236330 - Introduction to Optimization: Homework #3

May 28, 2020

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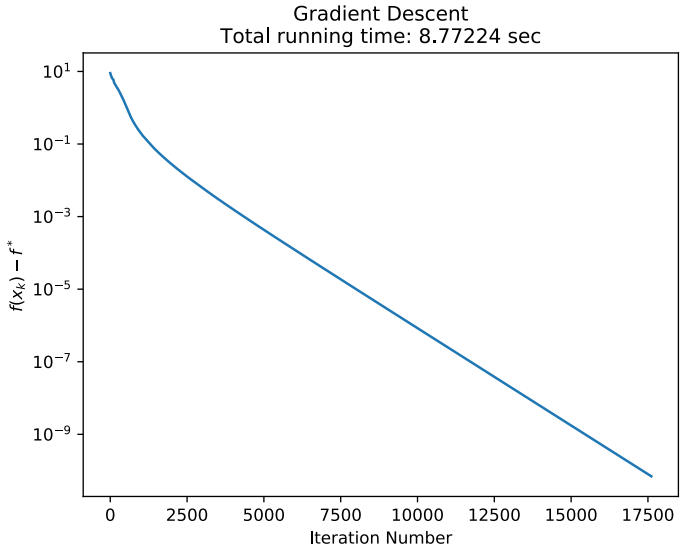
Gradient Descent, Quasi Newton and BFGS methods

Given the Rosenbrock function:

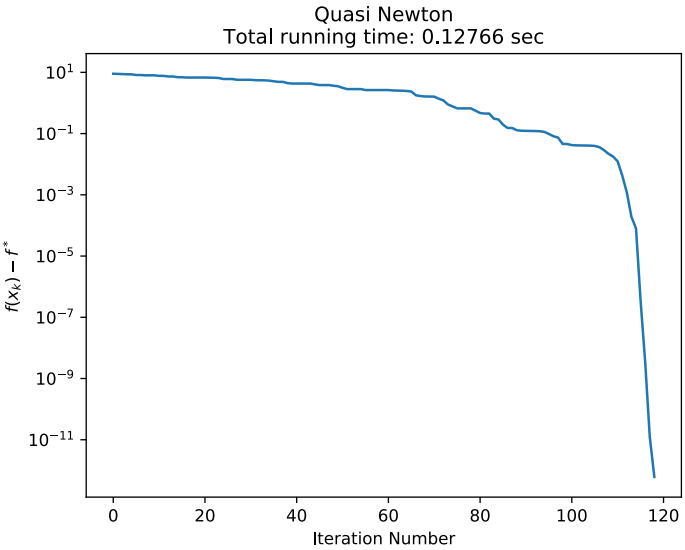
$$f\left((x_1, x_2, \ldots, x_N)\right) = \sum_{i=1}^{N-1} \left[(1 - x_i)^2 + 100\left(x_{i+1} - x_i^2\right)^2\right]$$

- Using the Gradient Descent method with the starting point $x_0 = (0, 0, \ldots, 0)$ and $N = 10$, we get:



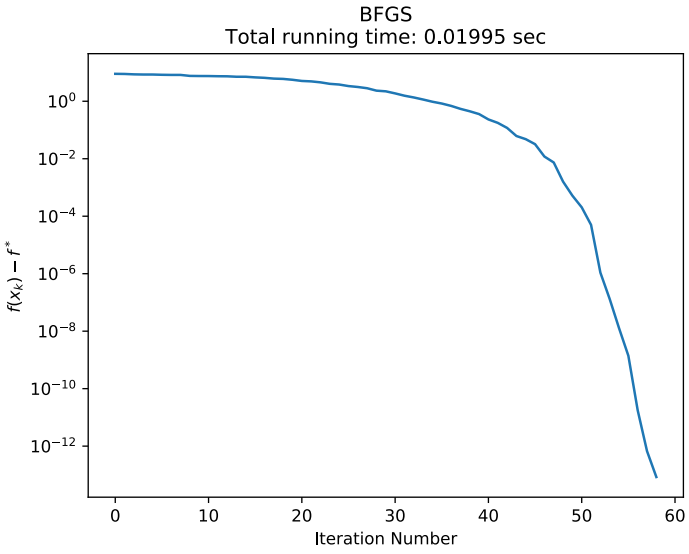
TODO: add a short explanation

- Using the Quasi Newton method with the starting point $x_0 = (0, 0, \ldots, 0)$ and $N = 10$, we get:



TODO: add a short explanation

- Using the BFGS method with the starting point $x_0 = (0, 0, \ldots, 0)$ and $N = 10$, we get:



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