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 at the bottom.

    - List of different classes are on the right.

Classes and Objects

- Java is a class-based object-oriented programming languages. 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 of 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?