



3/7/2008





Opening Discussion

- Let's look at solutions to the interclass problem.
- Printing the length of a string that the user input.
- Posting Java code from class.
- Recap of last class
 - ◆ Every class is a new type.
 - ◆ These are called reference types.
 - ◆ Variables of reference types can refer to objects. If they don't they are null.
 - ◆ We make objects with new.
 - ◆ We call methods using the dot notation.



- In Java we will break up our code using methods just like we did in Alice.
- The benefits are the same.
 - ◆ Methods let us break up complex problems into easier to deal with pieces. (Problem Decomposition)
 - ◆ Methods allow us to do the same things multiple times without duplicating the code.
 - ◆ It is easier to manage so we typically have fewer bugs.
- The structure of a method in Java as follows:
 - ◆ `visibility [static] returnType methodName(arguments) {}`
- The visibility will generally be public. Static means it is associated with the class, not an object. The arguments are given as a comma separated list of types and names. Leave this empty if none.



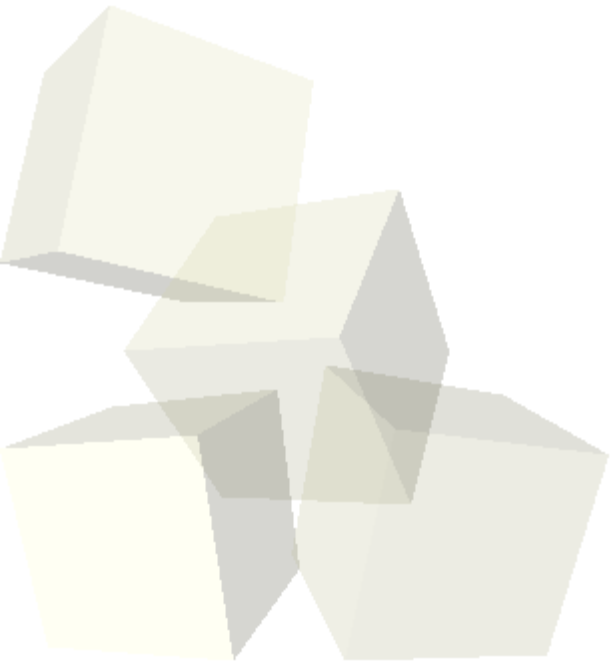
void vs. non-void Methods

- Alice made a strong distinction between code that does things and code that returns things.
- They called code that does things methods and methods couldn't return anything. Code that returned a value was a function and functions weren't allowed to alter anything in the world.
- Java does not make this distinction. We call all things methods and we can determine the return type on any of them.
- If a method shouldn't return anything you give a return type of void.
- If it does return something you need to include a return statement.



Examples of Methods

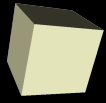
- Let's write some methods to see how they work. We don't have much logic yet, but we can do math and play with strings some.





- There is a special type of method in Java called a constructor.
- A constructor has the same name as the class it is in and has no return type.
- We don't call constructors directly, they are called when we use `new` to instantiate an object of that class.
- Let's add a constructor to our `BankAccount`.





- What are your plans for the weekend?
- Interclass Problem – Do problem 9.4.

