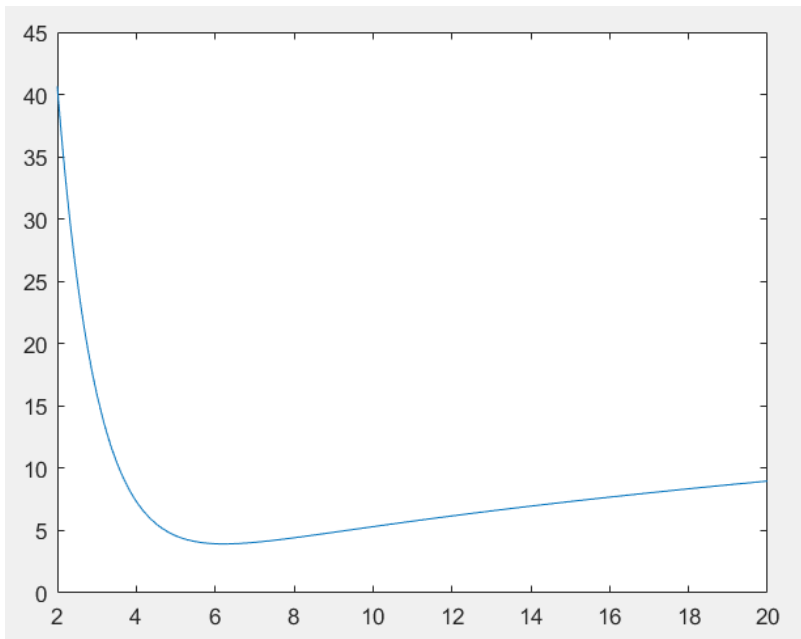Berkay Gümüş
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EE 457 HW2 REPORT

Problem1.a)

This function has only one local minimizer, so it's unimodal.

Problem1.b,c,d,e)

I implemented functions for each methods, for the f functions, its the first and second derivatives and the fibonacci sequence. I called these 4 methods at main function for the 1. question.

File names:

f(x) >> f.m

first derivative of f(x) >> fdot.m

second derivative of f(x) >> f2dot.m

These functions take input, calculate and return the results.

Fibonacci sequence >> fibSequence.m

This function takes the index k and return F_k for the Fibonacci method.
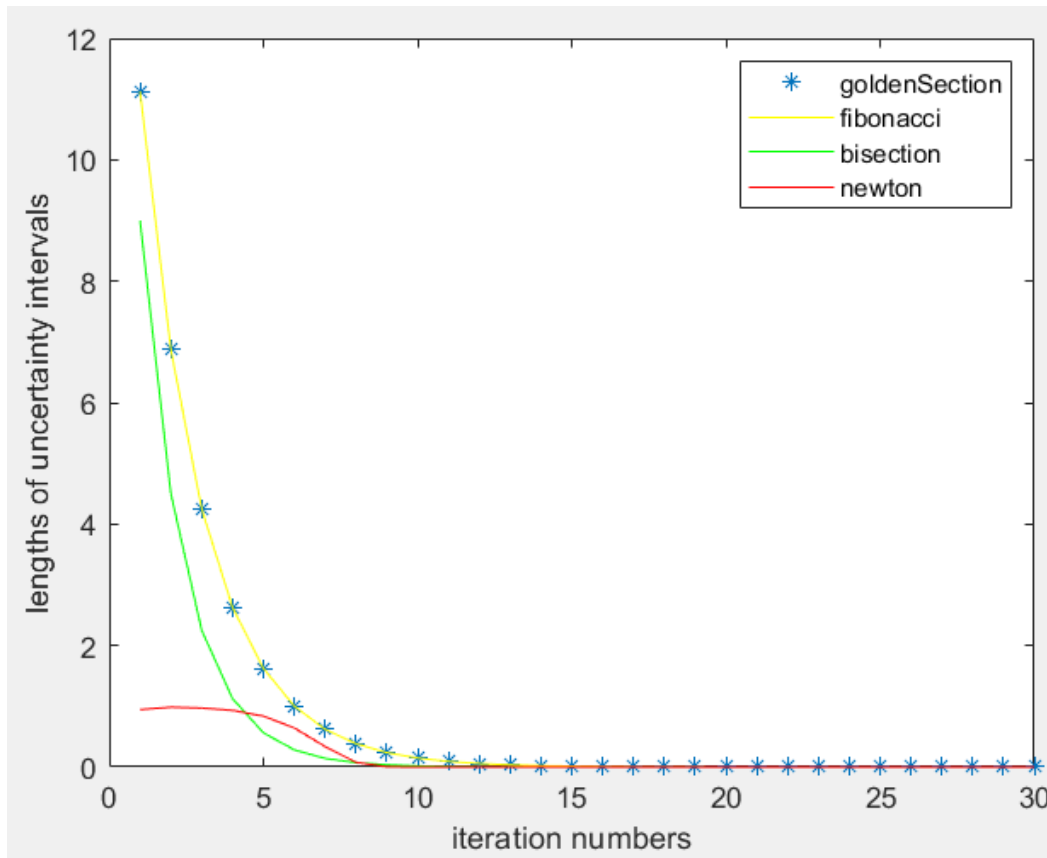
Golden Search Method >> goldenSearch.m

Fibonacci Method >> fibonacci.m

Bisection Method >> bisection.m

Newton's Method >> newton.m

These functions are called at the main function. They calculate and print the iteration number, interval length, minimizer and function value of the minimizer.

Problem1.f)

Uncertainity intervals of the golden Section and Fibonacci methods are same for the first 19 iterations of 30 iterations. They are overlapping so golden section is represented by star to be seen.

Problem1.g)

	iter = 10	iter=20	iter=30
Golden Search Method	0.14635	0.0011899	9.6748e-06
Fibonacci Method	0.14635	0.00119	1.337e-05
Bisection Method	0.017578	1.7166e-05	1.6764e-08
Newton Method	5.5186e-06	0	0

Problem2)

The root calculated by the secant method is -0.32003 and its value is -1.2024e-06.

 I implemented g function at g.m file to use directly at the main function.