

CSE 115/503

February 7 - 11, 2011

Announcements

- Lab 1 due 2/13
- Lab 2 begins this week in recitation – due the night before your next recitation
- Exam 1 – Wednesday, February 9 (first half of lecture – there will be class following the exam)

Review: Creating Objects

- Syntax:
- `new NameOfClass()`

What does new do?

1. Determines the size of the object and reserves memory for it
2. ...
3. Returns the starting address of the block of memory where the object is stored (a reference to the object)

Filling in 2

- New calls the constructor of the class to initialize the object.
- What is a constructor?

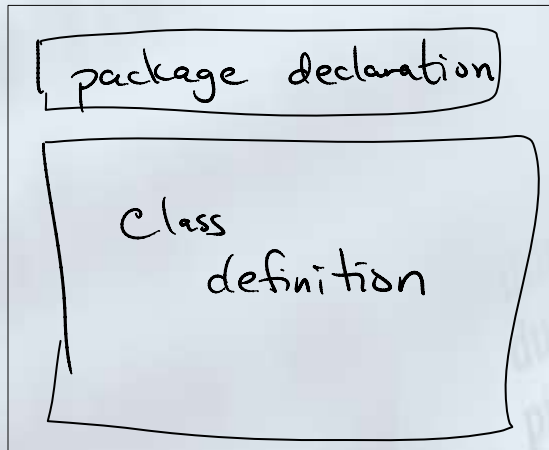
Special capability that sets the initial state of an object

Java Source Code Files

- Each file contains the definition of exactly one class,
- Java s.c.f. end with the .java extension

Picture

- Java Source Code File: (.java extension)



Package Declaration

Indication of what package the class belongs to.

Package Declaration Syntax

`package`
keyword

identifier;
name of
the package

Style: all lower case
(even if multiple
words)

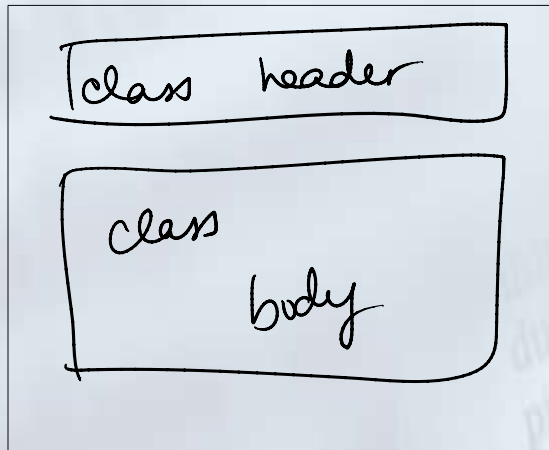
Package name

- The identifier we use for the name of the package also corresponds to the directory where the source code file is stored.

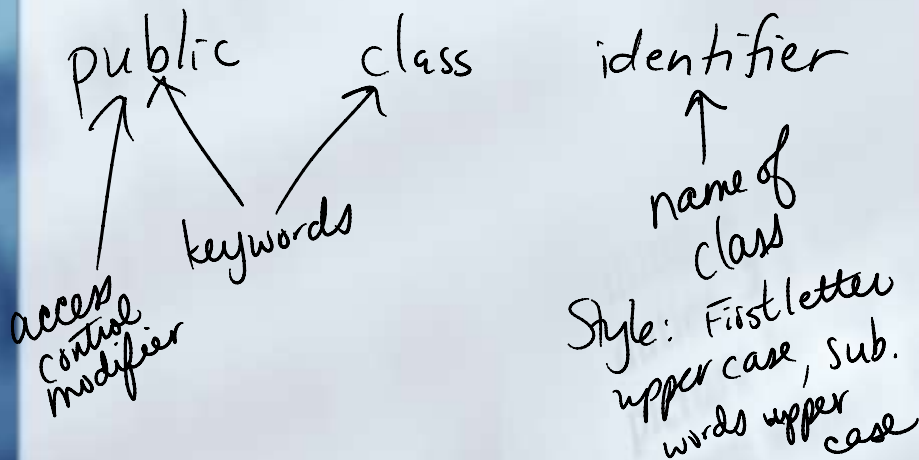
`package java.awt.foo.bar.x.y.ang.forever;`
↑
"dot" operator
separates nested packages

Zooming in

■ Class Definition



Class Header Syntax



Class name

- The identifier we use for the name of the class also becomes the name of the file the source code is stored in.

Class Body Syntax

Starts with {

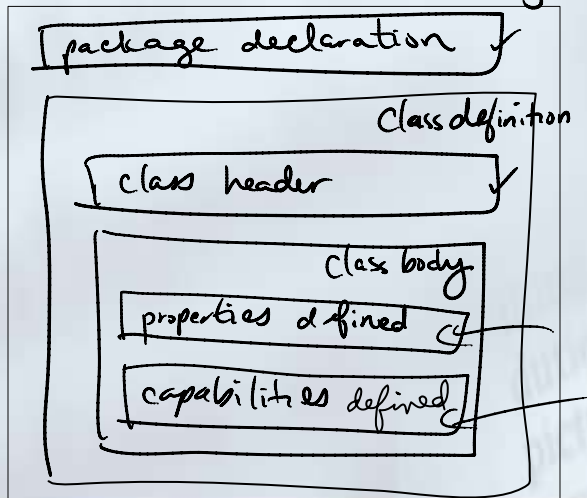
stuff inside (potentially)

ends with }

↓
definitions of
properties &
capabilities of
the object
we are
modelling

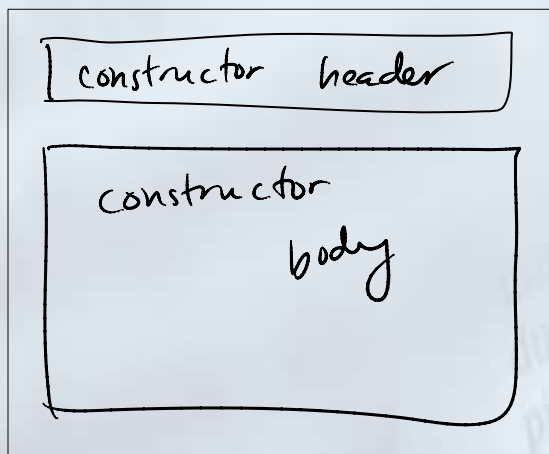
More Detailed Picture

- Java Source Code File: `ClassName.java`



Constructor

- Constructor Definition



Constructor Header Syntax

$\underbrace{\text{public}}_{\text{access control modifier}}$
 $\underbrace{\text{identifier}}_{\text{name of constructor}}$
 $\underbrace{()}_{\text{parameter list}}$
 * must be the same as the name of the class

Constructor Body Syntax

starts with $\{$
 stuff inside (possibly)
 ends with $\}$

Memory Diagrams

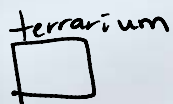
- Sometimes, we want a pictorial view of what is going on while a program is running, so we can use memory diagrams to help us keep track of the objects and variables in our programs.

Memory diagrams

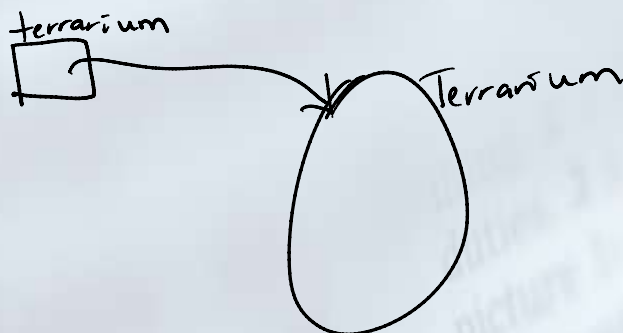
□ ← variables

○ ← objects

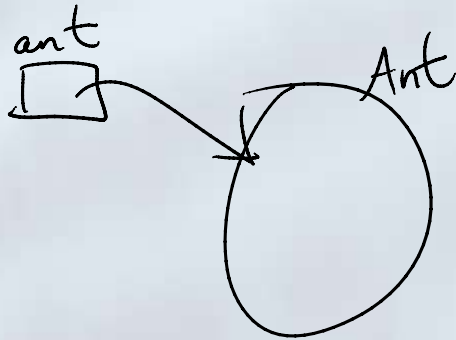
Terrarium terrarium;



terrarium = new Terrarium();



```
Ant ant = new Ant();
```



```
Ant ant2 = new Ant();
```

