Statement

Implement the following algorithms for constructing the convex hull: [Github link].

1. Gift wrapping algorithm
2. Graham scan algorithm
3. Quickhull
4. Comparison chart between those two algorithms. [Pdf chart]

Take 5 test cases with number of points as (n =)100, 1000, 2000, 5000, 10000 and 3 test cases with varying number of points on the hull; one of those should be n atleast (i.e. equal to the number of points)

Solution

The algorithms have been implemented on MATLAB. Source codes of these can be found at Github.

NOTE: Hulls generated can be seen by un-commenting the plot statements in the code (Assignment_4.m).

Performance chart for the three algorithms is in fig 1.

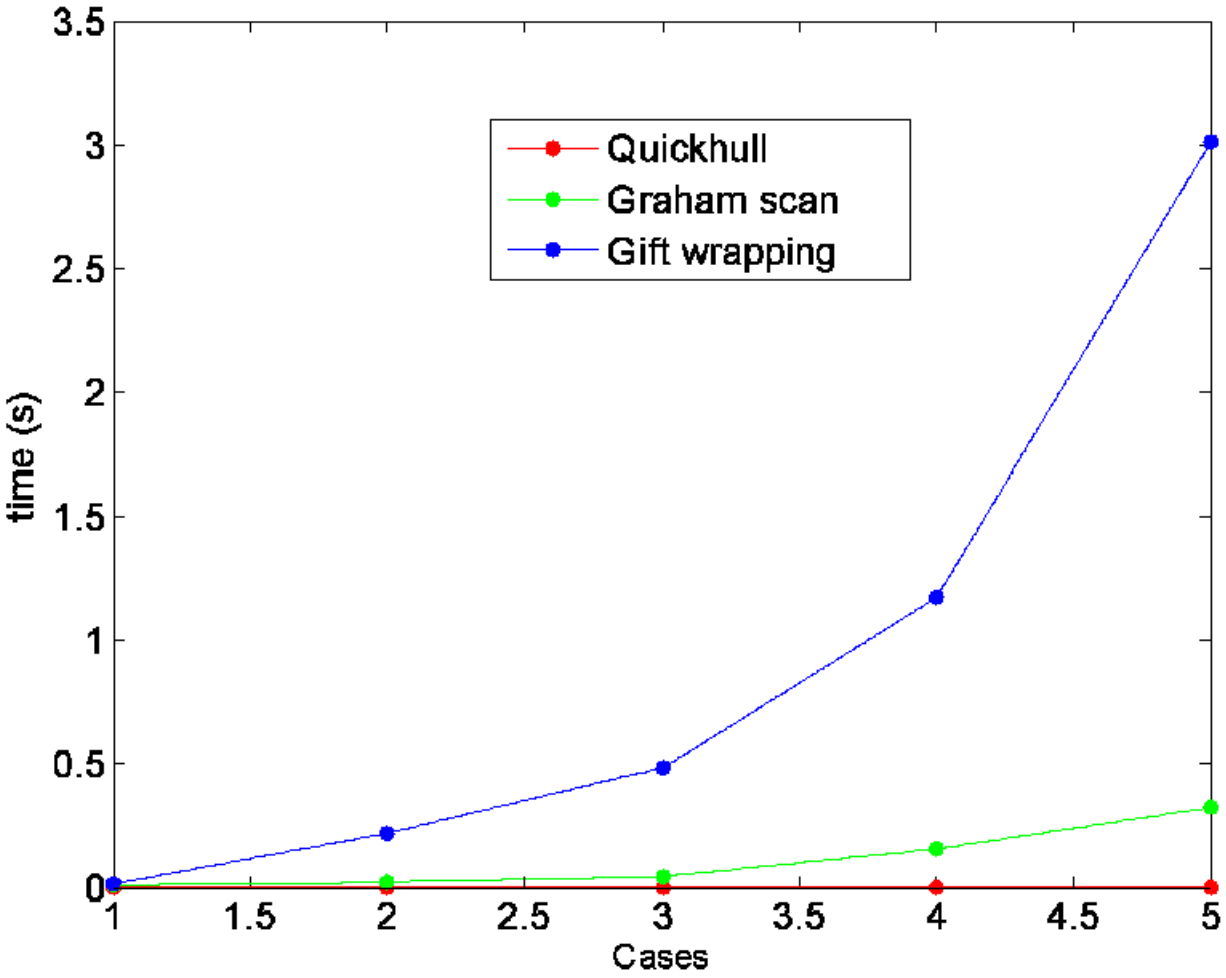

Figure 1: Performance chart