Laboratory practice No. 3: Linked List and Dynamic Arrays

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1 Report

i. For the code in 1.1 see [1].

ii. For the code in 2.1 see [2].

iii. Complexity:

i. Coords algorithm: The complexity of this algorithm is $O(n)$. Note that n in this algorithm is the amount of elements that the file given has; in other words, n means the number of lines of the file.

ii. BrokenKeyboard challenge (Beiju Text): In this challenge, we have that the complexity is also O(n), because it has to walk through all the string given, and both of the strings must have the same length, so n means the length of the strings.

2 Midterm Exam [3]

i. *.

  i. *b*) Suppose the lists are ordered. The algorithm generate a new list sorted with the elements of the previous two lists.

  ii. *b*) $O(n+m)$.

ii. *c*) $O(n)$.

iii. *.

  i. stack.pop().

  ii. $O(1)$.

iv. *a*) $[7, 8, 3, 1, 2, 9]$.

v. *.

vi. *.

vii. *d*) $O(1) \wedge O(n)$.

viii. *.

  i. *d*) $O(n)$.

  ii. *a*) 6.

  iii. $O(n)$.

ix. *.

  i. *c*) $O(\max(\text{list}) \cdot n^2)$.

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ii. *b*) $O(n)$.

x. *.

i. !s1.isEmpty().

ii. s1.pop().

iii. s2.pop().

xi. *.

i. *iii*) $O(n^2)$.

ii. *iv*) $O(n^3)$.

xii. *iii*) $2, 3, 4, 5$.

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References

[1] S. Álvarez and D. Madrid. (). For code 1.1, [Online]. Available: https://github.com/dmadridr/ST0245-002/blob/master/laboratorios/lab03/codigo/Java%20Language/Coords.java.

[2] ——, (). For code 2.1, [Online]. Available: https://github.com/dmadridr/ST0245-002/blob/master/laboratorios/lab03/codigo/Java%20Language/BrokenKeyboard.java.

[3] M. Toro, "Laboratorio Nro. 3 Listas Enlazadas y Vectores Dinámicos.", version 19., pp. 12–22, 2019. [Online]. Available: https://github.com/mauriciotoro/ST0245-Eafit/blob/master/laboratorios/lab03/ED1-Laboratorio3%20Vr%2011.0.pdf.

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