



Applying Matlab

1/28/2008





Opening Discussion

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





Relational and Logic Operations

- As we saw at the end of last class, Matlab supports relational arrays. You can do all your normal logical operations on logical arrays.
- The logical arrays can be used for selection.
- Make an array with two rows. One row is integers from -5 to 5, the other is the square of those values.
- Now use a logical operation to make a new array that contains only the columns where the square is greater than 5.
- Now do the same type of thing but only get squares greater than 10 or less than 5.



Flow Control

- Matlab has control flow structures just like the imperative languages that you are used to.
- The details can be a bit different though.





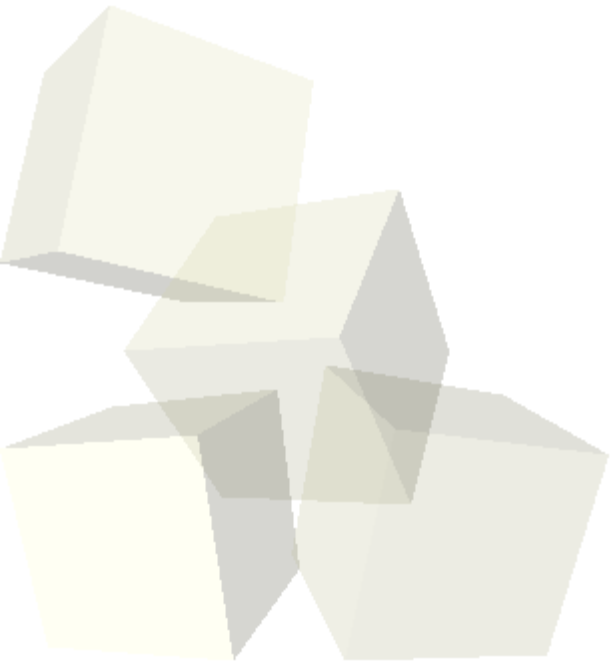
Examples of Flow Control

- Write a few lines of code that will do Serpinski's triangle and put each new point in a single Nx2 array. Put 5000 points into it.
- You can plot that array with the following:
 - `plot(data(:,1),data(:,2),'.'`)
- Now 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 allows you to write functions in m-files.
- You edit them just like you would an m-file script, but they have a particular syntax for passing in arguments.





Using Functions

- Now make an m-file and put the code you wrote for the Mandelbrot into the m-file as a function that takes a point and returns how many iterations it went.
- Lets close out the class trying to write code that will plot up a full Mandelbrot set for us.





Closing Comments

- Assignment #2 is due on Wednesday.

