AA Assignment 4

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1 Graphs of results: Plots

Figure 1: Graph Showing Results from 50 point Convex Hull

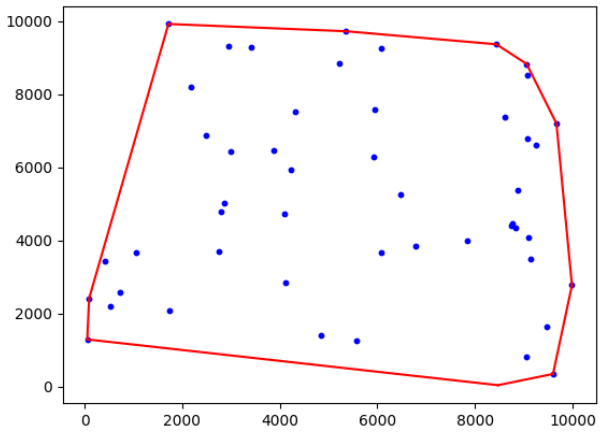


Figure 2: Graph Showing Results from 100 point Convex Hull

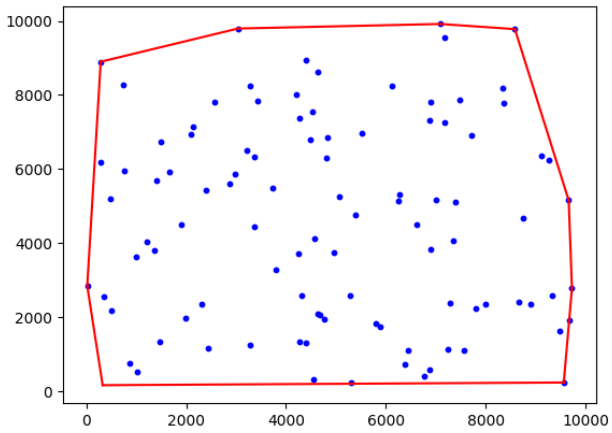


Figure 3: Graph Showing Results from 1000 point Convex Hull

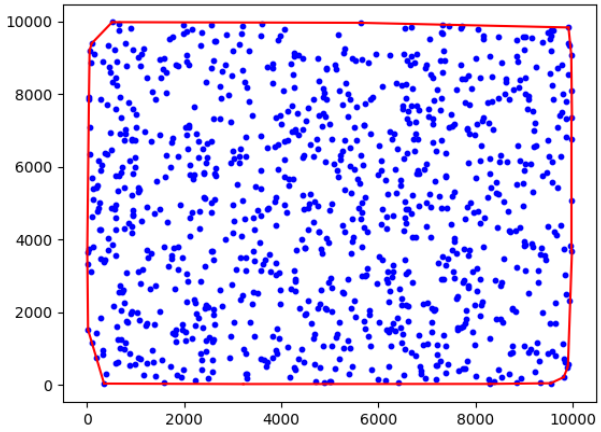
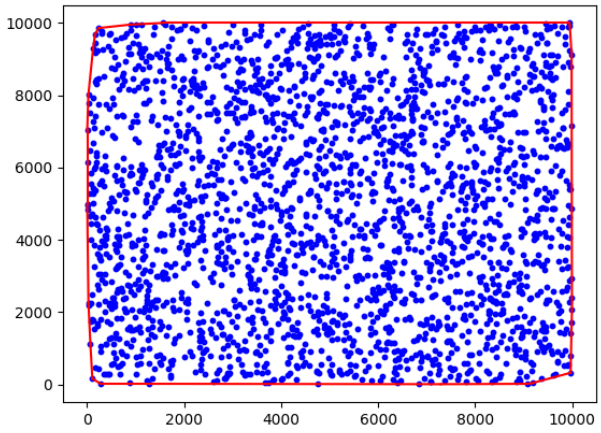
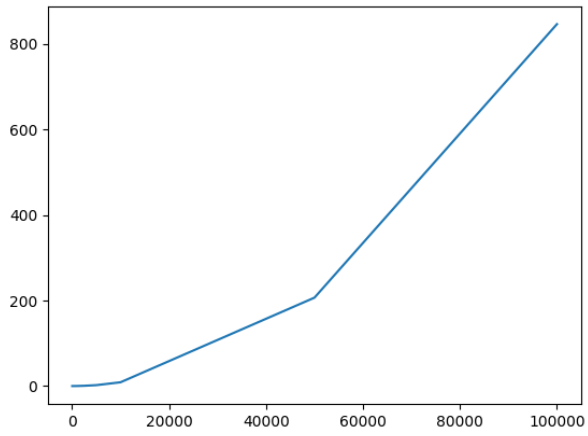


Figure 4: Graph Showing Results from 2500 point Convex Hull



2 Graphs of results: Run time Complexity Graph

Figure 5: Graham Scan Runtime Complexity is O(nlogn)



3 How Graphs were obtained

All graphs were plotted with the matplotlib.pyplot library. The result graphs were obtained by plotting the initial coordinates that were created, and the coordinates that was returned from the graham scan algorithm.The returned coordinates gets drawn in the plot with a different color and gets connected together with a red line as seen in Figures 1-4.
The run time complexity graph was plotted using the runtimes and amount of points used in each test in the loop.The y-axis is the run time in seconds and the x-axis the amount of points.

4 How inserted points were generated

The points(x and y) were generated with the randint python library from range of 1-10000. Several test were done with points generated of sizes 50, 100, 1000, 2500, 5000, 10000, 50000 and 100000.