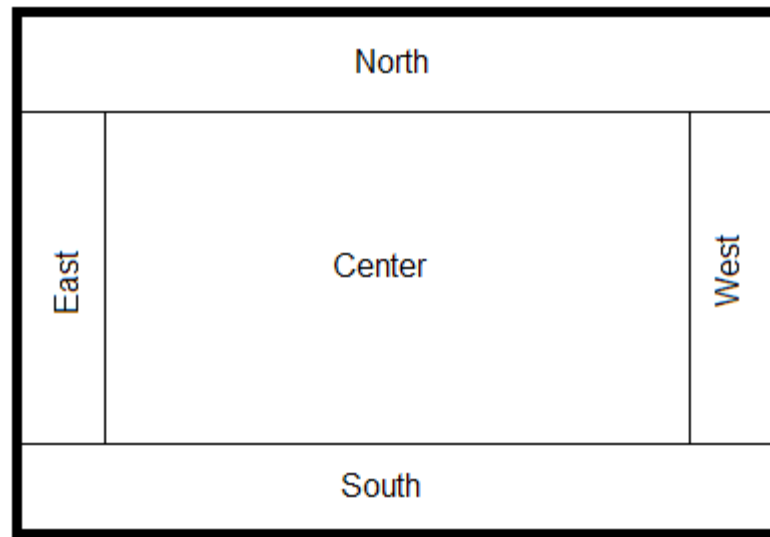


## 4. GUI Programming :: Java Layout Managers :: *BorderLayout*

The *java.awt.BorderLayout* layout manager partitions the *JPanel* into five regions: North, South, East, West, and Center:

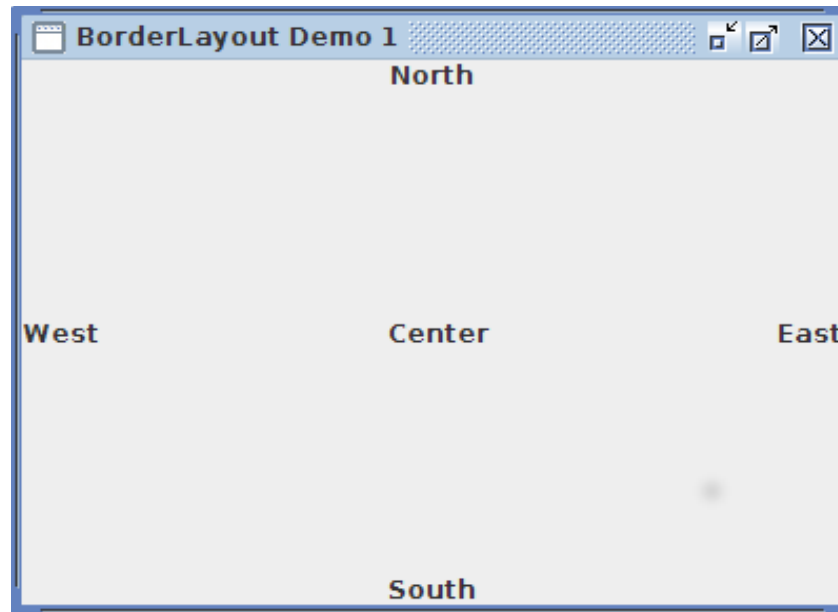


Each region may contain no more than one GUI component and the components are laid out according to their preferred sizes. The North and South regions may be stretched horizontally; the East and West regions may be stretched vertically; and the Center region may be stretched both horizontally and vertically.

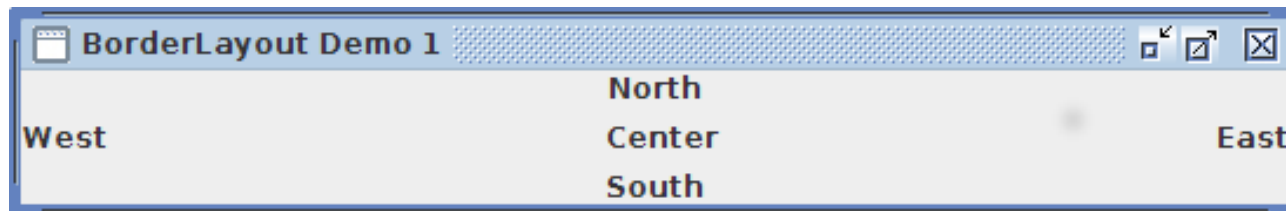
## 4. GUI Programming :: Java Layout Managers :: *BorderLayout* Demo 1

```
// BorderLayoutDemo1.java
import java.awt.BorderLayout;
import javax.swing.JFrame;
import javax.swing.JLabel;
import javax.swing.JPanel;
public class BorderLayoutDemo1 {
    public static void main(String[] args) { new BorderLayoutDemo1().run(); }
    public void run() {
        JFrame.setDefaultLookAndFeelDecorated(true);
        JPanel panel = new JPanel();
        panel.setLayout(new BorderLayout());
        addLabel(panel, "North",  BorderLayout.NORTH);
        addLabel(panel, "South",  BorderLayout.SOUTH);
        addLabel(panel, "East",   BorderLayout.EAST);
        addLabel(panel, "West",   BorderLayout.WEST);
        addLabel(panel, "Center", BorderLayout.CENTER);
        JFrame frame = new JFrame("BorderLayout Demo 1");
        frame.setSize(400, 300);
        frame.add(panel);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setVisible(true);
    }
    private void addLabel(JPanel pPanel, String pText, String pWhere) {
        JLabel label = new JLabel(pText);
        label.setHorizontalAlignment(JLabel.CENTER); // Centers the label within its layout region
        pPanel.add(label, pWhere);
    }
}
```

## 4. GUI Programming :: Java Layout Managers :: *BorderLayout* Demo 1 (continued)



Like all layout managers, the location and sizes of components are relative to the *JFrame* size; when the *JFrame* is resized, components will be moved and resized:



## 4. GUI Programming :: Java Layout Managers :: *BorderLayout* Demo 2

Components do not need to be added to all five *BorderLayout* regions:

```
// BorderLayoutDemo2 .java
public class BorderLayoutDemo2 {
    public static void main(String[] args) { new BorderLayoutDemo2().run(); }
    public void run() {
        ...
        JPanel panel = new JPanel();
        panel.setLayout(new BorderLayout());
        addLabel(panel, "North", BorderLayout.NORTH);
        addLabel(panel, "South", BorderLayout.SOUTH);
        JFrame frame = new JFrame("BorderLayout Demo 2");
        frame.setSize(400, 300);
        frame.add(panel);
        ...
    }
}
```

