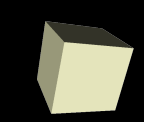
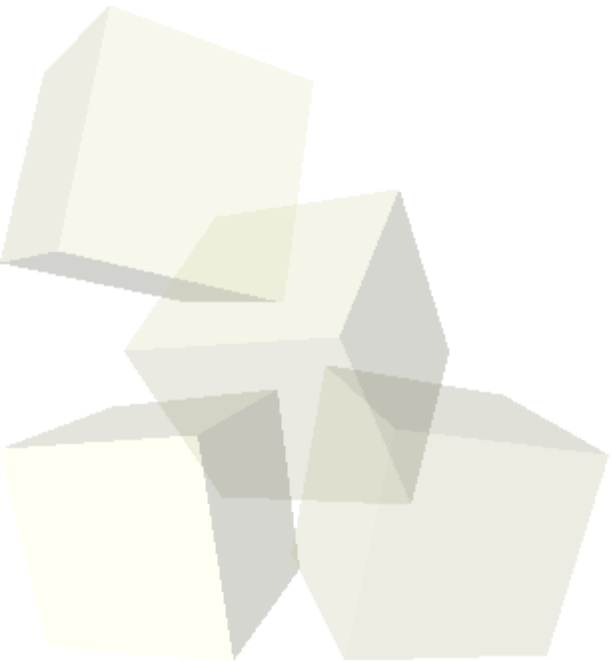


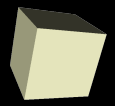
Generics, Enums, and Exceptions

2/3/2009



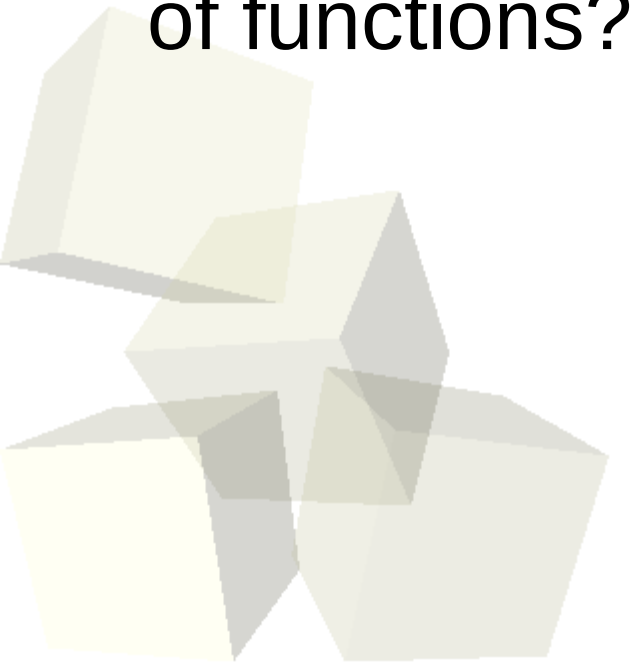
Opening Discussion

- Do you have any questions about the quiz?
- Let's look at solutions to the interclass problem.
- Will we regularly run out of time before finishing slides?
- What is the equivalent of scanf in Java?
- Book corrections appreciated.
- Do you have any questions about the reading?
- Do you have any questions about the assignment?



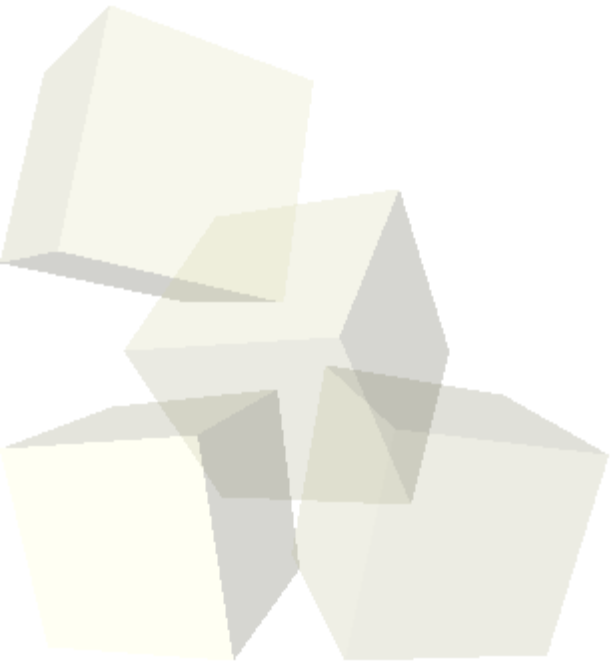
Making General Typesafe

- The problem with using the Object type for general polymorphism is that it many different type checks have to be done at runtime and you lose static type safety.
- Using generics we can take our general function interface and make it static typesafe.
- How can you combine these more general types of functions?



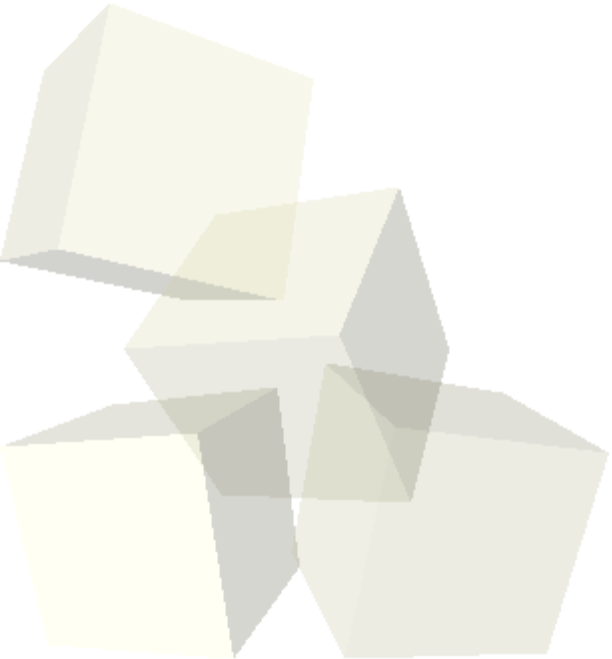
Enums

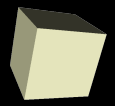
- C had enums. What were they supposed to do? What was the problem with them?
- Java includes enums as well. They serve the same goals, but lack the pitfalls.
- Java enum syntax can get quite complex, but the basic form is simple and very similar to C.



Error Handling

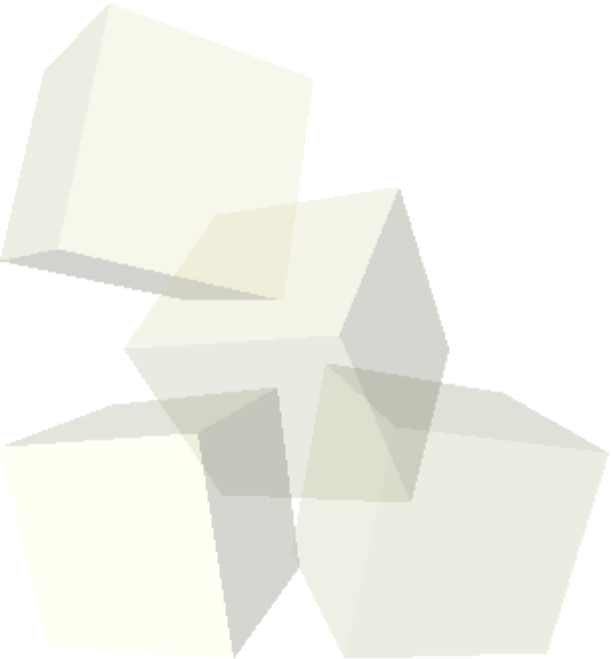
- How did you handle errors in C? (Consider the fopen function.)
- What are some problems with this method?





Exceptions

- Error handling in Java is done with exceptions, not return values or flags.
- Normal exceptions can't be ignored and they don't propagate. Runtime exceptions don't propagate.

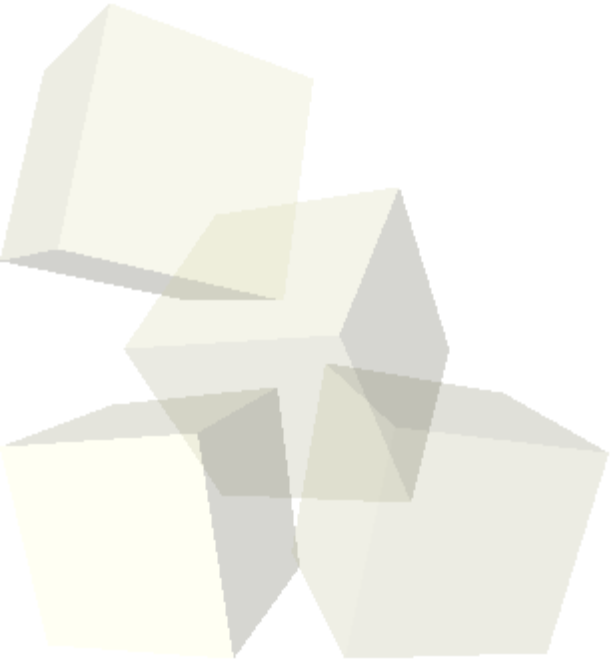


Syntax

- For anything that isn't a RuntimeException you have to include handling code. For RuntimeExceptions it is optional.
- If you want to deal with a possible exception in the current method do this:
  - try {
    - statements
  - } catch(ExceptionType1 e) {
    - statements
  - } [catch(ExceptionType2 e) { ...} ...]
- If this method can't handle it you add a throws clause to the method and it will go up to the calling method.
  - Type name(args) throws ExType[,...] {...}

Additional Information

- Exceptions also have the advantage that they can provide additional information.
- Stack trace.
- Informative message.
- You can create your own exception classes. Strive to have them provide sufficient information for debugging.



Minute Essay

- Do you have any questions about Java as a language? We are now moving from the language to libraries and problem solving.
- Interclass Problem – Write a program that uses a Scanner to read the contents of a file. The hint is that you will have a line something like Scanner sc=new Scanner(new File(“filename.txt”));. You can decide what to do with the contents. Be creative. You might consider methods like Double.parseDouble().