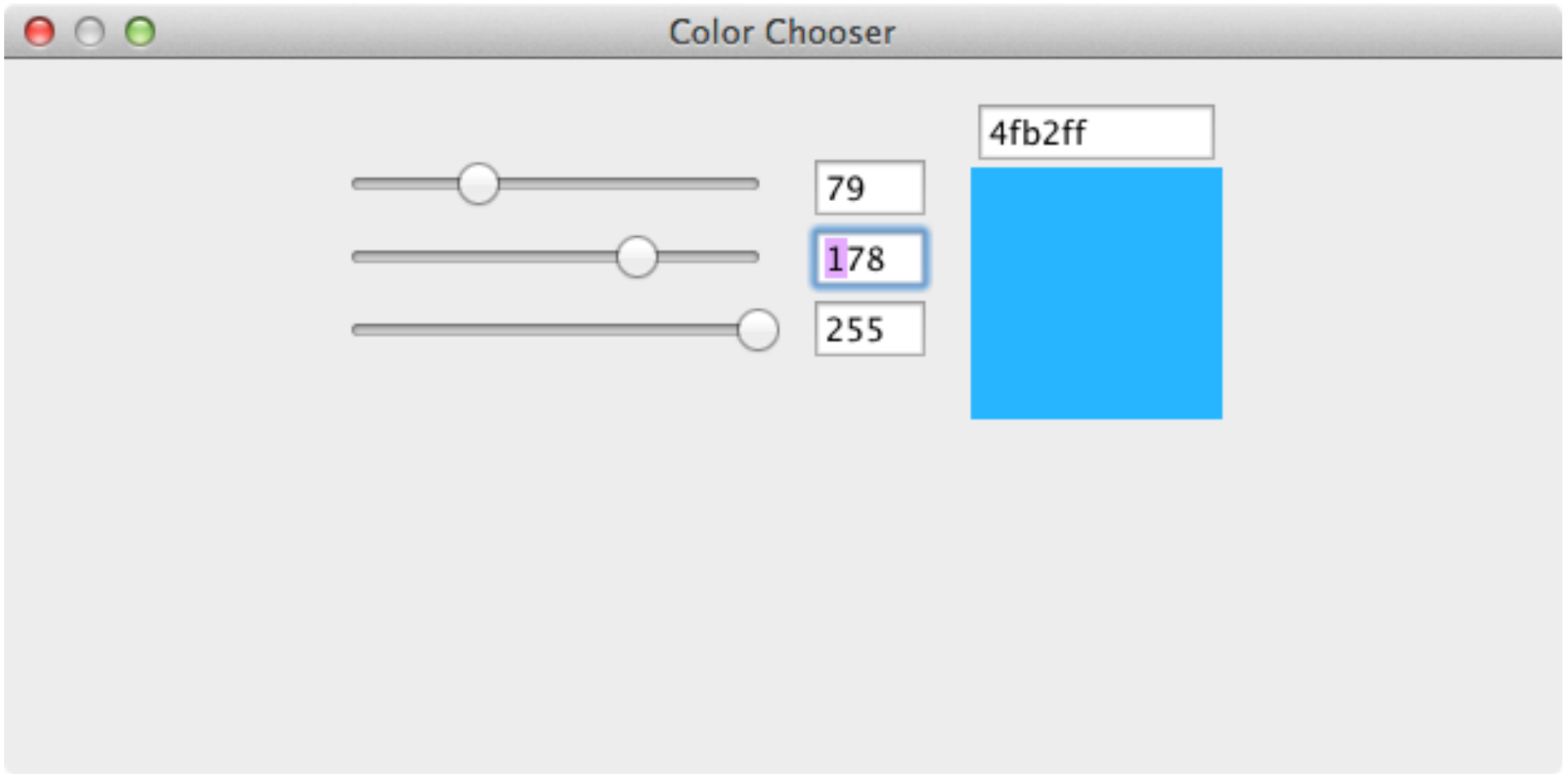
- Refer to the lecture slides or the Java Swing documentation to find the right type of listener for a given widget.

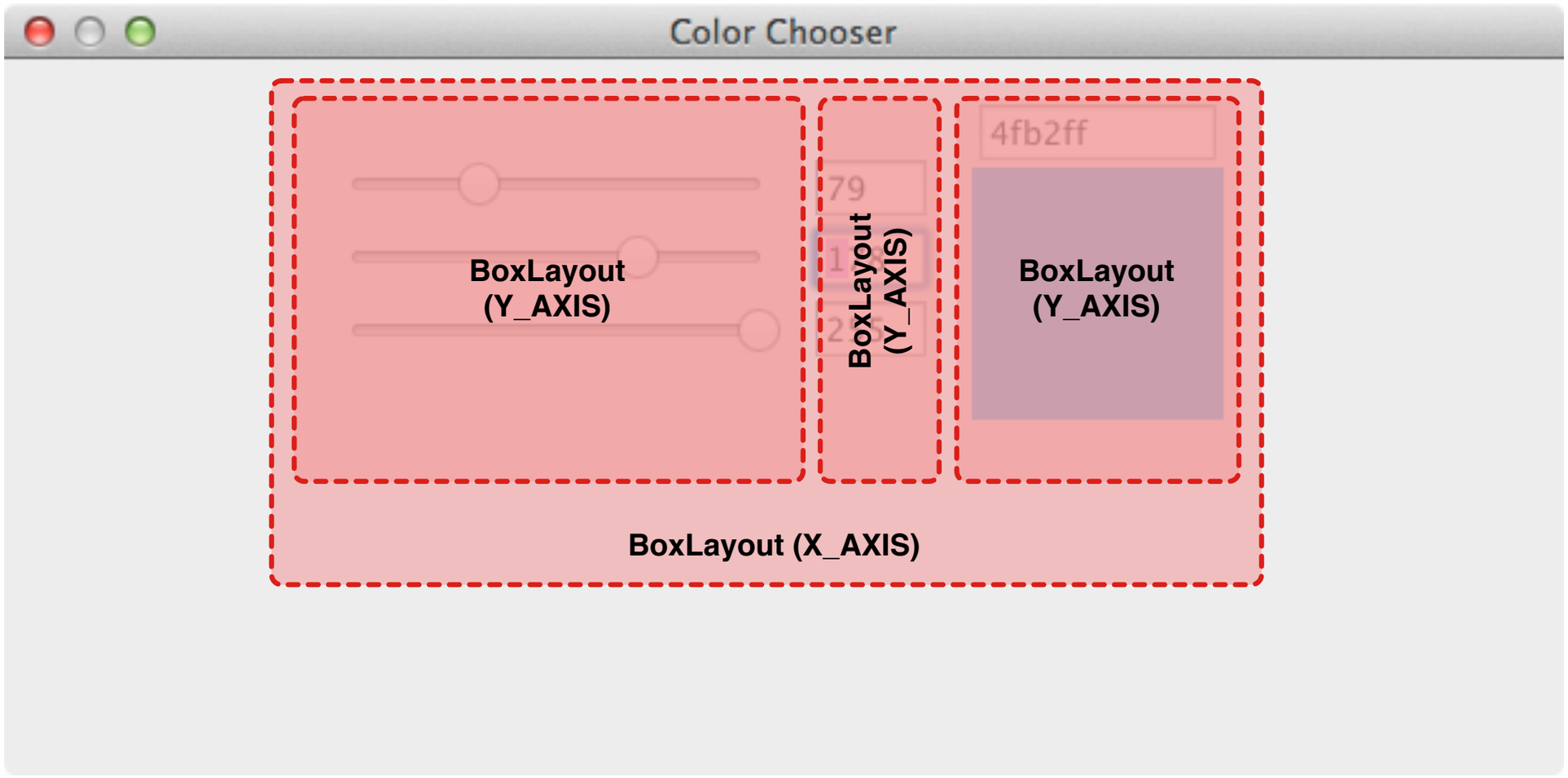
Note that each widget can support different types of listeners.

- For example, the **JTextField** widget supports the **ActionListener** and **KeyListener**.

Layout Example

Exercise 2


Color Chooser
79
178
255
4fb2ff


Color Chooser
BoxLayout
(Y_AXIS)
BoxLayout
(Y_AXIS)
4fb2ff
BoxLayout
(Y_AXIS)
BoxLayout (X_AXIS)