

CS100J 30 January 2007
The class definition

- **Course Management System (CMS) for CS100J** is populated with students who were pre-registered. 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.
- **Today's topic: Customizing a class.**

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

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CS100J

Reading for this lecture: Section 1.4

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

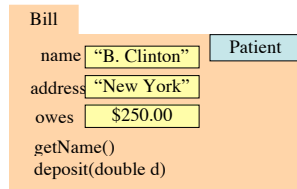
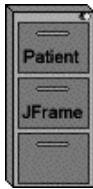
Summary of lectures: On course home page, click on "Handouts" and then "Outline of lectures held so far".

Today: Your first class definition and method declaration. We will "customize" class JFrame to suit our needs.

Introduce you to Javadoc (see top of page 378).

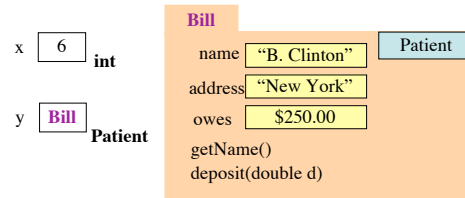
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A class is a file-drawer. Contents: manila folders.



- (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.

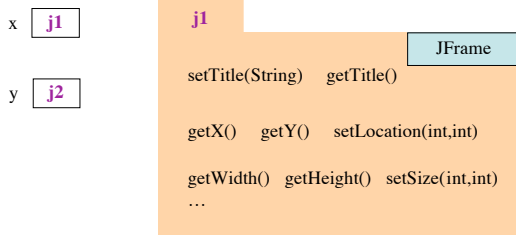
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x has value 6 y has value **Bill**
y.getName() has the value "B.Clinton"
y.deposit(250); will change the value of field owes to 0.

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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

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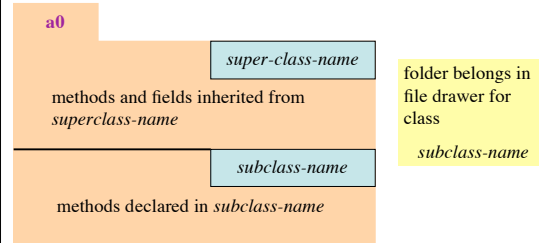
Class definition: The java construct that describes the format of a folder (instance, object) of the class.

```
/** description of what the class is for
 */
public class C extends <super-class-name> {
    declarations of methods (in any order)
}
```

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

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



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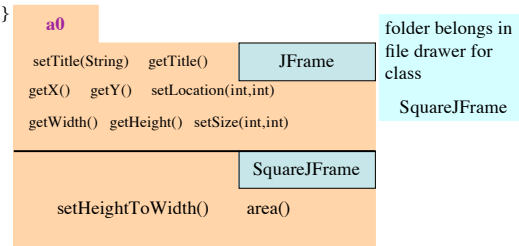
First example of a procedure and of a function

```
/** 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
}
```



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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 {
    /** = the area of the window */
    public int area() { ... }

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

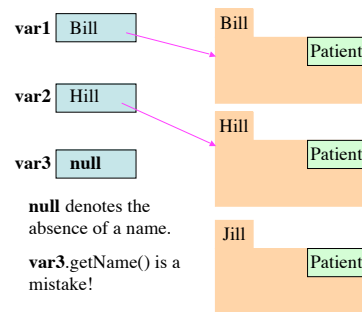
The class and every method in it has a comment of the form

/ 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



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