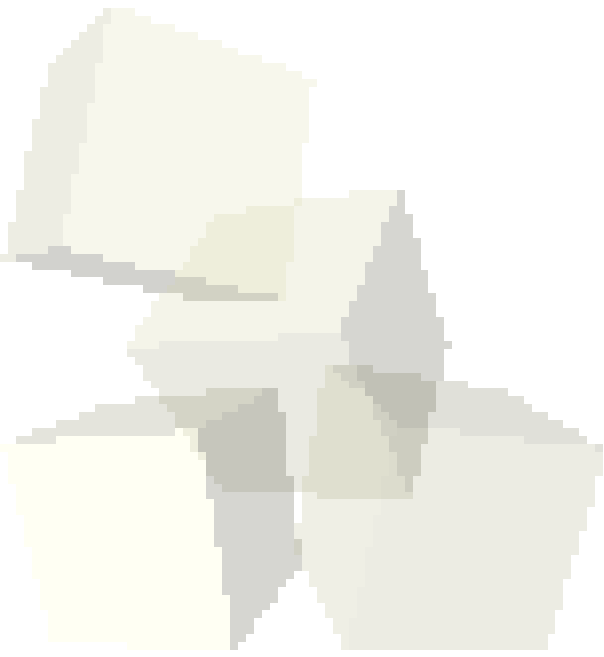




Applying Matlab 2

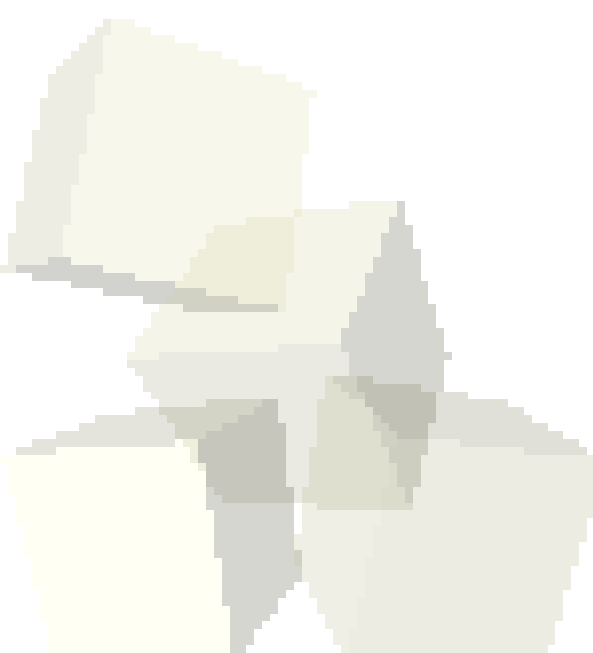
1-27-2010





Opening Discussion

- What did we talk about last class?
- Do you have any questions about the reading?





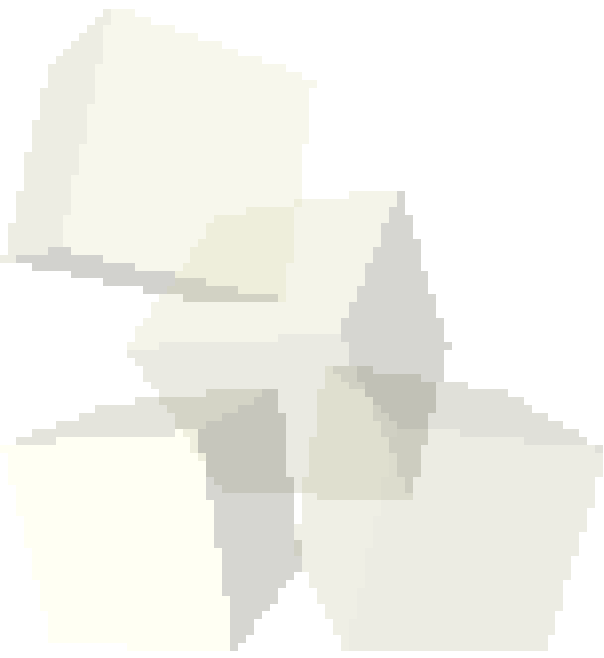
Control Flow Constructs

- Last time we looked at the for loop. We also have the following:
 - ◆ While loop
 - ◆ If statements – includes if, else, end, and elseif.
 - ◆ Switch-case – allows cases with multiple expressions and otherwise clause.
 - ◆ Try-catch blocks for error handling. Variable lasterr gives information about the last error.
- In general you can get away with only using loops and the if conditional. Switch is occasionally helpful and the try-catch is nice in situations where something might go wrong.



Examples of Control Flow

- Write a loop that will do a Mandelbrot check for a single point. Have it loop until z_n has a magnitude greater than 2 or you get through 100 iterations.





- Matlab functions are a bit different from what you are used to in other languages. They can take a variable number of arguments and return a variable number of arguments.
- To return a value, we set a variable with the name specified on the first line of the function to the value we want to return. That is what will be returned when the function terminates.
- You can also have local functions or nested functions. When either of these is used the main function must be terminated with end.
- Function handles are also discussed in the book and they are worth noting.



Writing a Function

- We have our Matlab code to do the iteration for a single pixel of the mandelbrot set. Now make an m-file and put that code into the m-file as a function that takes a point and returns how many iterations it went.
- Let's try to write code that will plot up a full Mandelbrot set for us.
- How could we do this better? Generally you want to avoid explicit loops in Matlab. What is the fewest number of loops we could get away with to make a Mandelbrot?



Closing Remarks

- Remember to submit assignment #2 today.

