CS100J 14 November 2006

Applications and Applets (Chapter 16 of the text)

We also look at html, since we need it to use applets.

I never let my schooling interfere with my education.
Mark Twain

Learning makes a man fit company for himself.
Anon

The primary purpose of a liberal education is to make one's mind a pleasant place in which to spend one's time.
Sydney J. Harris (1917-1986) American journalist.

Executing Java programs outside the DrJava Interactions pane.

Every Java program is either an application or an applet.

```
public class C {
   …
   public static void main(String[] args) {
      …
   }
   …
}
```

Every Java application needs a class with a method main that is defined like this.

To start the application, method main is called.

The parameter, an array of Strings, can be used to pass information into the program.


```
public class CLAS {
   …
   public static void main(String[] args) {
      …
   }
   …
}
```

```
> cd
> dir
  (list of files)
> java CLAS
```

Causes call CLAS.main(null); to be executed

Terminal window

(can type "java CLAS" in DrJava Interactions pane)

jar file (Java Archive file)

(like tar file (Tape Archive file))

Contains (among other things)

(1) .class files

(2) a "manifest", which says which class has method main

Manifest:

A list of passengers or an invoice of cargo for a vehicle (as a ship or plane).

Standalone Java programs

Suppose images.jar contains a Java application

It has a class with a static procedure main, and its manifest names the class.

- Execute it by double clicking its icon in a directory.
- Execute it by typing

  java -jar images.jar

  in a terminal window (or DOS, or command-line window)

Creating a jar file

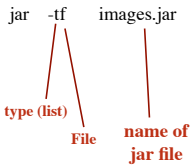
1. Navigate to the directory that contains the .class files.
2. Create a text file x.mf that contains one line (with a line-feed):

   Main-class: <name of class>
3. In the directory, type:

```
jar -cmf x.mf app.jar *.class
```

- **Create Manifest File**
- **name of file to create**
- **name of manifest file**
- **expands to name all the .class files**

Inspecting jar files



List the contents of jar file images.jar

7

Applet: a java program that can be called from a web page (in your browser)

```
public class C {
   public static void main(String[] args)
      { … }
}
```
application

```
import javax.swing.*;
public class A extends JApplet{
   public void init() { … }
   public void start() { …}
   public void stop() { … }
   public void destroy() { … }
}
```
applet

Four inherited procedures:

- called to initialize
- called to start processing
- called to stop processing
- called to destroy resources (just before killing the applet)

8

An html (HyperText Markup Language) file

```
<html>
  <head>  <title>Just a title</title>  </head>
  <body>
    <p align="center"><B>Demo Links and Images</i> </p>
    <p>This is
       <a href="http://www.cs.cornell.edu/courses/cs100j/2006sp/"> a link</a></p>
    <p>This <a href="http://www.cs.cornell.edu/courses/cs100j/2006sp/"
                        target="_blank">link</a>
       opens a new window</p>

    <p>Below  is an image </p>

    <p><img src="Hilbert_curve.png"
                        width="544"
                        height="352">
    </p>
  </body>
</html>
```

tags

<html>	start an html page
<head>	start the “heading”
<title>	the title for the page
<body>	start the body, content, of the page
<p>	begin a paragraph
<a>	begin a link
<img>	begin an image

9

An html (HyperText Markup Language) file

```
<html>
   <head>
      <title>FacultyApplet</title>
  </head>
  <body>
      <p align="center"><B>This</B> is
              an <i>Applet!</i>
    </p>
    <br><br>

      <p><applet archive="AppletClasses.jar"
            code="FacultyApplet.class"
           width=800    height=550>
         </applet>
    </p>

  </body>
</html>
```

tags

<html>	start an html page
<head>	start the “heading”
<title>	the title for the page
<body>	start the body, content, of the page
<p>	begin a paragraph
<b>	begin boldface
<i>	begin italics
<applet>	start a Java applet
** **	line break (no end tag)

10