CS\_4040 Project (Phase 1)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Insertion Sort | N | Median Time(ms) | Rand-Quick Sort | N | Median Time(ms) |
|  | 10 | 0.0 |  | 10 | 0.0 |
|  | 100 | 0.0 |  | 100 | 0.0 |
|  | 1000 | 3.0 |  | 1000 | 0.3 |
|  | 2000 | 9.8 |  | 2000 | 0.5 |
|  | 5000 | 39.1 |  | 5000 | 1.2 |
|  | 10000 | 86.3 |  | 10000 | 2.8 |
|  | 20000 | 311.0 |  | 20000 | 5.6 |

A graph with a line

AI-generated content may be incorrect.

Insertion sort:

In Demos I was able to do to a line of best fit and insertion sort is quadratic. It is O() which lines up with what we are expecting and the theoretical. The = 0.9986 which lets us know that there is extreme accuracy

Randomized Quick sort:

I was able to make the line of best fit as well for random quicksort. We also get = 0.999 which is very good. However, we do not have that many point that we are testing. IT would be a lot more accurate if we did more test sizes. This of course is O(nlogn).