



Principles of Computer Science II

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CSC 121A - Spring 2005

Lecture Slides 6 - Applets



Applets

- “Mini-application” embedded in a web page
- Run with browser or applet viewer
- Differences (from applications)
 - Doesn't have a main method
 - Embedded within HTML document (web page)
 - Subject to more security constraints
 - Not in control of own execution--respond to browser or viewer

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Applet Class

- Applets must explicitly extend the **Applet** (AWT) or **JApplet** (Swing) class
 - Extend the **Panel** class from **Container**
- Important applet methods
 - `init()`
 - `start()`
 - `paint(Graphics g)`
 - `stop()`
 - `destroy()`

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Applet Life Cycle Methods

- `public void init()`
 - Called once when applet loaded for execution
 - Initializes the applet
 - Like a combined constructor/main method for applets
- `public void start()`
 - Called after `init()`
 - If user moves to another page and then comes back to applet's page, this method is called again
- `public void paint(Graphics g)`
 - Called after `init()` and `start()`
 - Also called when applet needs to be repainted

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Life Cycle Methods (cont.)

- `public void stop()`
 - Called when user leaves applet's web page for another
 - Performs tasks to suspend applet's execution while it is not active (so applet does not use processing time)
- `public void destroy()`
 - Called when the applet is being removed from memory (e.g. all browser windows are exited, or may be called at browser's discretion)
 - Cleans up resources allocated to the applet

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Simple Applet: Drawing a String

```
import java.awt.Graphics;
import javax.swing.JApplet;

public class WelcomeApplet extends JApplet {
    public void paint( Graphics g ) {
        super.paint( g );
        g.drawString( "Welcome to this applet!",
                    10, 10 );
    }
}
```

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Running an Applet: Web Browsers

- Applets run from a web browser or applet browser
- Aside: "Web" != "Internet"
- Internet: A wide area network
- WWW: Information infrastructure and software to access it
- Web page: document containing references to various types of data, as well as links to other pages
 - Accessed through URL (uniform resource locator)

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HTML

- Hypertext Markup Language: used to build web pages
- HTML document made up of elements denoted by pairs of *tags*
 - Tags indicate how information should be displayed, etc.
- Tags look like `<tagname> ... </tagname>`
- Applet element tells browser to load and display applet at that location in the page
- Attributes of the applet element tell *width* and *height* of area in which applet should be displayed

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Applet Viewer Program

- Web browsers display the whole web page, including applets
- The appletviewer program (comes with Java) only looks for `<applet>` tag in a web page-- allows you to test your applets before putting them on a web page
- WARNING: Browsers often save a copy of an applet in memory for a long time (e.g. until the entire application is exited) so if you change applet code and recompile, then reload the page in the browser, the browser may not use the latest version of the applet

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Examples

- [lec06/WelcomeApplet.java](#)
- [lec06/WelcomeApplet.html](#)

- [lec06/AdditionApplet.java](#)
- [lec06/AdditionApplet.html](#)

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