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 n2+19n+5 and the equation the big-O notation is O(n2). For the removeDotsIterator () method is n2+14n+6 the big-O notation is O(n2).

|  |  |
| --- | --- |
| 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.

1. 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.

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

Yes .