



# Strings and Arrays

2/5/2009





# Opening Discussion

- Do you have any questions about the assignment?
- What is the syntax of generics?
- What are enums?
- What is the syntax of Java enums?
- Minute Essay comments
  - ◆ Comparing Java to Smalltalk
  - ◆ You don't have to use Eclipse to program Java. There are other IDEs, like NetBeans, or you could use vi. API is pretty essential.
  - ◆ Java 5 was released in September 2004.
  - ◆ My research work uses both Java and C++.
  - ◆ Java is created by a large team of people.
  - ◆ Meaning of abstract.

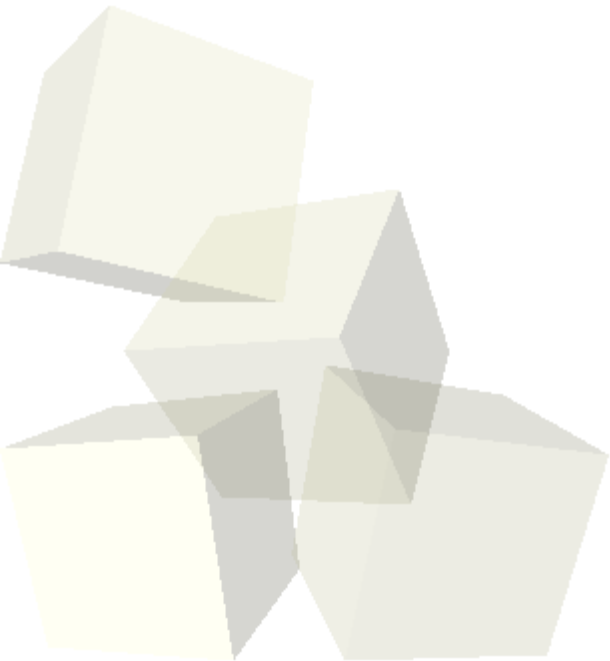


- How did you represent a string in C? How do we represent a string in Java?
- Let's go look at the API for String to see what the Java developers have provided us with.
- Strings are immutable so it is very inefficient to build big strings from a lot of little pieces. If you need to do that, use StringBuffer.
- It is the only class with an overloaded operator, + for string concatenation.
- Functions that look like they mutate the String return a new String instead.
- To get a single character, use charAt.



# Text/In Class Project

- In class we will be going through the same project that is developed in the textbook. It is a drawing program with a somewhat different structure than paint.
- In addition to drawing, the application will also have command processing that we can use to extend the power of the application.





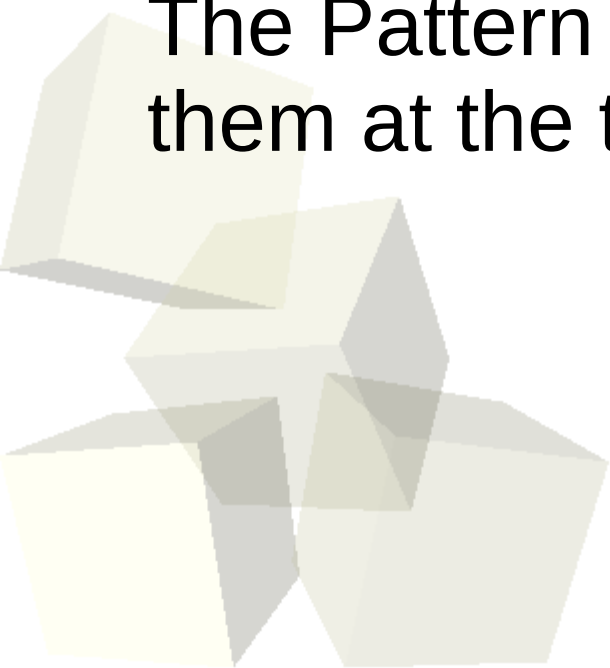
- To give us a chance to play with strings some let's go ahead and write the beginnings of the command processor.
- We want a class that will take a string, break off the first word as the command, then execute the command with the rest of the string as the arguments.
- We should go ahead and make two commands, echo and add, that we can test it with.





# Regular Expressions

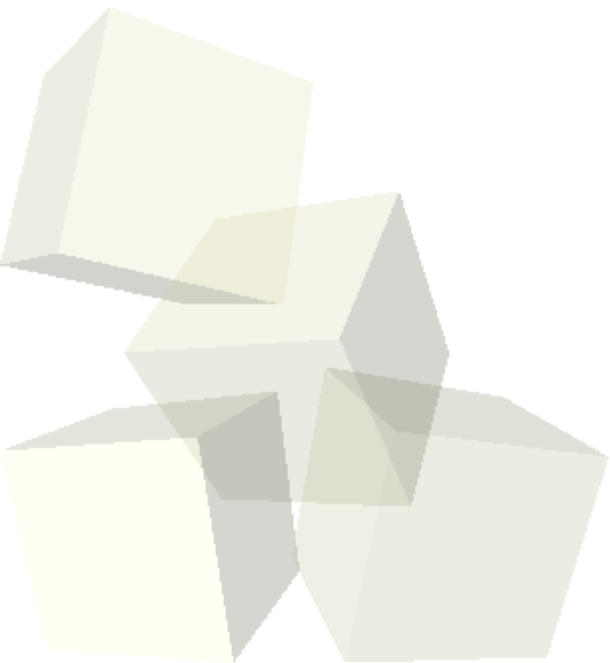
- You'll notice that some of the methods in `String` say that they take regular expressions (regex). This is a topic that we won't directly cover in this class, but it is a very powerful technique for you to learn.
- The `java.util.regex` package contains the two main classes that are used for regular expressions. The `Pattern` class has a lot of description about them at the top.



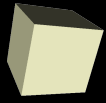
- Array syntax in Java is just like it was in C as far as using the arrays. There are significant differences though.
- Array types are made by putting [] after a regular type.
- Array types are object types so your variables are references and should be instantiated with new.
- Arrays have bounds checking and know their length.
- You can't make arrays of generics.
- Each element in the array is like a variable. So for primitives they store values while for object values they are references.



- Our command parser was pretty lame in how it picked the command. The definitely isn't a very flexible I want to write a class called `ArrayMap` and use it to make the code more flexible.







- Write the following method:
  - `String replaceAll(String s,char f,char t)`
- This method should return a new string where all instances of `f` in `s` have been replaced with `t`.
- Remember to submit your design for assignment #1 today.
- Interclass Problem – Write a program where a user types in a line of text and you print out each word in the line and the number of characters in it.

