

CS100J 04 Sept 2007 Customizing a class

Course Management System (CMS) is populated with pre-registered students. Look at course web page to see how to get to it and what to do if you are not in it. Course web page has a link to it. You need to do this before we can register your iclicker in class.

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

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

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

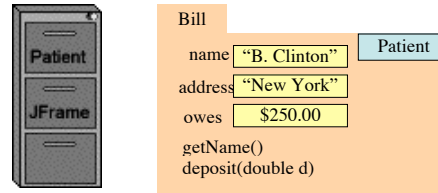
Quote for the day:

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

1

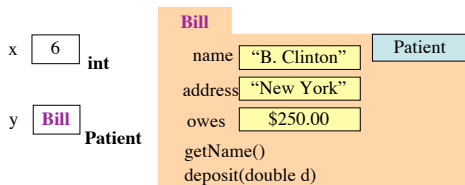
A class is a file-drawer. Contents: manila folders.



- (1) unique name on tab of manila folder.
- (2) manila folder, instance, object of the class
- (3) fields (variables)
- (4) methods (procedures and functions): instructions to do tasks and produce values.

This reviews what we did last time.

2

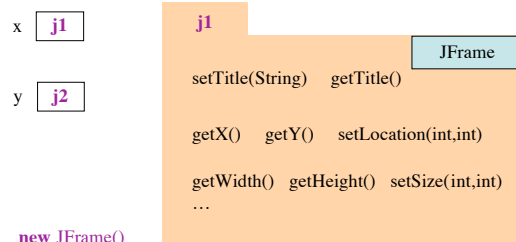


x has value 6 y has value **Bill**
y.getName() has the value "B.Clinton"
y.deposit(250); will change the value of field owes to 0.

This reviews what we did last time.

3

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



new JFrame()

Expression: create a new object of class JFrame and yield its name

This reviews what we did last time.

4

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.

5

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>.

6

```

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

    declarations of methods

}

```

7

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();
    }
}

```

8

```

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
}

```

9

```

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.

10

About null

var1 Bill

var2 Hill

var3 null

Bill Patient

Hill Patient

Jill Patient

null denotes the absence of a name.

var3.getName() is a mistake!

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