Week 10 Lab

Goals of the lab this week:

- Practice clustering some data.
- Understand the difference between a script and a function.
- Work with both ways to define functions.
- Be able to pass a function as an argument to another function (like bisection or Newton).

Questions for the Lab:

For the first part of the lab, be sure last week's lab is completed (See the links from Week 9).

Go through the "Optimization in Matlab" notes from Friday, and work through the examples:

1. Type out/save the function file: `MyFunc.m` using the example on page 1, then type the sample command in the command window.
2. Try typing the anonymous function `MyAvg` and try it with a few examples.
3. Try typing an anonymous function that calls the m-file `MyFunc.m` from above.
4. Type out and save `SampleFunc.m` from page 2. In the command window, type out the next set of commands. Do you see how we pass a function into a function file?
5. Be sure `bisect.m` is saved in your current directory, and try the line out on the bottom of page 2.
6. Use the bisection algorithm to find an approximate solution to: $x = 1 + \cos(x)$, to within 6 decimal places.
7. Be sure that `NewtonMethod.m` is saved in your current directory, and change `MyFunc.m` appropriately to work with the example on page 4.
8. Use Newton's method to find a solution to $\frac{1}{x} = 1 + x^3$ starting with the guess $x_0 = 1$.
9. Work out the example on page 5.