Lab 3 Report

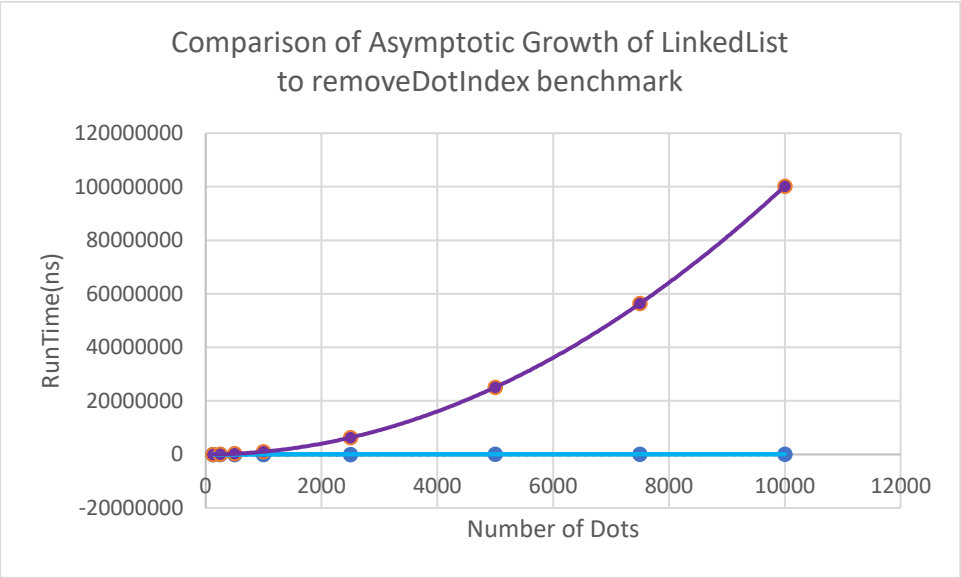
The table below contains the time taken to remove 100 dots from the pictures with different number of dots. For two different methods removeDotsIndex() and removeDotsIterator().

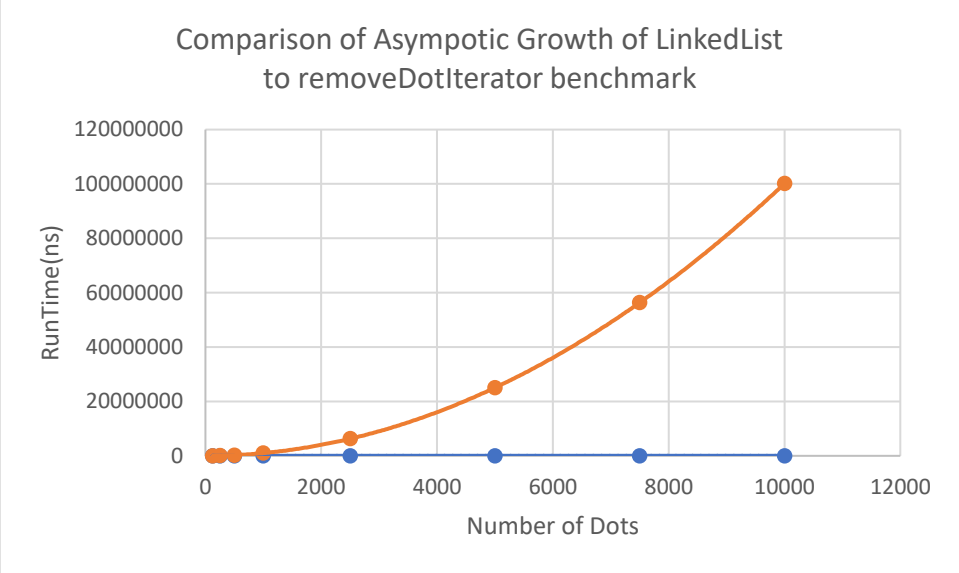
	Linked List Benchmark	
Number of dots	remove Index (s)	remove Iterator(s)
125	0.0000017	0.0000013
250	0.0000119	0.0000117
500	0.000011	0.000013
1000	0.0000126	0.0000125
2500	0.0000141	0.0000113
5000	0.0000432	0.000013
7500	0.0000521	0.0000129
1000	0.0000723	0.0000145

The table below contains the time taken to remove dots from the pictures using the big-O analysis. The equation for removeDotsIndex () is $n^2+19n+5$ and the equation the big-O notation is $O(n^2)$. For the removeDotsIterator () method is $n^2+14n+6$ the big-O notation is $O(n^2)$.

Asymptotic Analysis	
number of Dots	runtime ()
125	18005
250	67255
500	259505
1000	1019005
2500	6297505
5000	25095005
7500	56392505
10000	100190005

Asymptotic Analysis	
number of Dots	runtime ()
125	17381
250	66006
500	257006
1000	1014006
2500	6285006
5000	25070006
7500	56355006
10000	100140006





1. From your benchmarks, the run time of which scenario grows more slowly as n is increased? The run time of which scenario grows more quickly as n is increased?

   The removeDotsIndex () grows more slowly and the removeDotsIterator() grows more quickly.

2. From your big-O analysis, the run time of which scenario grows more slowly as n is increased? The run time of which scenario grows more quickly as n is increased?

The runtime for the removeDotsIndex grows more slowly, and the runtime of the removeDotsIterator grows more quickly.

3. Are the results from your benchmarks and big-O analysis consistent?

   Yes .