CS1110   6 Sept 2011   Customizing a class

Summary of lectures: On course home page, click on "Lectures" and then on "Outline of lectures held so far".

Reading for this lecture: Sections 1.4, (p. 41); 13.3.1 (p. 376).

Read all "style notes" and referenced PLive lectures (activities).

Quote for the day:
I have traveled the length and breadth of this country and talked with the best people, and I can assure you that data processing is a fad that won't last out the year.
  —Editor in charge of business books for Prentice Hall, 1957

Reading for next lecture:
- Fields; getter & setter methods. Secs 1.4.1 (p. 45) & 3.1 (pp. 105–110 only)
- Constructors. Sec. 3.1.3 (p. 111–112)
- Testing. App. I.2.4 (p. 486)

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People learn differently.   **Learning styles**

- **active versus reflective learners**
   learn by doing vs. learn by reflection; groupie vs. loner
- **sensing versus intuitive learners**
   practical/careful vs. fast/innovative
- **visual versus verbal learners**
   pics, charts, films vs. words, explanations
- **sequential versus global learners**
   logical, step-by-step, bottom-up vs. big-picture

Lecture summary webpage has link to website of Felder and Brent where you can read about this and take a self-scoring test to see your strengths/weaknesses

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Review

name of folder

c1

x   6   **int**

name   "B. Clinton"   Patient
address   "New York"
owes $250.00   fields (they are variables)

y   c1
Patient

getName()
deposit(double d)   function procedure

x has value 6   y has value   c1

y.getName()   has the value   "B. Clinton"

y.deposit(250) ;   will change the value of field owes to 0.

procedure call   function call

This reviews what we did last time.

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Class javax.swing.JFrame: an object is a window on your monitor.

x   j1

j1

setTitle(String)   getTitle()   JFrame

y   j2

getX()   getY()   setLocation(int,int)

new JFrame()

getWidth() getHeight() setSize(int,int)
…

Expression:

(1) create a new object of class JFrame and

(2) yield its name as the value of the expression

This reviews what we did last time.

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About null

var1   c1

c1

JFrame

var2   c8

c8

JFrame

var3   null

null denotes the absence of a name.

var3.getX() is a mistake! You get a NullPointerException

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Class definition: The java construct that describes the format of a folder (instance, object) of the class.

/ description of what the class is for
   /

This is a comment

public class <class-name> {

   declarations of methods (in any order)

}

A class definition goes in its own file named

   <class-name> . java

On your hard drive, have a separate directory for each Java program that you write; put all the class definitions for the program in that directory.

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Class definition: The java construct that describes the format of a folder (instance, object) of the class.

/ description of what the class is for**

***/**

public class C   **extends** *<superclass-name>*   {

    declarations of methods (in any order)

    }

Class C has all the fields and methods that *<superclass-name>* does, in addition to those declared in C. Class C **inherits** the fields and methods of *<superclass-name>*.

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/** description of what the class is for */
public class *subclass-name* **extends** *superclass-name* {
    declarations of methods
}

a0

superclass-name

methods and fields inherited from *superclass-name*

subclass-name

methods and fields declared in *subclass-name*

folder (object) belongs in file drawer for class

subclass-name

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First example of a procedure and of a function

/** description of what the class is for */
public class *subclass-name* **extends** *superclass-name* {
    /** Set the height of the window to the width */
    public void setHeightToWidth() {
        setSize(getWidth(), getWidth());
    }

    /** = the area of the window */
    public int area() {
        return getWidth() * getHeight();
    }
}

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import javax.swing.*;
/** An instance is a JFrame with methods to square it and
    to provide the area of the JFrame */
public class SquareJFrame **extends** JFrame {
    declarations of methods
}

folder (object) belongs in file drawer for class

SquareJFrame

To the left, draw a manila folder of class SquareJFrame. When we define methods, put them in the proper place

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Slide 11

import javax.swing.*;   **Javadoc**
/** An instance is a JFrame with methods to square it and
    to provide the area of the JFrame */
public class SquareJFrame **extends** JFrame {
    /** = the area of the window */
    public int area() { … }

    /** Set the height equal to the width */
    public void setHeightToWidth() {…}
} The class and every method in it has a comment of the form

/ specification */**

It is a Javadoc comment. Click on javadoc icon in DrJava to extract class specification. DO THIS AT LEAST ONCE IN LAB.

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import javax.swing.*;   **Javadoc**
/** An instance is a JFrame with methods to square it and
    to provide the area of the JFrame */
public class SquareJFrame **extends** JFrame {
    /** = the area of the window */
    public int area() { … }

    /** Set the height equal to the width */
    public void setHeightToWidth() {…}
}

An object of class java.util.Date contains the date and time at which it was created.

It has a function toString(), which yields the date as a String.

Write a proc. setTitleToDate to set title of window to the date.

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