EP 501 Homework 2: Nonlinear Equations and Root-finding

October 7, 2019

Instructions:

- Complete all problems.
- Submit all source code and publish Matlab results via Canvas.
- Discussing the assignment with others is fine, but you must not copy anyone's code.
- I must be able to run your code and produce all results by executing a single top-level Matlab script, e.g. assignment1.m or similar.
- You may use any of the example codes from our course repository: `https://github.com/mattzett/EP501/`.
- Do not copy verbatim any other codes (i.e. any source codes other than from our course repository). You may use other examples as a reference but you must write you own programs (except for those I give you).
- For demonstrating that your code is correct when you turn in the assignment, you must use the test problems in the course repository found in `linear_algebra/testproblem.mat` (elimination method tests, including multiple right-hand sides), `linear_algebra/lowertriang_testproblem.mat` (lower triangular tests) and `linear_algebra/iterative_testproblem.mat` (iterative method tests requiring diagonal dominance). To load these data into your workspace use:

  ```
  load testproblem.mat
  ```

  or double click on the .mat file in the Matlab file browser.

Purpose of this assignment:

- Learn principles behind numerical solutions to nonlinear algebraic equations.
- Develop good coding and documentation practices, such that your programs are easily understood by others.
- Hone skills of developing, debugging, and testing your own software
- Learn how to build programs on top of existing codes

1. (a)
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