

Methods and Problem Decomposition

9-10-2010

Opening Discussion

- Finishing “walking”.
- Minute Essay responses
 - Do you know enough to do the IcP? What if you read ahead?
 - Do all classes have the same number of methods?
 - How do you keep track of this stuff? It seems arbitrary and overwhelming.
 - Can you make actors do two methods at once?

More comments

- Can you make your actor move in a way that isn't in the API?
- What does Boolean mean?
- What does PSPG stand for?
- Can you give a different set of directions to each instance of an actor class?
- How long should it take to solve a coding problem?
- Is it possible to load your own images into Greenfoot?

Even More Comments

- Can the Greenfoot API change?
- How many actors can you have in a scenario.
- Could we add trees or cars?
- Will we learn the other 6 statement types?
- Could we use `move()`; in the person to make them walk like the Wombat?
- Is there always more than one way to write code to do something?
- The IcP is modifying an existing scenario.

Writing New Methods

- Last time we filled in some code in a method that was already part of the CityScape scenario.
- Today we want to write some of our own methods. What type of functionality should we add to our person or our buildings?

Problem Decomposition

- One of the main reasons for having methods is that they allow us to break a big problem up into little pieces.
- Computer Science is often about controlling complexity. Big problems are complex and therefore hard to solve.
- You should always take a big problem and break it into pieces such that each piece is easy. Never solve a hard problem.

Design Approaches

- Top-down vs. bottom-up
- Top-down
 - Start with the big problem and repeatedly break it into pieces.
- Bottom-up
 - Start with little pieces you know how to do and put them together to solve bigger problems.

Modulo and Integer Division

- When you divide ints you get an int. Any fractional part is thrown away.
- The remainder from division is given by the modulo operator, %.
- We can do some fun things using these operators.
- Let's make our person walk back and forth.

Minute Essay

- What do you think we should do with CityScape over the next few class meetings?
- Remember that you will be showing off your interclass problems on Monday. If you have to miss class you should e-mail it to me.