Method	BST time	Big-O BST	Hash Table time	Big-O HT	AVL Tree time	Big-O AVL Tree	2-5 Tree time	Big-O 2-5 Tree
Search	0.000429	O(n)	4.7e-05	O(n).	0.000256	O(logn)	0.000257.	O(logn)
Insert	0.000442	O(n)	4.5*10^(-5)	O(n).	0.000435	O(logn)	0.000478	O(logn)
Delete	0.000472	O(n)	4.2e-05	O(n).	0.000361	O(logn)	0.000244	O(logn)
Sort	0.028528	O(n)	0.02761	O(nlogn)	0.001323	O(n)	0.000861	O(n)
Range Query (n=10)	0.000932	O(n)	0.015966	O(n)	0.001326	O(n).	0.000793.	O(n)
Range Query (n=100)	0.001203	O(n)	0.017556.	O(n).	0.00149	O(n)	0.001009.	O(n)
Range Query (n=1000)	0.003809	O(n)	0.019397.	O(n).	0.003848	O(n).	0.003057.	O(n)

Table 1: Comparison of time complexities of data structures

Worst case Search, Insert, Delete in BST is O(n), because the tree is a degenerate array like structure. Worst case Search, Insert, Delete in HashTable is O(n), we need to examine from the index we hash to all the way to the last one. Search, Insert, Delete in Balanced search tree is bounded by the tree height. We do constant amount of work at each height level. The height is given by log(n). For 100 Search, Insert and delete, Hash Table takes least time because ideally three operation is O(1). Balanced search tree performs better than BST, because balanced search tree has minimum height.

Sort in tree structure takes O(n) because in-order traversal will give the sorted result and each node we do constant amount of operation. Hash table is clumsy in sorting because we need to first loaded the elements in HashTable to a container and sort that container. On average, tree structure performs better than hashtable. For Range Query, tree structure performs the same and it is better than hashTable. HashTable take O(n) time because we need to examine every slot in the table, including the unused one. As a result, hashTable performs worse in Range Query although it takes O(n) time. Tree structure performs about the same invariant with input. The reason we see increment as we increase the input size is because we have printout in the function. On the back scene, tree structure is doing a traversal.