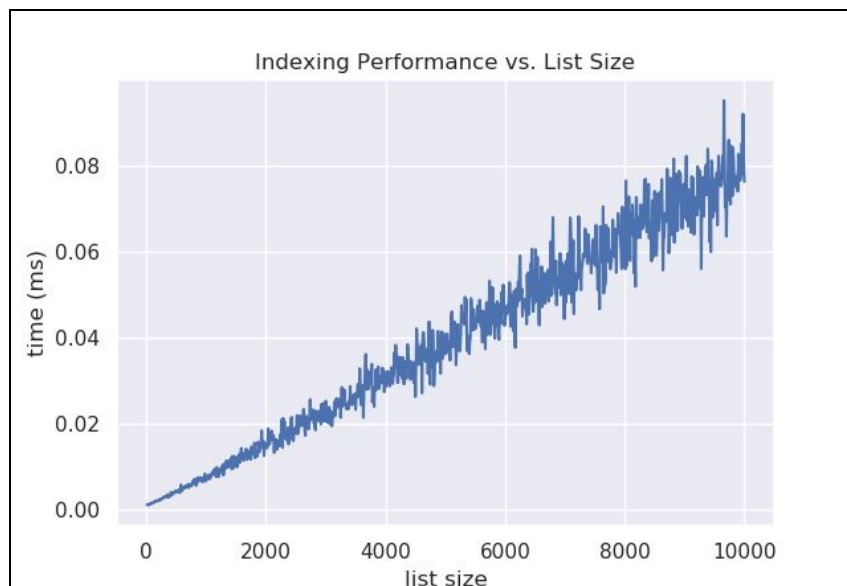1.

a. For small list sizes (n < 2000), the runtime behavior of my DLL seems to be almost perfectly predictable. There is no great variation or noise in the trend. However, as the list size increases the noise increases. I suspect this is due to caching or the variability of memory reads and writes. The overall trend, however, is very linear. That leads me to believe that the order of growth for the indexing equation is O(N).

b. The pairwise multiplication algorithm yielded much cleaner results. In contrast to the indexing, there was very little noise in the performance trend. Similarly, however, the algorithm seems to be extremely linear in terms of performance.