

Laboratory practice No. 3:

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3) Practice for final project defense presentation

3.1

	ArrayList	LinkedList
Problem 1.1	O(1)	O(n)

For this problem we can find that using ArrayLists could be a better and more efficient method because it has complexity of $O(1)$ versus LinkedLists complexity of $O(n)$. We can find that these two types of data structures have benefits that make them better for some problems and worse for others. For example we know that when we just want to do an index or a get it is better to use an ArrayList. On the other hand, when we are using the `Iterator.remove` method it is more efficient to perform it on a LinkedList rather than an Array List. For problems that are not that big or complex, both data structures are basically the same thing.

3.2 OPTIONAL: in exercise 2.1 we have to fix a “broken keyboard” where two special keys ([and]) makes the cursor go to the beginning or the end of the line. In the code we have a string that we get through a Scanner that the user inputs. We convert it to a charArray with the command `.toCharArray`. This way we can now go through the text checking each individual character. The first if inside the method checks if the character is a left bracket, if this happens the cursor/pointer goes to the beginning of the line. The second if inside the method checks if the character is a right bracket, if this happens the cursor/pointer goes to the end of the line. If none of the other happen, the character we are at is added to a LinkedLists.

3.3 $O(n)$

- 3.4 The complexity for that exercise is $O(n)$ basically because in this problem we are doing two major things which is checking a character and then adding a character to a linked list. The first thing, checking a position in an array, is simply $O(1)$. Then adding an element to a LinkedLists, at any position, is $O(n)$. Therefore the complexity for this problem is $O(n)$.

4) Practice for midterms

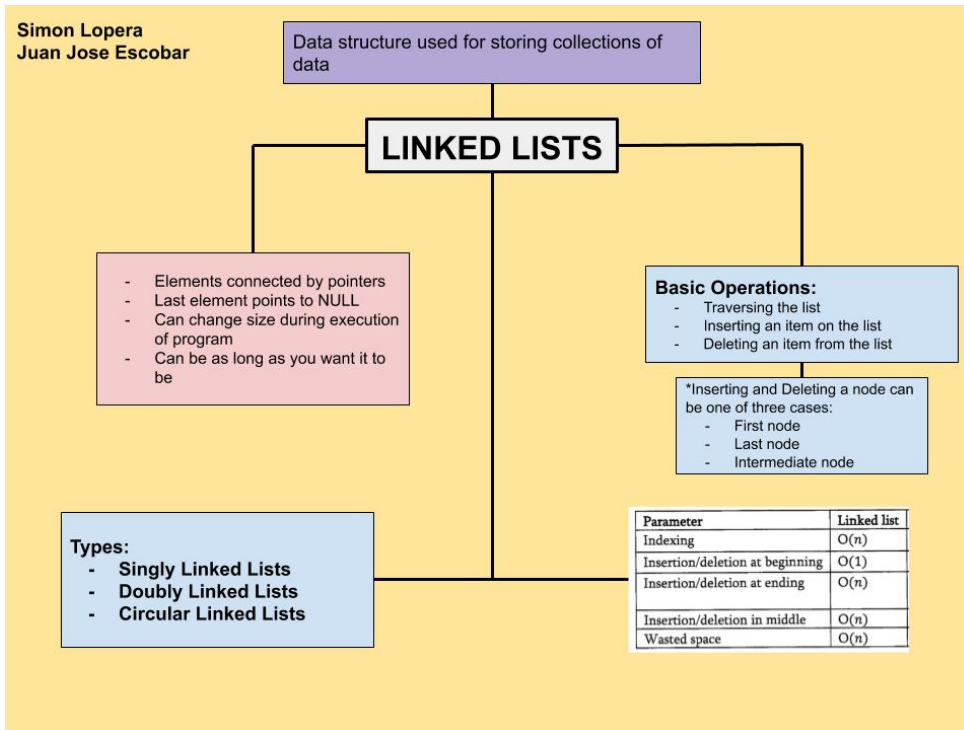
- 4.1 ac
- 4.2 opc
- 4.3
 - 4.3.1 b
 - 4.3.2 a
- 4.4
 - 4.4.1 `output.append(token)`
 - 4.4.2 b
- 4.5 a
- 4.6 b
- 4.7 not there
- 4.8 c
- 4.9 d
- 4.10
 - 4.10.1 c
 - 4.10.2 d
- 4.11 opcional
- 4.12
 - 4.12.1 ii
 - 4.12.2 i
- 4.13
 - 4.13.1 i
 - 4.13.2 i
- 4.14 iv

5) Recommended reading

ESTRUCTURA DE DATOS 1

Código ST0245

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