Github: NeelSanghvi/APPM-4600 (github.com)

Name: Neel Sanghvi

Lab 5

Exercises

1) f is continuous and twice differentiable. The starting point needs to be inside the basin of convergence to guarantee convergence.
2) Code uploaded to Git
3) Yes, we need to add f' and f'' as well to check if g' for fixed pt is less than 1
4) Code uploaded to Git
5) Bisection code is fast at first and then Newton's method is faster when it's near the root, so we get the best of both worlds.
6)
    a. It took 21 iterations only using Bisection
    b. It takes 25 iterations only using Newton. This is because f'(x) and f(x) are really large numbers so the steps are small for the first few iterations.
    c. It takes 6 iterations using the hybrid method
    d. Although the hybrid method is the fastest, the bisection method is going to be the most cost effective as there are no derivatives that need to be calculated.