Homework 5—Due Friday, February 28 at 11:55 PM

Instructions: Complete the following tasks. Copy and paste your code and analysis into a DOC/PDF/ODT document (like a lab report). Also upload a script and/or functions files with your code. You will submit this work online through the CROPS assignment page. For the plots, you must use the `xlabel`, `ylabel`, and `title` parameters on every plot to receive full credit.

1. Employ a MATLAB script file to load the `codemonkey.txt` file (or some other text/data file), and use a `while` loop to display all of the files contents into the command window.

2. Employ a MATLAB script file to print the answers to the following survey questions into a new and separate text file.

   (a) What is your major (or intended major)?

   (b) What year are you (freshman/sophomore/junior/senior)?

   (c) On a scale of 1 to 10—with 10 being the highest—how comfortable are you currently with MATLAB?

   (d) On a scale of 1 to 10—with 10 being the highest—how comfortable are you with computer programming (regardless of language)?

3. Adapt our notes from the "Error Analysis" session to compare the finite-difference approximations to derivatives

   (a) Right: $f'(x) \approx \dfrac{f(x+h) - f(x)}{h}$

   (b) Left: $f'(x) \approx \dfrac{f(x) - f(x-h)}{h}$

   (c) Centered: $f'(x) \approx \dfrac{f(x+h) - f(x-h)}{2h}$

   with a mathematical function $f(x)$ of your choice (and also over an interval $[a, b]$ of your choice). Note that the endpoints for the centered-difference should use the second-order schemes

$$f'(x) \approx \frac{-3 * f(x) + 4 * f(x+h) - f(x+2h)}{2h} \quad \text{and} \quad f'(x) \approx \frac{3 * f(x) - 4 * f(x-h) + f(x-2h)}{2h}$$