Methods and Problem Decomposition

9/11/2009

Opening Discussion

- Minute Essay responses
  - You have to write your own code for Monday. Do the reading to supplement the lecture if you have problems.
  - Can we make a person go upside down?
  - Why a Wombat?
  - Is there extra credit?
  - Why are there so many programming languages?
  - Positioning of actors in the world.

More comments

- – Could we add cars and dogs to our city?

- – Setting location twice in the act method.

- – "public void" used for declarations, not calls.

- – Getting pictures for projects.

- – Can two programming languages talk to one another?

- – Variable declaration and assignment.

- – Errors in code during class.

Making the Person Walk

- Last time we were able to make the person jump around on the world. We want to make it walk smoothly in some direction.

Writing New Methods

- Last time we filled in some code in the methods that were 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.