CS100J   12 April 2007
Applications and Applets
Read 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.

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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) {
        …
    }
    …
}
```

A 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.

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

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

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

Terminal window

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

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---

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).

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Standalone Java programs

Suppose images.jar contains a Java application
**It has a class with a static procedure main,
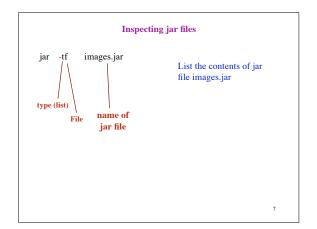and its manifest names the class.**

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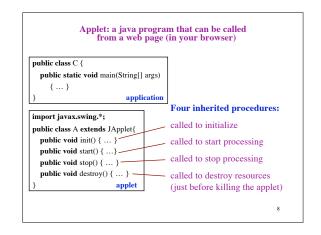
• Execute it by typing

   java -jar images.jar

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

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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
   manifest file**

   **name of file
   to create**

   **expands to
   name all the
   .class files**

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Inspecting jar files

jar   -tf   images.jar

List the contents of jar file images.jar

type (list)

File

name of jar file

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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)

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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

tag	description
<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

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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

tag	description
<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)

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