

CS100J. Lecture 2, 26 January 2005

Today's topic: Objects and classes

Reading for this lecture: Section 1.3. It's most important that you study this section over the weekend and practice what is taught using DrJava.

PLive: Activities 3-3.1, 3-3.2, 3-3.4 (not 3-3.3), 3-4.1, 3-4.2.

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

Quiz on Tuesday. Tell me (1) what a type is, (2) how to execute an assignment statement, (3) how to draw a manilla folder (instance, object) of a class. See course web page for more details.

Quote for the day:

Computers in the future may weigh no more than 1.5 tons.

--Popular Mechanics, forecasting the relentless march of science, 1949

1

About CMS

CMS is the course management system that we use to maintain grades, handle submitted assignments, post grades, handle reggrades, etc. It was developed by the CS department

Please look at this URL: <http://cms3.csuglab.cornell.edu>

It will ask for your cornell netid and password. After you have entered it, you will either be in the CMS and will see the course description or you will see on the right something like this:

CMS Overview
My Courses
Com S 100J (student)

If it lists CS100J, click on it, and you are in the CMS. If it doesn't, you are not yet enrolled in the CMS; email Kathy Carpenter at kathyc@cs.cornell.edu and ask her to register you in the CMS for CS100J.

2

Two aspects of a programming language

- Organization — structure
- Procedural — commands to do something

Example: Recipe book

- Organization: Several options; here is one:

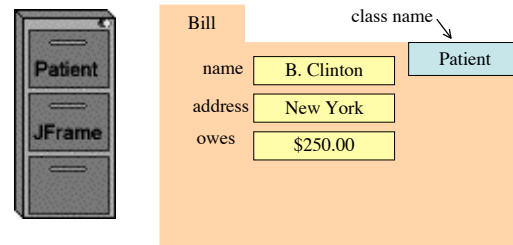
Appetizers
list of recipes
Beverages
list of recipes
Soups
list of recipes
...

- Procedural: A recipe is a sequence of instructions to carry out

**We start out
by studying
organization
— structure**

3

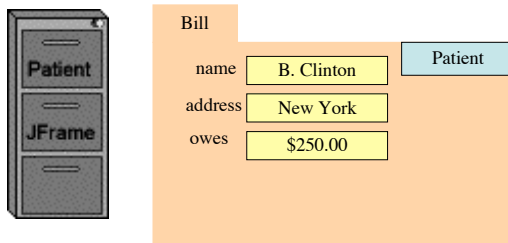
A class is a file-drawer. Contents: manila folders, each containing the same kind of information



manila folder: an **object** or **instance** of the class

4

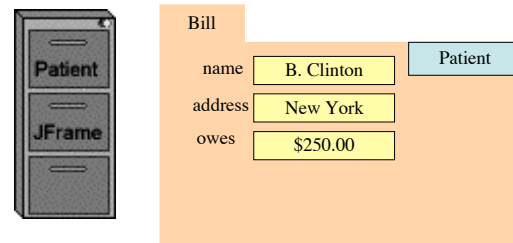
A class is a file-drawer. Contents: manila folders, each containing the same kind of information



name, address, owes: **variables**, called **fields** of the folder

5

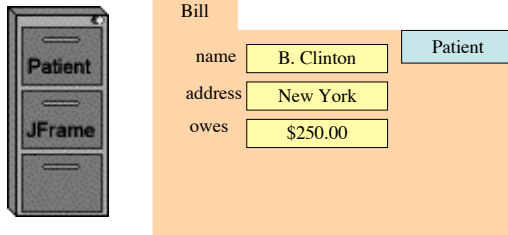
A class is a file-drawer. Contents: manila folders, each containing the same kind of information



Name on tab (Bill): can be anything you want, as long as it is unique

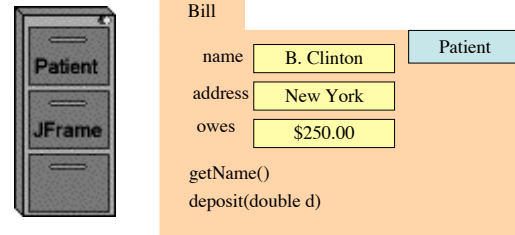
6

A class is a file-drawer. Contents: manila folders, each containing the same kind of information



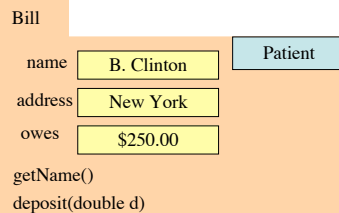
Instructions to be carried out by different people:
change the name, get the name, bill the patient, receive money from patient, insert teeth xrays into the folder, ...

A class is a file-drawer. Contents: manila folders, each containing the same kind of information



Instructions to be carried out by different people: methods
getName is a **function**; it returns a value.
deposit is a **procedure**; it does some task, doesn't return value

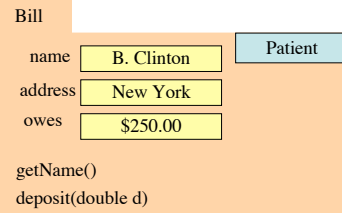
pat Bill
↑
variable contains
the name of the
folder



pat.getName() function call. Its value is "B. Clinton"
pat.deposit(250.0); procedure call. Change the value of field **owes** to 0.

9

pat Bill
↑
variable contains
the name of the
folder



new Patient() An expression that creates a new folder, puts it in file-drawer **Patient**, and gives as its value the name of the folder.

pat= new Patient(); A statement that creates a new folder, puts it in file-drawer **Patient**, and stores the name of the folder in variable **pat**.

10

package: A collection of classes that are placed in the same directory on your hard drive. Think of it as a room that contains file cabinets with one drawer for each class.

package **java.io** classes having to do with input/output

package **java.net** classes having to do with the internet

package **java.awt** classes having to do with making GUIs

package **javax.swing** newer classes having to do with GUIs

To reference class **JFrame** in package **javax.swing**, use:

javax.swing.JFrame

Instead: **import javax.swing.*;**

Then use simply **JFrame**

11

The expression

new JFrame()

creates a new folder that goes in file drawer **JFrame**.

The statement

jf= new JFrame();

creates a new folder and places its name in variable **jf** (**jf** should have first been declared).

Thereafter, use

jf . method-name (arguments, if any)

to call methods of folder (object) **jf**.

- Read section 1.3.
- Practice what you saw in class in **Dr.Java**.
- Try the self-review exercises on page 40.

12