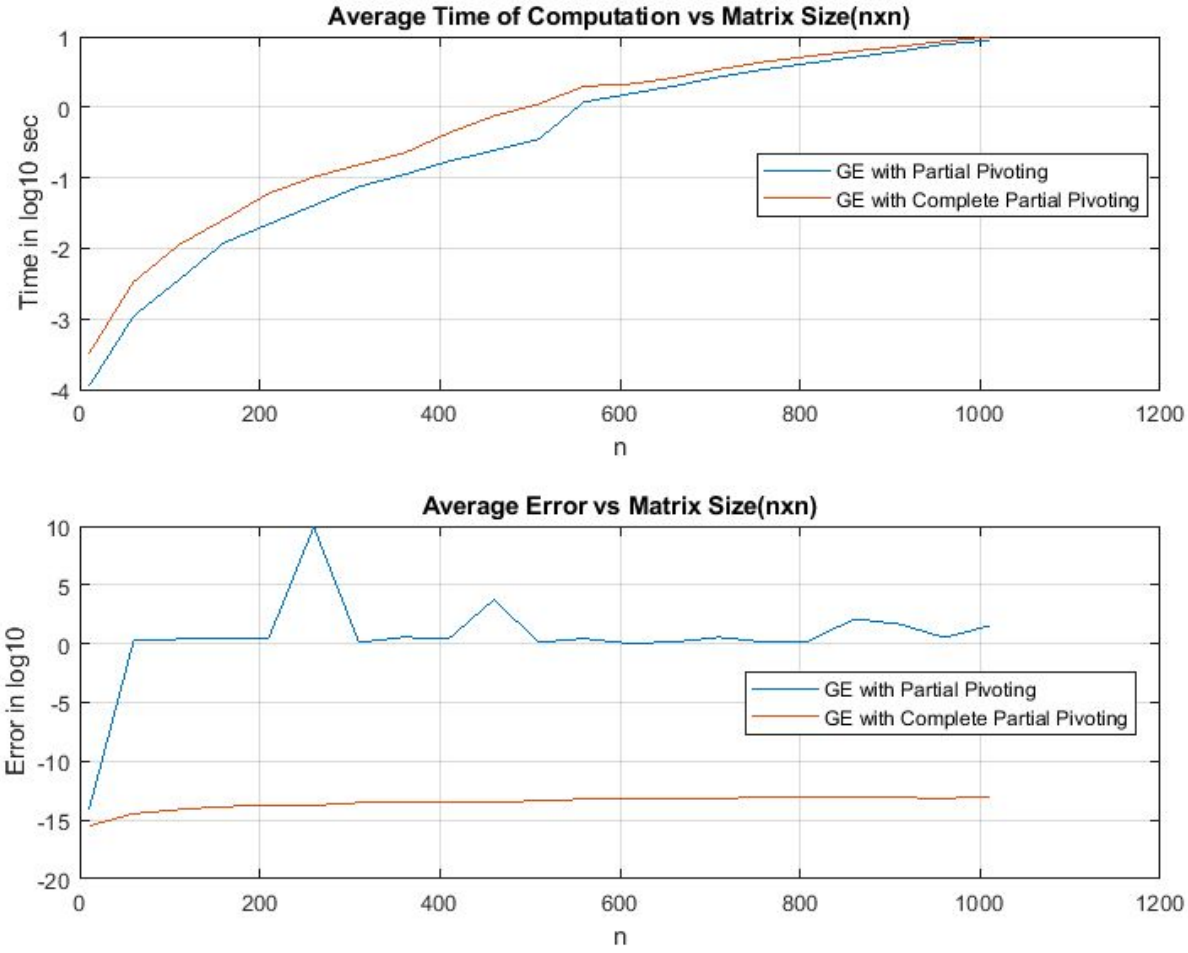
Benjamin Martin 301347720 Computing Assignment 2 MACM316 2018-05-31



For large n, G.E. with PP operation count is close to (2n^3)/3. Both time graphs very visibly converge at the same O(n^3). By calculating the slope of the average time vs n for G.E. with PP, and comparing it to G.E. with CPP I found a ratio of 1.99. I would approximate CPP differs from PP by (2n^3)/3 operations on average. NOTE: I did not use log values for this calculation.

G.E. with PP has terrible accuracy (found with n>50). G.E. with CPP is excellent and averages error smaller than 10^-12, even for n = 1000 (remember 0<x<1).

G.E. with PP fails with this special matrix because of the magnitude of the pivot in the final column. It is so large it causes round off errors that complete erase smaller equations.

Multiple trials are required to avoid warping the data around unreasonable values (improbably small or large errors and runtimes), but the time of each trial becomes very expensive as n becomes large.