MATH 3423: Adv Linear Alg & Optimization
Homework 4

Use the functions from scipy.optimize.minimize to minimize:

1. the Rosenbrock function:

$$f(x_1, x_2) = (5 - x_1)^2 + 300(x_2 - x_1^2)^2 + 10$$

2. the Booth function:

$$f(x_1, x_2) = (x_1 + 2x_2 - 7)^2 + (2x_1 + x_2 - 5)^2$$

Derive the Gradient & the Hessian for each function to be minimized. Apply 10 minimization algorithms and test each algorithm using 5 different starting (x, y) values. Report which of the methods performed better by comparing the number of required iterations for convergence to the minimum and the number of required function evaluations.

▶ E-Mail Your Homework In A Single Jupyter Notebook.