Chapter 16 Applets and Multimedia

1. Every applet is an instance of <u>java.awt.Applet</u>. Not every applet is an instance of <u>javax.swing.JApplet</u>. Only the Swing applets are instances of <u>JApplet</u>.

2. See the section "The `Applet` Class."

3. The components are added to the content pane of the applets. The default layout manager of the content pane of <u>JApplet</u> is BorderLayout.

4. (a) The void should be removed to declare a constructor.

    (b) The jlblMessage is declared in Line 2 as a data field, but redeclared in Line 5 as a local variable. The local variable is assigned with new JLabel("It is Java"), but the data field is still null. In Line 12, jlblMessage is null, which causes NullPointerException.

5. See the section "The `<applet>` HTML Tag." You use the `<param>` tag to pass parameters to an applet.

6. The `getParameter()  method` is defined in the `Applet` class.

7. Revision 1 is wrong because the <u>getParameter</u> method is an instance method and it cannot be invoked before an instance of the applet is created. Revision 2 is wrong because the init method is invoked after the applet instance is created.

8. `An application has a main() method and runs as a standalone. An applet does not need a main method and must run from a Web browser. Applications and applets are compiled in the same way.`

    Applets are not allowed to read from, or write to, the file system of the computer. Applets are not allowed to run any programs on the browser's computer. Applets are not allowed to establish connections between the user's computer and another computer except with the server where the applets are stored.

9. No.

10. Yes. You can create an instance of <u>JApplet</u> and place it in a frame and use it.

11. You will see garbage displayed in the cell.

12. To create an URL object for the file www.cs.armstrong.edu/liang/anthem/us.mid on the Internet, use new URL("www.cs.armstrong.edu/liang/anthem/us.mid"). To create an URL object for the file anthem/us.mid, use

    URL url = this.getClass().getResource(filename);

13. First create an URL for the image source, then use new ImageIcon(url) to create an ImageIcon for the source.

14. You can use AIFF, MIDI, and RMF in addition to AU and WAS files in Java 2.

15. First create an URL for the audio source, then use the Applet.getAudioClip(url) method to obtain an audio clip.

16. You can use the `play(), stop(), and loop()` methods to play, stop, or repeatedly play the audio, respectively.