Results

Algorithm A:

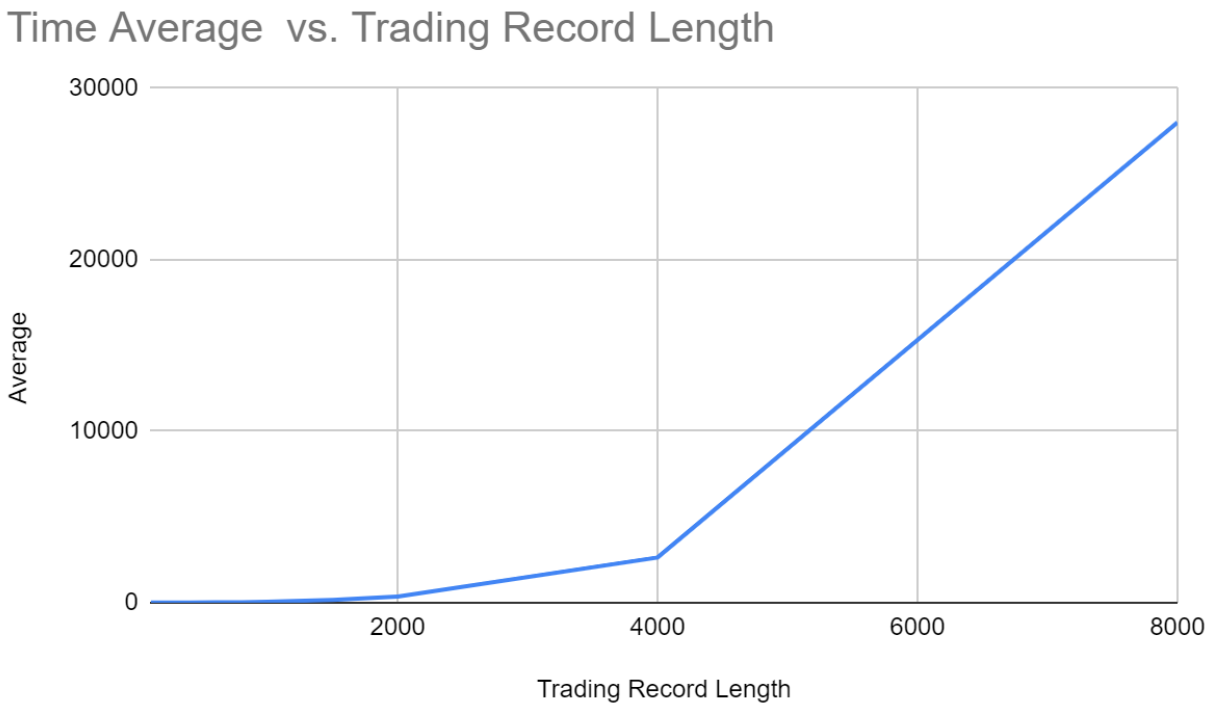
Once algorithm A was run with the java eclipse program, it gave an output for the calculated Day trader strength as well as the runtime of the algorithm.
To test the time growth of our algorithm as the input size increases we tested it by changing the length value of our variable; trading_Records. We run trading_Records with different values and measure the time taken by the algorithm, this is repeated 6 times and an average is taken.

These are the results from the testing:

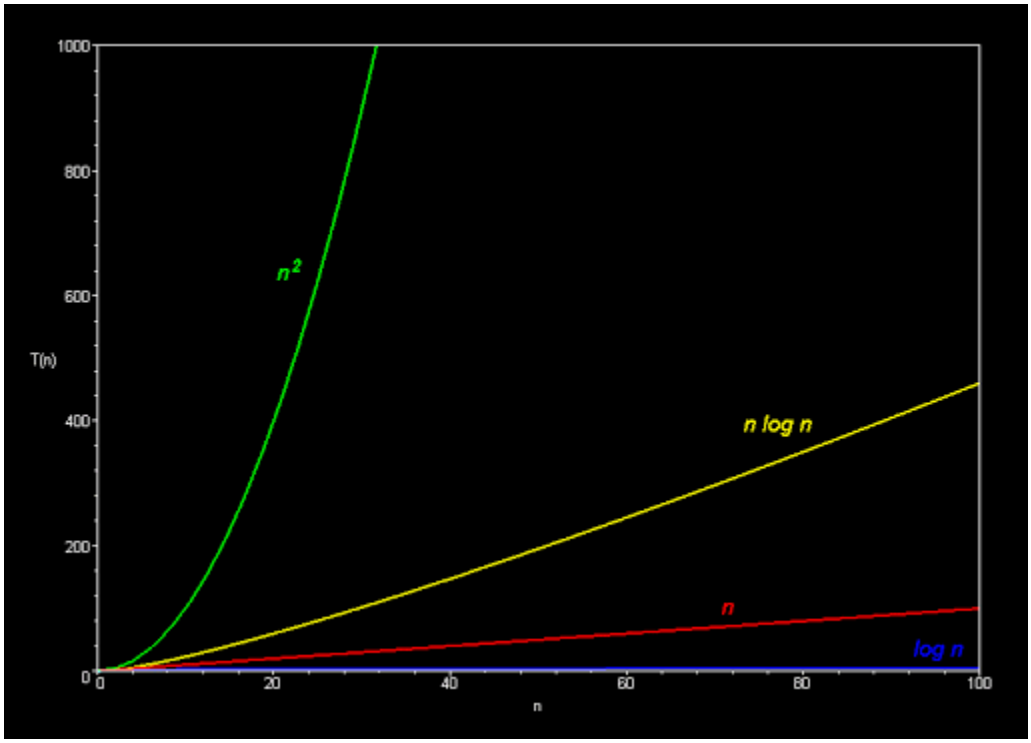
Trading Record Length	Time 1 (ms)	Time 2 (ms)	Time 3 (ms)	Time 4 (ms)	Time 5 (ms)	Time 6 (ms)	Time Average (ms)
100	2	2	1	2	2	2	1.833333333
200	6	6	7	5	5	6	5.833333333
400	10	17	10	8	9	13	11.16666667
600	16	18	16	16	20	20	17.66666667
800	33	30	29	30	33	30	30.83333333
1000	60	54	52	53	52	52	53.83333333
1500	188	164	161	160	163	152	164.6666667
2000	427	348	342	341	338	334	355
4000	2515	2581	2645	2698	2673	2709	2636.833333
8000	27772	28876	27930	28168	27559	27694	27999.83333

This average time is plotted against the size of the trading record to represent how our algorithm time grows with time.

This is the result of the plot:



The resulting graph is similar to the time graph of O(n^2).



Our prediction for our algorithm through our pseudocode was O(n^3) which is slightly different from our plot. This could happen for a few reasons: Our prediction was made through the pseudocode, the actual implementation our algorithm takes is slightly different from the pseudocode and takes into account all time complexities. Another reason is that the actual datasets being tested with are much larger than we initially anticipated.

Algorithm B

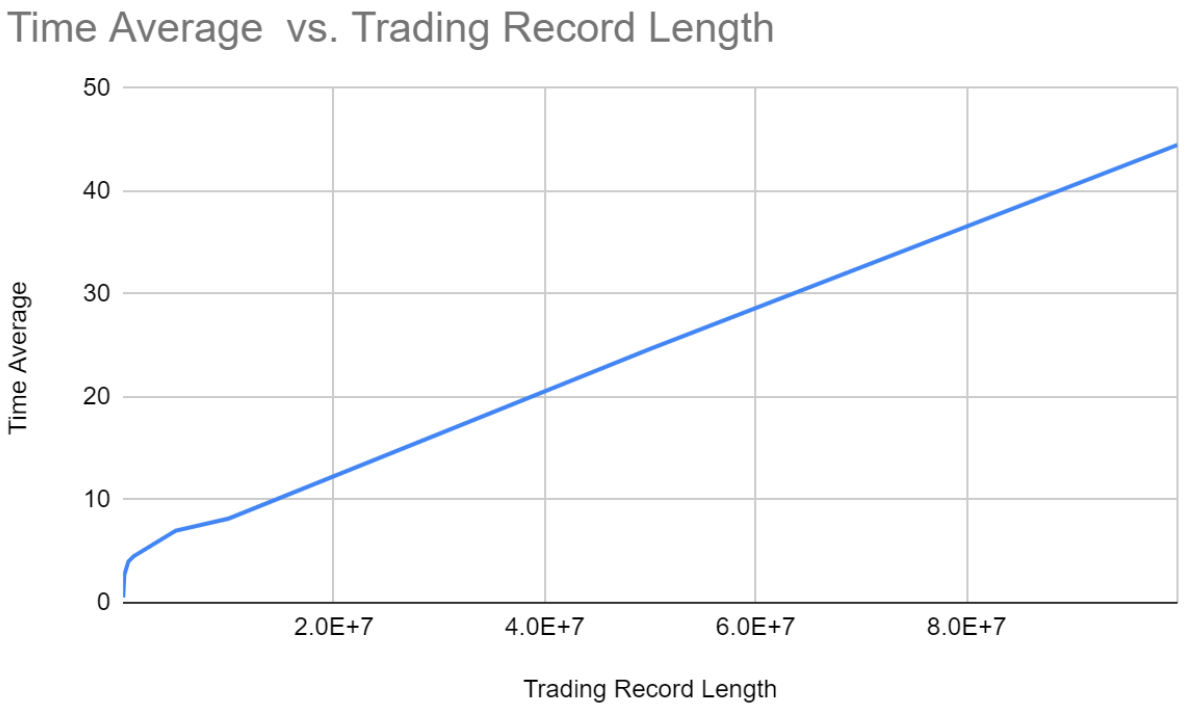
Once algorithm B was run with the java eclipse program, it gave an output for the calculated Day trader strength as well as the runtime of the algorithm.
To test the time growth of our algorithm as the input size increases we tested it by changing the length value of our variable; trading_Records. We run trading_Records with different values and measure the time taken by the algorithm, this is repeated 6 times and an average is taken.

These are the results from the testing:

Trading Record Length	Time 1	Time 2	Time 3	Time 4	Time 5	Time 6	Time Average
1000	0	1	1	0	1	0	0.5
10000	1	0	1	0	1	1	0.6666666667
50000	2	2	2	1	1	2	1.666666667
100000	4	3	2	3	2	2	2.666666667
500000	5	4	4	4	3	4	4
1000000	4	5	5	4	4	5	4.5
5000000	8	6	8	7	7	6	7
10000000	7	9	8	8	9	8	8.166666667
50000000	24	23	27	25	23	26	24.66666667
100000000	40	41	49	42	47	48	44.5

This average time is plotted against the size of the trading record to represent how our algorithm time grows with time.

Result of the plot:



The resulting graph is similar to the time graph of O(nlogn).