

GUI Practice Problems

* Assume the appropriate import statements are already included. *

- 1) Write a program which uses an input dialog box to ask the user to enter a positive integer. Then display a message telling the user if their number is divisible by any of 2, 3, 5, or 7.

An answer:

```
public class Test {
    public static void main(String[] args) {
        String userStr = JOptionPane.showInputDialog("Please enter a
                                                    positive integer.");
        int num = Integer.parseInt(userStr);

        if ((num % 2 == 0) || (num % 3 == 0) || (num % 5 == 0) ||
            (num % 7 == 0)) {
            JOptionPane.showMessageDialog(null, "Your number is divisible
                                             by at least one of 2, 3, 5, or 7.");
        }
        else {
            JOptionPane.showMessageDialog(null, "Your number is not
                                             divisible by any of 2, 3, 5, or 7.");
        }
    }
}
```

- 2) Write a program which asks the user to enter a word, using an input dialog box. Display the word backwards using a message dialog box.

An answer:

```
public class Test {
    public static void main(String[] args) {
        String word = JOptionPane.showInputDialog("Please enter a
                                                    word.");

        String reverse = "";
        for (int i = word.length() - 1; i >=0; i--) {
            reverse = reverse + word.charAt(i);
        }
        JOptionPane.showMessageDialog(null, "Your word in reverse is " +
                                           reverse);
    }
}
```

- 3) Write a program which displays a JApplet with two buttons labelled "Arriving" and "Leaving", and a label. When the user clicks the button "Arriving", the label should

change to read "Hello!", and when the user clicks the button "Leaving" the label should change to read "Goodbye!".

An answer:

```
public class Test extends JApplet implements ActionListener {
    private JLabel label = new JLabel();

    public void init() {
        // initialize the contentPane and layout
        Container contentPane = getContentPane();
        contentPane.setLayout(new FlowLayout());

        // initialize the buttons
        JButton arriveBut = new JButton("Arriving");
        JButton leaveBut = new JButton("Leaving");

        // register the buttons with the ActionListener
        arriveBut.addActionListener(this);
        leaveBut.addActionListener(this);

        // add the buttons and the label to the container
        contentPane.add(arriveBut);
        contentPane.add(leaveBut);
        contentPane.add(label);
    }

    // Code performed when a button is clicked.
    public void actionPerformed(ActionEvent e) {
        if (e.getActionCommand().equals("Arriving")) {
            label.setText("Hello!");
        } else if (e.getActionCommand().equals("Leaving")) {
            label.setText("Goodbye!");
        }
    }
}
```

4) Write a program which displays a JApplet with one TextField, one Button labelled "Display", and one Label. When the user clicks the button, the label is changed to display whatever is written in the TextField.

An answer:

```
public class Test extends JApplet implements ActionListener {
    private JTextField text = new JTextField(10);
    private JLabel label = new JLabel();

    public void init() {
        // initialize the contentPane and layout
        Container contentPane = getContentPane();
        contentPane.setLayout(new FlowLayout());
    }
}
```

```

// initialize the button
JButton button = new JButton("Display");

// register the buttons with the ActionListener
button.addActionListener(this);

// add the text field, the button,
// and the label to the container
contentPane.add(text);
contentPane.add(button);
contentPane.add(label);
}

// Code performed when the button is clicked.
public void actionPerformed(ActionEvent e) {
    label.setText(text.getText());
}
}

```

5) Write a program which displays a JApplet with one TextField and one Button labelled "Change". If the user types "red" in the TextField and clicks the button, the background color should change to red. If the user types "blue" in the TextField and clicks the button, the background color should change to blue. If the user types anything else in the TextField and clicks the button, the background color should change to black.

An answer:

```

public class Test extends JApplet implements ActionListener {
    private JTextField text = new JTextField(10);

    public void init() {
        // initialize the contentPane and layout
        Container contentPane = getContentPane();
        contentPane.setLayout(new FlowLayout());

        // initialize the button
        JButton button = new JButton("Change");

        // register the button with the ActionListener
        button.addActionListener(this);

        // add the text field and the button to the container
        contentPane.add(text);
        contentPane.add(button);
    }
}

```

```

// Code performed when the button is clicked.
public void actionPerformed(ActionEvent e) {
    // Get the contentPane for this applet
    Container contentPane = getContentPane();
    if (text.getText().equals("red")) {
        contentPane.setBackground(Color.RED);
    }
    else if (text.getText().equals("blue")) {
        contentPane.setBackground(Color.BLUE);
    }
    else {
        contentPane.setBackground(Color.BLACK);
    }
}
}

```

- 6) Write a program which displays a JApplet with one TextField, one Button labelled "Even or odd?", and one Label. If the user enters an even number in the TextField and clicks the button, the Label text should change to read "Even!". If then user enters an odd number in the TextField and clicks the button, the Label text should change to read "Odd!". You may assume the user enters a number in the TextField.

An answer:

```

public class Test extends JApplet implements ActionListener {
    private JTextField text = new JTextField(10);
    private JLabel label = new JLabel();

    public void init() {
        // initialize the contentPane and layout
        Container contentPane = getContentPane();
        contentPane.setLayout(new FlowLayout());

        // initialize the button
        JButton button = new JButton("Even or odd?");

        // register the button with the ActionListener
        button.addActionListener(this);
    }
}

```

```
        // add the text field, the button,  
        // and the label to the container  
        contentPane.add(text);  
        contentPane.add(button);  
        contentPane.add(label);  
    }  
  
    // Code performed when the button is clicked.  
    public void actionPerformed(ActionEvent e) {  
        // convert the TextField text into an integer  
        int num = Integer.parseInt(text.getText());  
        // check if the number is even or odd,  
        // and display the appropriate message  
        if (num % 2 == 0) {  
            label.setText("Even!");  
        }  
        else {  
            label.setText("Odd!");  
        }  
    }  
}
```