CS1110  7 Sept 2010  Customizing a class

Summary of lectures: On www.cs.cornell.edu/courses/cs1110/2010fa/, click on "Lecture summaries".

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

Informal Lunch with Gries or Lee

About once a week, perhaps a bit more.
8 students max at a time. Sign up on the CMS.

One-on-One Sessions

Next two weeks, 1/2-hour one-on-one session on a computer with each student in CS1110

Purpose: See how well you understand what we have done, let you ask questions, give you help. Graded 0-1: 1 if you did a session. Not counted in course grade. Purpose: to help you.

Instructors: Gries, Lee, TAs, consultants.

How to sign up: Visit CMS. Click on assignment One-on-one. Choose from list of times/instructors. First-come-first-served.

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
  - practical/careful vs. fast/innovative
- sequential versus global learners
  - logical, step-by-step, bottom-up vs. big-picture

Course outline 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.

Quiz

1. Get out a blank piece of paper.
2. Write your LAST name, FIRST name, and Cornell NetID (not your Cornell ID. Gries’s NetID is djg17)
3. Put two variables on the page, exactly like this:
   \[
   x \quad 9 \\
   y \quad 4
   \]
4. Write down, in English, how to execute this assignment statement (don’t explain how to evaluate the expression \(x+y-1\)):
   \[
y = x + y - 1;
   \]
5. Execute this assignment statement, using the two variables you previously drew on your piece of paper.

This reviews what we did last time.

- name of folder
- class (type of this object)
- fields (they are variables)
- assume is a function
- assume is a procedure
- name of method
- assumes is a function
- assumes is a 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.
Class definition: The java construct that describes the format of a folder (instance, object) of the class.

```java
/** description of what the class is for */
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.

Class definition for a new subclass:

```java
/** 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>`.

First example of a procedure and of a function.

Note the specifications (comments) on the methods.

```java
/** 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 setSizeToWidth()
    {
        setSize(getWidth(), getWidth());
    }

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

```java
import javax.swing.*;
/** An instance is a JFrame with methods to square it and
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 procedure setTitleToDate, which will set the title of
the window to the date.
Body is:
A. setTitle(new java.util.Date());
B. setTitle("" + new java.util.Date());
C. setTitle(new java.util.Date().toString());
D. None of these
E. I don’t know
```
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 {
    /** = 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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About null

null denotes the absence of a name.

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