

13 JavaAWT Part II

13.1

```
1 import java.awt.*;
2
3 public class TwoButtons {
4     Frame f;
5     Button redButton, blueButton;
6
7     public TwoButtons () {
8         f = new Frame("Two Buttons Frame");
9         redButton = new Button("Red");
10        redButton.setBackground(Color.red);
11        blueButton = new Button("Blue");
```

```

12     blueButton.setBackground(Color.blue);
13     f.setLayout(new FlowLayout());
14     f.add(redButton);
15     f.add(blueButton);
16     f.pack();
17     f.setVisible(true);
18 }
19 }

```

13.2

```

1  import java.awt.*;
2
3  public class Components {
4      Frame f;
5
6      public Components () {
7          f = new Frame("Components Frame");
8          f.setLayout(new FlowLayout());
9          f.add(new Label("A Label"));
10         f.add(new TextField("A TextField"));
11         f.add(new TextArea("A TextArea"));
12         f.pack();
13         f.setVisible(true);
14     }
15 }

```

13.3

```

1  import java.awt.*;
2  import java.awt.event.*;
3
4  public class ButtonToggle extends Frame
5      implements ActionListener {
6
7      Button toggleButton;
8
9      public ButtonToggle () {
10         super("Button Counter");
11         toggleButton = new Button("On");
12         setLayout(new FlowLayout());
13         add(toggleButton);
14         toggleButton.addActionListener(this);
15         pack();
16         setVisible(true);
17     }

```

```

18
19     public void actionPerformed (ActionEvent e) {
20         if (toggleButton.getLabel() == "0n")
21             toggleButton.setLabel("0ff");
22         else
23             toggleButton.setLabel("0n");
24         repaint();
25     }
26 }

```

13.4

Everything should work as you expect.

13.5

(Nothing interesting to show.)

13.6

We get a compile error, since the argument of `setText` is required to be a `String`, not an `int`.

```

Temperature.java:40: cannot resolve symbol
symbol  : method setText (double)
location: class java.awt.TextField
    tCent.setText(cent);
                ^

```

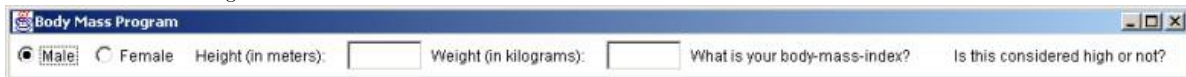
1 error

13.7

If we fail to set the frame size, we get a minimal frame:



If we do a `pack()` instead of `setSize`, we get a right-sized frame, but with everything on a single line:



13.8

If we enter “0” for the height, then the body mass index is computed to be “infinity.” (However, if there is also “0” in the weight field, the body mass index is computed to be “NaN” or “Not a Number.”) If we enter a blank in either field, then we get a runtime error, “Number Format Exception.” We could avoid this by using a `try-catch` around the calls to `new Double(tHeight.getText())`:

```

private void compute () {
    double height, weight;
    try {
        height = new Double(tHeight.getText()).doubleValue();
    } catch (NumberFormatException e) {height = 0.0;}
    try {
        weight = new Double(tWeight.getText()).doubleValue();
    } catch (NumberFormatException e) {weight = 0.0;}
    double bodyMassIndex = weight / (height * height);
    boolean female =
        (gender.getSelectedCheckbox() == femaleCheck);

    lIndex.setText("Your body-mass-index is " + bodyMassIndex);
    if ((bodyMassIndex > 27.8) ||
        female && (bodyMassIndex > 27.3))
        lHigh.setText("This is considered high.");
    else
        lHigh.setText("This is not considered high.");
}

```

13.9

```

1  import java.awt.*;
2
3  public class BigOval extends Frame {
4
5      public BigOval (int w, int h) {
6          super("Big Oval");
7          setSize(w, h);
8          setVisible(true);
9          repaint();
10     }
11
12     public void paint (Graphics g) {
13         g.drawOval(0, 0, getWidth(), getHeight());
14     }
15 }

```

This code draws an oval that is partly obscured by the *Insets* of the frame.

13.10

If the line `c.repaint();` is changed to `repaint();`, then clicking on the buttons does not immediately repaint the clock portion. However, the time is indeed incremented, since if the frame is iconified and then deiconified, the clock is properly painted with the updated time. Likewise, if you completely cover the clock and then uncover it, it will be repainted properly. If you only partially cover it, only the covered part will be repainted, possibly showing a broken hand.

13.11

(Nothing interesting to show.)

13.12

In a 4 x 1 grid layout, all rows are the same height, so the `banner`, the `select`, and the `days` would all be as tall as `thepBody`.