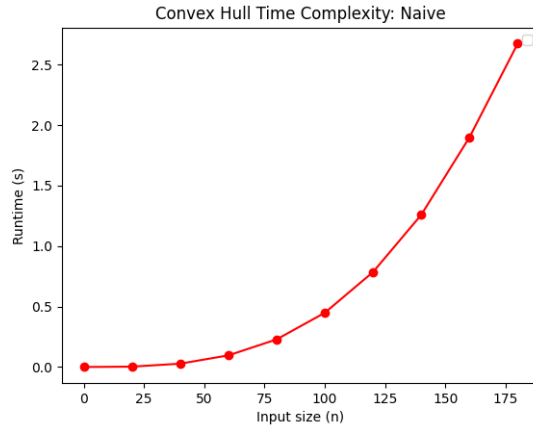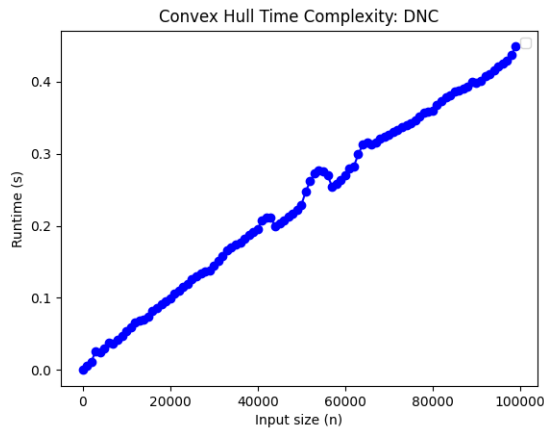# Benchmarks & Analysis

The above plot represents the running time of my naive (base case) convex hull algorithm. It shows a quadratic relationship with $R^2 = 1$ (as reported by mycurvefit.com). This is expected, as the naive algorithm simply tests each pair of points provided, one by one, and conditionally adds them to the hull.

Likewise, the above plot represents the running time of my divide and conquer convex hull algorithm. It appears to show a linear relationship with $R^2 = 0.96$. I did not expect these results, as my algorithm, at best, should run in $O(n \log n)$ time. It seems like the benchmark may not be fully running the algorithm, though no errors were produced in doing so. I believe the fluctuations seen in the graph to be I/O operations or a similar slowdown factor.