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Analysis of Run-Time and Memory

BIG O FOR DATA STRUCTURES

(Vector)

The worst runtime for a vector is O(n), The vector will have to do a linear search when searching the vector which at worst will have a runtime of O(n)

(Hash Table)

The worst runtime for a hash table is O(n), Collisions and and hash function quality can cause a runtime of this proportion. Also, long chaining and the traversal used gets us the worse case scenario of O(n)

(Tree)

The worst runtime for a Binary Tree is O(n), worst case if the tree is unbalanced. The tree can have a liner structure and running a linear search would cause the worse case runtime of O(n).