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1 contributor

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Problem 1

(100 points) Consider the following problem.

$$\begin{aligned} \min\ & f = x_1^2 + (x_2 - 3)^2 \\ \text{s.t. } & g_1 = x_2^2 - 2x_1 \leq 0 \\ & g_2 = (x_2 - 1)^2 + 5x_1 - 15 \leq 0 \end{aligned}$$

Implement an SQP algorithm with line search to solve this problem, starting from ${\bf x}_0=(1,1)^T$. Incorporate the QP subproblem. Use BFGS approximation for the Hessian of the Lagrangian. Use the merit function and Armijo Line Search to find the step size.