Homework Assignment 3

CIS 551 (Fall 2012) — Modern Programming in Java

Due Friday November 16, 2012 at Midnight

The purpose of this homework assignment is for you to learn how to create a Graphical User Interface (GUI) application using Java. You will create the class called `FontViewerFrame` that extends `JFrame`. All of your application will be contained in this one class. The `main` method will be in a separated class called `FontViewer`. Your `FontViewer.java` should look like the following:

```java
import javax.swing.JFrame;

public class FontViewer
{
   public static void main(String[] args)
   {
      JFrame frame = new FontViewerFrame();
      frame.setSize(500,500);
      frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
      frame.setVisible(true);
   }
}
```

Note that you are required to submit only on file (`FontViewerFrame.java`) for this homework assignment to `tkosiyat@syr.edu`.

1 Font Viewer Application

The main purpose of this application is to allow user to see faces of fonts. Your program must have the following features:

1. Allows user to select menu items from menu bar.

2. Allows user to type-in what text they would like to see.

3. Allows user to select any fonts available on the running system using a combo box.

4. Allows user to select next or previous font using buttons

5. Allows user to select a size among (8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 36, 48, and 72) using a combo box.

6. Allows user to grow or shrink the font size using buttons

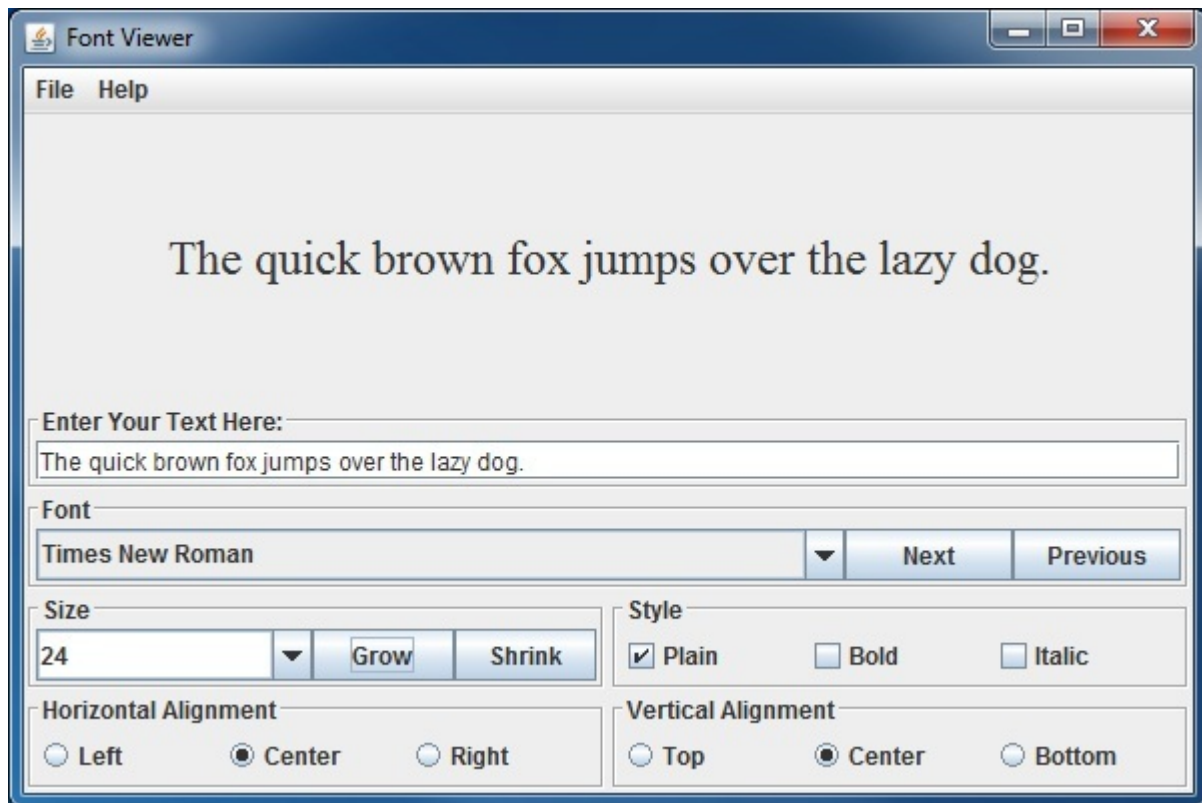7. Allows user to enter a user-define font size

Figure 1: Font Viewer Application

8. Allows user to select either plain, bold, or italic styles using check boxes

9. Allows user to set horizontal alignment (left, center, or right) and vertical alignment (top, center, bottom) using two sets of radio buttons (one for horizontal alignment and the other one for vertical alignment)

An example of this application is shown in Figure 1.

2 Behaviour Requirements

The following are requirements for some components in your application. Use Figure 1 for reference.

1. **Menu Bar**: Your program must have a menu bar consists of two menu **File** and `Help`.

   - **File**: This menu consists of one menu item called **Exit**. When user select this item, your program simply exit. **HINT**: simply call `System.exit(0);`.
   - **Hlep**: This menu consists of one menu item called **About**. When user select this item, your program should popup a dialog window states the name of the author as shown below:

Hint: Simply `import javax.swing.JOptionPane;` and call the following:

```
JOptionPane.showMessageDialog(null,"Font Viewer\nCreated by John Smith");
```

2. **Font Sample Viewer**: This is the top part of Figure 1. This is a `JLabel`. When your program starts, this `JLabel` must show the string "The quick brown fox jumps over the lazy dog." with horizontal and vertical alignments center. The text in this `JLabel` will change whenever there is any changes made by user including changes in **Enter Your Text Here:**.

3. **Enter Your Text Here**: This is a `JTextField` that allows user to type in what text they want to see. When you program starts, this `JTextField` must contain the string "The quick brown fox jumps over the lazy dog.". When user modify (insert or delete character(s)) in this `JTextField`, user should see the effect right away in `Font Sample Viewer` area.

4. **Font**: This part composes of the following:

   (a) A combo box that contains all available system fonts for user to select. When your program starts, this combo box should select the first font on the list.

   (b) A button named `Next`. This button will automatically select the next font of the combo box. Note that the combo box must change to the next font as well so that user can see what font you are displaying.

   (c) A button named `Previous`. This button will automatically select the previous font of the combo box. Again, the combo box must change to the previous font as well.

   Note that when user select a new font either by using combo box or buttons, user should see the effect right away in `Font Sample Viewer` area.

5. **Size**: This part composes of the following:

   (a) A combo box that contains the following font size, 8, 9, 10, 11, 12, 14, 16, 18, 20, 22, 24, 26, 28, 36, 48, and 72. When your program starts, this combo box should select the font size 12. This combo box must allow user to enter a user-define size by typing in directly into the combo box.

   (b) A button named `Grow`. This button will automatically select the next font size of the combo box. Again, the combo box must change to the next font size.

   (c) A button named `Shrink`. This button will automatically select the previous font size of the combo box. Again, the combo box must change to the previous font size.

   Note that when user select a new font size either by using combo box or buttons, user should see the effect right away in `Font Sample Viewer` area.

6. **Style**: This consists of three check boxes (`Plain`, `Bold`, and `Italic`). The following are behaviour of these check boxes:

(a) If `Plain` is unchecked and user check `Plain`, `Bold` and `Italic` must be unchecked automatically.

(b) If `Plain` is checked, user will not allow to uncheck `Plain`. In other word, after user uncheck `Plain`, `Plain` will be checked automatically.

(c) If `Plain` is checked and user checks either `Bold` or `Italic`, the `Plain` must be unchecked automatically.

(d) If only `Bold` is checked, and user uncheck `Bold`, `Plain` must be checked automatically.

(e) If only `Italic` is checked, and user uncheck `Italic`, `Plain` must be checked automatically.

Note that user should see the effect right away in the `Font Sample Viewer` when font style is changed.

7. **Horizontal Alignment**: This is the horizontal alignment of the `JLabel` in the `Font Sample Viewer`. It composes of three radio buttons (`Left`, `Center`, and `Right`). Only one out of those three radio buttons can be selected. When user select a new horizontal alignment, user should see the effect in the `Font Sample Viewer` right away.

8. **Vertical Alignment**: This is the vertical alignment of the `JLabel` in the `Font Sample Viewer`. It composes of three radio buttons (`Top`, `Center`, and `Bottom`). Similar to the horizontal alignment, only one out of these three radio buttons can be selected. Again, user should see the effect of changing vertical alignment right away in `Font Sample Viewer` area.