

## Project Report for Numerical Optimization

Your report should not exceed eight (8) pages, including references. The report **MUST** be typed. Upload your code in separate, language-specific files that can be executed or compiled (m, .py, .c, .cpp, etc.). **Please do NOT include printed code in the report.** Follow this format for the report.

1. Summary
2. Background and Theory
  - a. Describe the methodology and algorithms related to your project. Please be thorough here. This section must reflect a clear understanding of the methods presented.
3. Results and Discussion
  - a. Example problem description. Provide enough details to reproduce your results.
  - b. Implementation details: packages and relevant modules were used (e.g. SciPy Optimize).
  - c. Your results need to demonstrate that your implementation is correct. For instance, show that your solution satisfies the KKT conditions. Is the convergence rate as expected?
  - d. If your project involves PDE constrained optimization, verify that the gradient (and hessian if applicable) computed with the adjoint approach is correct (use Finite Differences for this).
  - e. Discuss whether your results were as expected and provide sound explanations based on the theory we studied.
4. Concluding remarks
  - a. A clear and concise summary of your findings. Avoid generic, trivial statements.
5. References