

Manuela Dorado Novoa

ArrayList time: 616.8889999979291

LinkedList time: 2.375999999999939

Binary search tree time: 157.96100000011276

ArrayList is faster than LinkedList if I randomly access its elements. I think random access means "give me the nth element".

Access time for ArrayList: $O(1)$. Access time for LinkedList: $O(n)$. In an array, you can access to any element by using `array[index]`, while in a linked list you must navigate through all the list starting from `first` until you get the element you need.

LinkedList is faster than ArrayList for deletion. I understand this one. ArrayList's slower since the internal backing-up array needs to be reallocated.

Deletion time for ArrayList: Access time + $O(n)$. Deletion time for LinkedList: Access time + $O(1)$. The ArrayList must move all the elements from `array[index]` to `array[index-1]` starting by the item to delete index. The LinkedList should navigate until that item and then erase that node by decoupling it from the list.

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Insertion time for ArrayList: $O(n)$. Insertion time for LinkedList: $O(1)$.

Why the ArrayList can take $O(n)$? Because when you insert a new element and the array is full, you need to create a new array with more size (you can calculate the new size with a formula like $2 * \text{size}$ or $3 * \text{size} / 2$). The LinkedList just add a new node next to the last.