Assignment #4 Report

For my report I used a small size of test data because the algorithm for insert I used was a non-recursive function. I chose this to see how the insert function was affected by not using recursion. For the find and delete algorithms however I used a recursive function so the times are much lower

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Insert | Size | Insert | Remove | #Times | Average Time |
|  | 100 |  |  | 10 | 0 |
|  | 100 |  |  | 100 | 0 |
|  | 100 |  |  | 10000 | 800 |
|  | 100 |  |  | 100000 | 6500 |
|  | 100 |  |  | 1000000 | 22300 |
|  | 100 |  |  | 150000 | 6953.333 |

The test bed of data was small because of my function for insert anything to high took a lot longer to wait for.

Delete uses a recursive function so the times are a lot faster than insert

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Delete | Size | Insert | Remove | #Times | Average Time |  |
|  | 100 |  |  | 10 | 0 |  |
|  | 100 |  |  | 100 | 0 |  |
|  | 100 |  |  | 10000 | 0 |  |
|  | 100 |  |  | 100000 | 299.94 |  |
|  | 100 |  |  | 1000000 | 9.27 |  |
|  | 100 |  |  | 150000 | 161 |  |

Find also uses a recursive function so the time it takes to go through the binary search tree is a lot faster

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Find | Size | Insert | Remove | #Times | Average Time |
|  | 100 |  |  | 10 | 0 |
|  | 100 |  |  | 100 | 0 |
|  | 100 |  |  | 10000 | 1353.17 |
|  | 100 |  |  | 100000 | 173.55 |
|  | 100 |  |  | 1000000 | 382.95 |
|  | 100 |  |  | 150000 | 581.17 |