Programming Assignment 2

Numerical Optimization

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Github link

QP:

Final candidate: [0.49, 0.49, 0.00]

Objective function of final candidate: 1.5

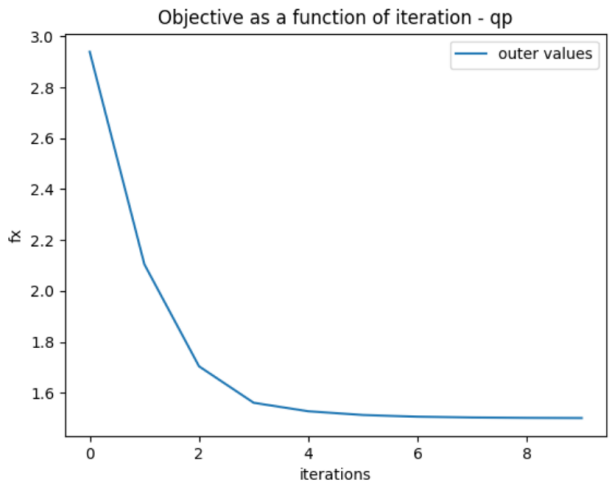
Inequality constraints of final candidate: [-0.49, -0.49, -0.0]

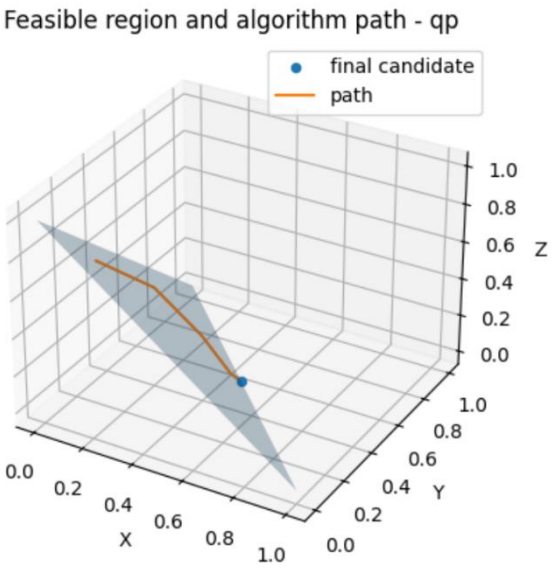
Equality constraints of final candidate: 0.99

Visualization:

Feasible Region and Path Taken: The feasible region is a triangle in 3D space. The path taken by the algorithm and the final point is shown in the following plot.

Objective Value vs. Outer Iteration Number: A graph depicting the decrease in objective value across iterations. We can see that the qp is minimized effectively.





LP:

Final candidate: [1.98, 0.98]

Objective function of final candidate: -2.96

Inequality constraints of final candidate: [-0.018, -0.018, -0.981, -1.963]

Visualization:

Feasible Region and Path Taken: The feasible region is a polygon in 2D space. The path taken by the algorithm and the final point is shown in the following plot.

Objective Value vs. Outer Iteration Number: A graph depicting the increase in objective value across iterations. We can see that the lp is minimized effectively.