

Structure of Java Code

1-25-2010

Opening Discussion

- What did we do last class?
- Minute Essay comments
 - If $(0,0)$ is the first square, is $(7,7)$ the other extreme in our 8×8 world?
 - Are methods that aren't constructors just called methods?
 - How do you name methods and other things?
 - Is there an easy way to check code for missing semi-colons or other things?
 - Changing the background image.

More Minute Essays

- Are we really going to write our own code and will it be difficult at first?
- Do we write Java code from scratch or just manipulate pictures?
- What is the difference between braces and parentheses?
- Are you going to see examples of projects from previous semesters?
- Who was the strange man?
- What was the movie poster?

The Structure of a Class

- Last time we looked inside of some classes at the code that was present in them. Today we want to be explicit about the structure of Java code, starting with classes.
- For the time being all of your classes will have the following structure.

```
public class ClassName [extends SuperClass] {  
    - Methods (things it can do)  
    - Member data (things that it knows)  
}
```

The Wombat Class

- Let's open the Wombat class in PSPGWombat so that we can go through it and see different aspects of the things we are going to talk about today.

Curly Braces

- Note that the class has curly braces around everything inside the class.
- In Java, curly braces are used to group piece of code together and provide a range or scope over which things can be used.

Member Data

- These are the things that an object of a class will “know”.
- We will always make these private.
- The declaration has the following form
 - `private Type name[=expression];`
- Type can either be a primitive, like `int` or `boolean`, or it can be the name of a class.
- Names begin with a letter followed by zero or more letters and numbers. Use camel naming.

Methods

- These are the things that an object of this class can do.
- Most of these will be public.
- The declaration has the following form
 - public Type name([Type name[, Type name, ...]) {
 - statements
 - }
- The statements in the method are executed in order.

Statements

- There are ten different types of statements in Java. We will only deal with four of those right now.
 - Variable declaration
 - Assignment
 - Method call
 - Return statement
- All four are followed by a semicolon.

Writing our Code

- Pull down the city scenario from the web site and open it.
- I would like to make it so that when a city is created it has a person and a building.
- I would also like it if the person would move when the act method is called.
- How are we going to make these things happen?

The API

- Using right click to see what methods something has is not only time consuming, it doesn't give you great descriptions.
- Go to the Greenfoot site > For Programmers > Greenfoot API (online).
- API stands for Application Programming Interface. It documents the methods and members of classes.

Minute Essay

- What questions do you have about the things that we talked about today?
- Keep in mind that the first round of interclass problems will be this Friday.