Structure of Java Code

9/9/2009

Opening Discussion

- What did we do last class?
- Minute Essay comments
  - What does i++ mean?
  - Who came up with Java?
  - “Do you want to play a game?”
  - My Mountain Dew selection.
  - The “normal” grid orientation in MMS.
  - Questions in class vs. minute essays.
  - Favorite TV shows.

More Minute Essays

- What is the meaning of “Leaf leaf=new Leaf();”?
- Could we make the leaves eat the wombats?
- Writing our own code vs. using the API. Greenfoot vs. other.
- When do we use “public void”?

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 you 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 on Monday of next week.