Interacting with Objects

1/16/2009
Opening Discussion

- Have you come up with any questions about the class since last time?
- Minute essay responses:
  - Do I give A's?
  - What will we be doing with Excel?
  - Can you succeed in this class coming in with little knowledge of computers?
  - It was good to hear that my efforts on first-year move-in day have finally paid off.
Greenfoot

• Let's run Greenfoot and open up the Wombats scenario.
• Greenfoot environment has several parts to it.
  – Shows a 2-D graphical display in the main area.
  – Elements that make things active at the bottom.
  – List of different classes are on the right.
Classes and Objects

- Java is a class-based object-oriented programming language. We write classes and those are the blueprints for making objects.
- Greenfoot groups different classes: World, Actor, Others.
- We can tell Greenfoot to make a new object from a class either with a right-click or holding shift.
Methods

- Classes have methods in them and these methods can be called on the objects of that class.
- Right click on “wombatWorld” at the top to call a method on the WombatWorld object. Right click on one of the objects to call a method on it.
- Methods can cause things to happen or give us back information.
Parameters and Return Types

- Some methods need extra information. This is passed in through parameters.
  - The setDirection method in Wombat needs to be told a direction.
- Some methods give you back information.
  - The getLeavesEaten method in Wombat tells you how many leaves have been eaten.
- The “signature” of a method begins with the return type then has the method name and an argument list in parentheses.
Types

- If you go through all the options on the Wombat when you right click you will see a number of different types.
  - `int`: for numbers that don't have fractions.
  - `boolean`: either true or false.
  - `String`: any text you want.
  - `GreenfootImage` and `World`: types specific to Greenfoot.

- Other types include `double` and `char`.
- Classes define types.
Act and Run

- At the bottom of the window is an area that has a few buttons. All the actors in Greenfoot have a method called act.
- Clicking the Act button calls that method on all the actors.
- Clicking Run will repeatedly call the act method.
Member Data

• Objects can hold information as well. These are called members.
• You can look at what is stored by an object by selecting inspect from the right-click menu.
• Arrows are drawn when members store other objects. In Java object types are often called reference types.
Minute Essay

- Do you have any questions about the topics we discussed today?