**Running Time comparisons of the 3 algorithms:**

**Note 1:** All the times are in seconds.

**Note 2:** These times do not take into account the time required for printing the output.

**Case 1:** All points lie on the convex hull

|  |  |  |  |
| --- | --- | --- | --- |
| **Input size(n)** | **Gift Wrapping** | **Graham Scan** | **Quickhull** |
| 100 | 1.122 | 0.975 | 0.536 |
| 1000 | 1.868 | 1.458 | 0.986 |
| 2000 | 2.158 | 1.716 | 1.364 |
| 5000 | 3.488 | 2.158 | 2.158 |
| 10000 | 4.697 | 2.537 | 2.308 |

**Case 2:** No. of points lying on the convex hull ≠ n.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Input size(n)** | **Points on hull(h)** | **Gift Wrapping** | **Graham Scan** | **Quickhull** |
| 100 | 10 | 0.013 | 0.010 | 0.008 |
| 1000 | 18 | 0.023 | 0.015 | 0.014 |
| 2000 | 17 | 0.033 | 0.021 | 0.018 |
| 5000 | 21 | 0.038 | 0.029 | 0.025 |
| 10000 | 12 | 0.045 | 0.033 | 0.034 |