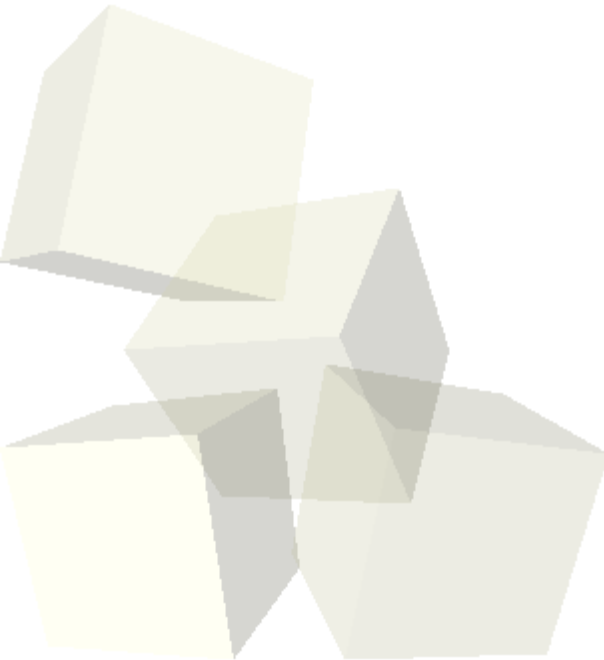




# String Processing in Java

1-31-2006





# Opening Discussion

- Do you have any questions about the quiz?
- Do you have any questions about the reading?
- Do you have any questions about the assignment? Assignment #2 is much larger than assignment #1. I will be making some updates to the description on the web page, but you should have an idea of what you are trying to do.





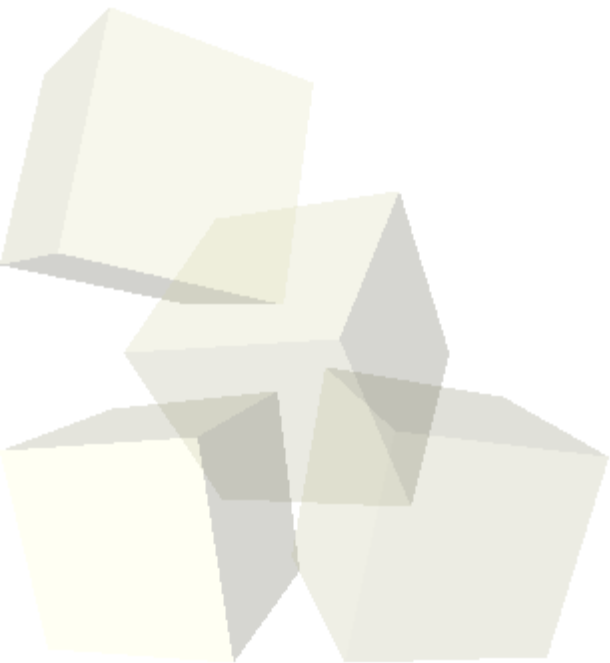
# Polymorphism without Generics

- We are going to look now at some code that implements a function called map.
- Map is a standard function in functional languages. It takes a list of items and a function and applies the function to all the items, returning a list of what is produced.
- To make this work with all types our first attempt at this code uses the type Object. While functional, this approach lacks type safety.
- Note the use of an anonymous inner class for testing the code.



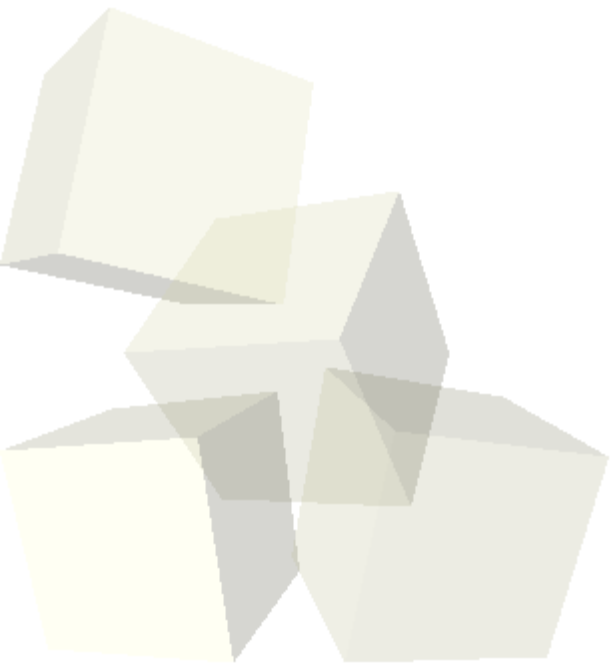
# Adding Generics for Type Safety

- Now we want to look at a second version of that same function that uses generics to provide better typesafety. Instead of simply using the type Object, we put in generic types that force all the input and output types to be the same.





- Open up your browser and go look at the API for `java.lang.String`.
- What are some of the significant facts that stand out about Strings in Java?





- Write a function that takes a String and a character and returns an int with the count of how many times that character appears in the string.
- Write a function that takes a sentence and returns how many words were in that sentence.
- Write a function that takes a String and returns a String in which all the characters of the one passed in have been reversed.





# Parsing a Formula

- Let's go and together add some functionality to our FormulaParser class.
- We saw last time how a formula could be broken into a tree. It turns out that this is a recursive algorithm where at each step we pick the lowest priority operation, respecting parentheses. When we get to a point where we have no parentheses, we have a number or, if we add them, a variable.





- Is it clear how the formula parsing code works?
- Next time we will talk about arrays. That will conclude our introduction to basic Java. From there we get into more algorithmic topics and construction of problem solving in Java.

