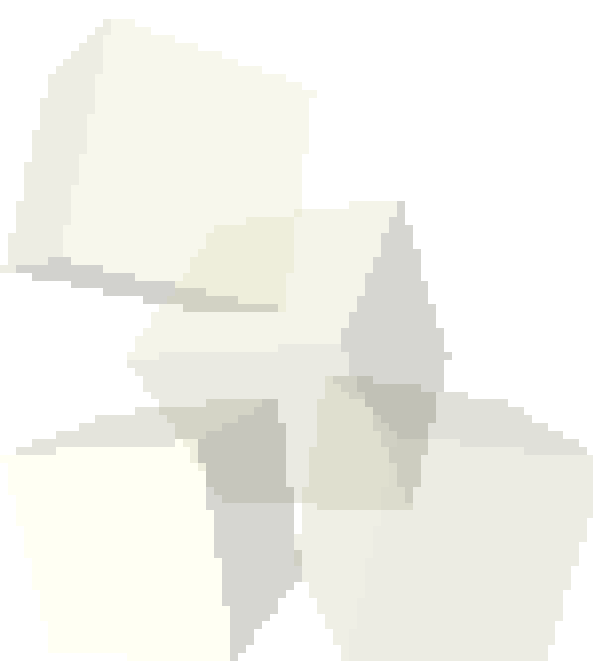4-5-2010
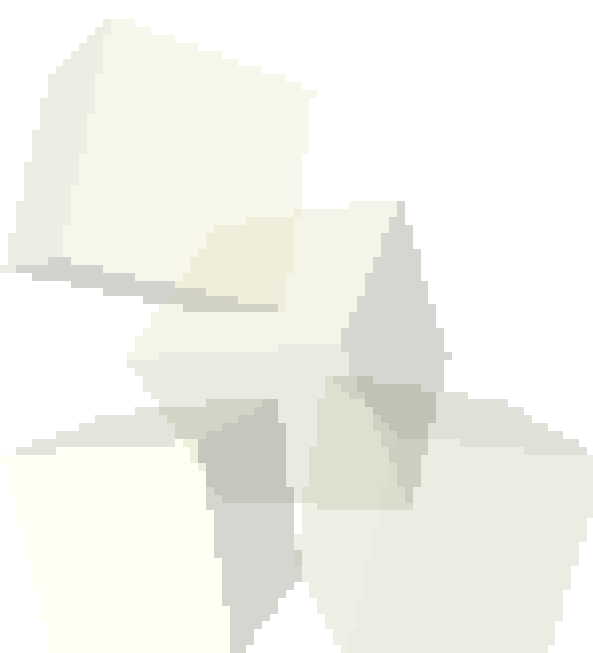
- Do you have any questions about assignment #6?

- To make it so that Perl will force you to declare variable put the following line at the top of your program.
  - ◆ use strict;
- It is also a good idea to add the following line at the top of your code.
  - ◆ use warnings;

- When you run a Perl program, any arguments specified on the command line are put in a variable called @ARGV
- As a bonus, the $0 variable stores the name of the program.
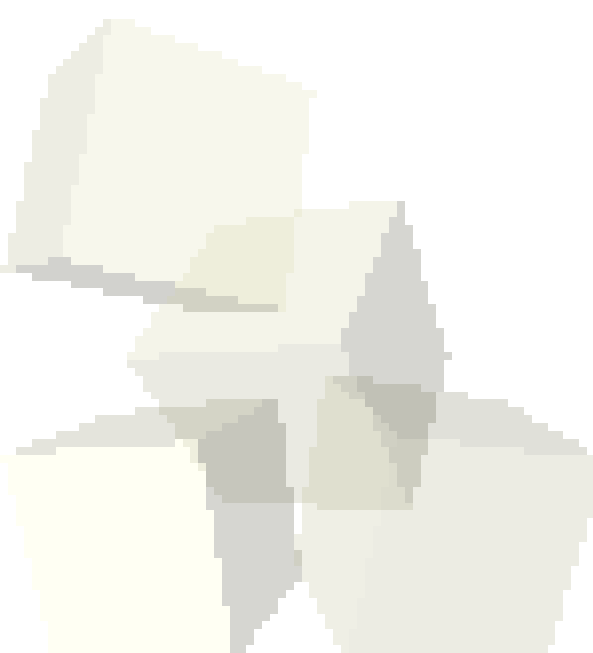
- For subroutines that you will want to reuse often it can be helpful to put them into a separate file.
- It is common to name these files with .pm and the last line of the file needs to be 1;
- Inside your other programs the use keyword allows your code to use your module.
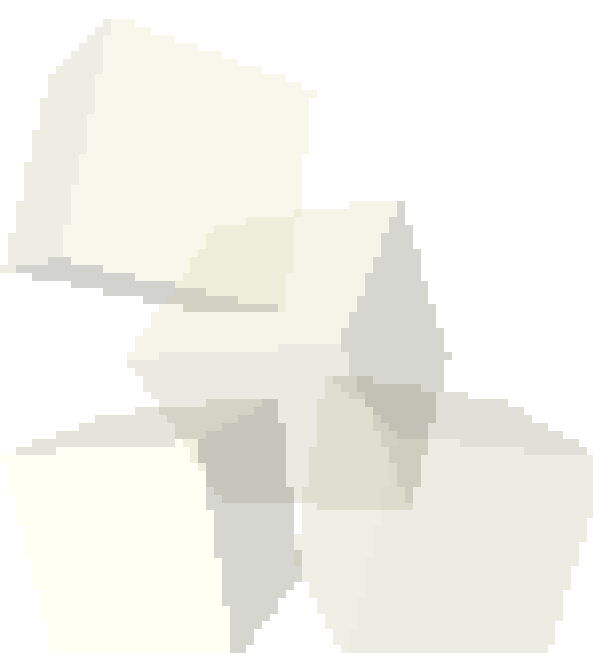
- If you run Perl with the -d option it will go into an interactive debugging mode.
- You can force this by adding it to the #! at the top of the program or using perl -d from command line.
- The command q will stop the debugger. h and h h give help.
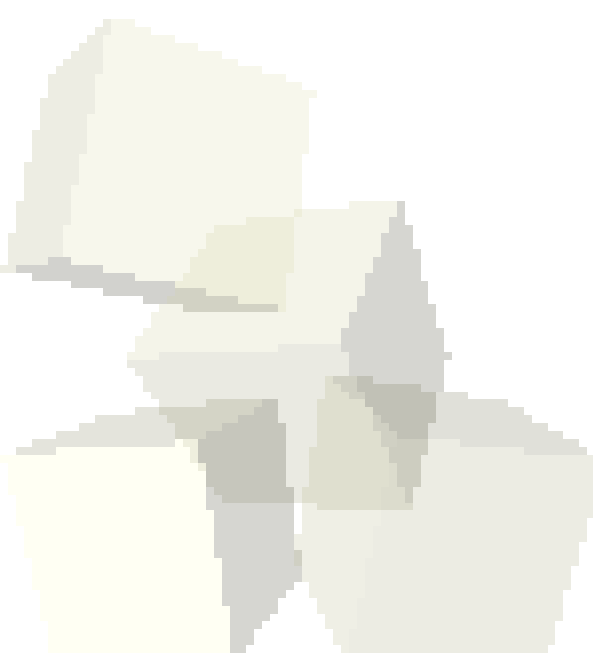
- There are many situations in scientific computing when we want to have random numbers.
- In biology an example would be modeling mutations.
- In general models will use random sequences for elements that occur at a lower level than the model deals with. So instead of doing a detailed model of that process you do intelligent random selections. This often means using different types of random distributions.

- srand – seeds the random number generator
- rand – gets a random number
- Other helpful subroutines
  - scalar - evaluates something in a scalar context.
  - int - casts a value to an int.
- Remember parentheses can be optional.
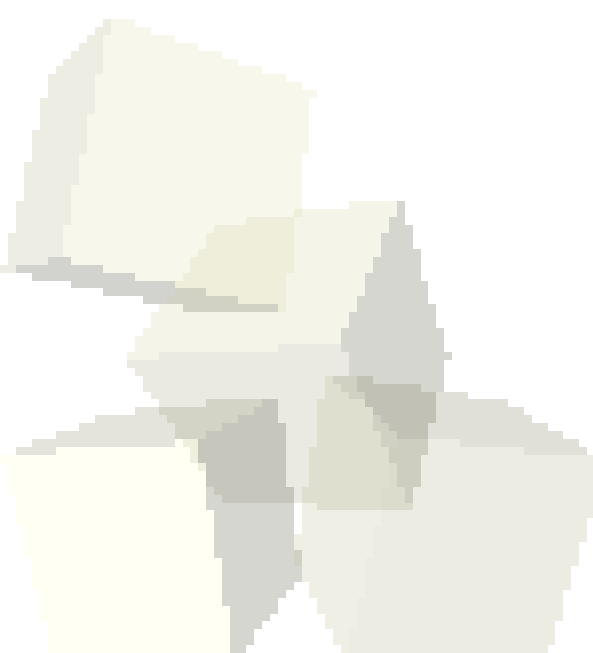
- The book runs through an example of code that takes a DNA sequence and randomly mutates it by picking random positions and substituting random bases into those positions.
- This uses a four argument version of substr that substitutes in for a segment of the original string.
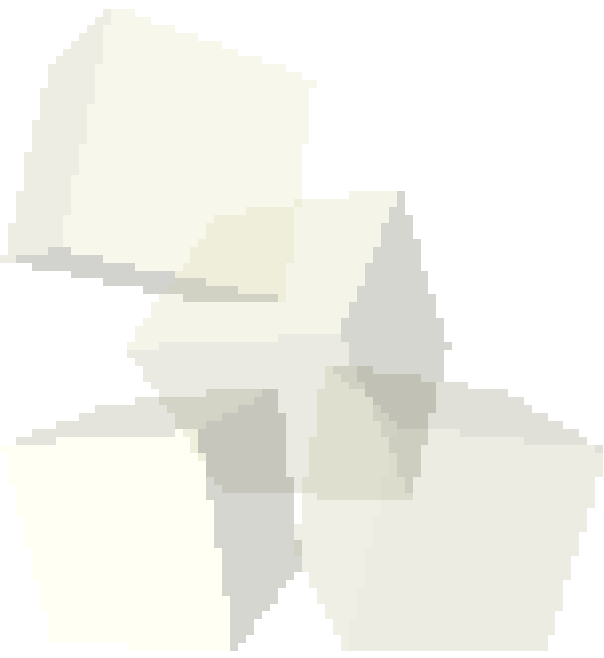
- The third standard data type (in addition to scalar and array) in Perl is the hash.
- A hash is much like an array except that it isn't indexed by an integer, it is indexed by a string. They are sometimes called associative arrays.
- The full hash variable is preceded with a %. Use {} to index from it. When indexing you put a $ in front because you are pulling out a scalar.
- Hashes can be initialized as a list where consecutive elements are key/value pairs. The => symbol can replace commas between key and value.

- Let's play with hashes some to see how they work.
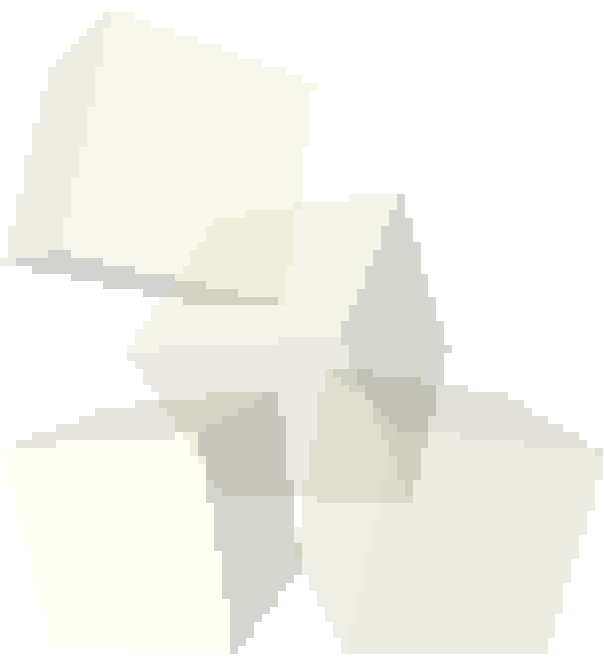
- Remember to turn in assignment #6.