Laboratory practice No. X: Complete the title of the laboratory practice

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3) Practice for final project defense presentation

3.1 To implement an optimal solution for this problem it was found that a binary tree wouldn't be able to solve the problem due to the uncertainty of the number of sons each node has, thus an n-ary tree was implemented. It has an expected complexity of O(n^2) given it has a for loop (O(n)) with a recursive call to (O(n)) tested.

3.2 There's no other genealogical tree would solve the problem with a more efficient search and insertion time because as soon as the as you tried a tree with a defined number of sons then the problem would still remain with the unknown quantity of sons.

3.3 The binary tree is created given the "preOrden" of the tree nodes, thus it's just a matter of searching where each node should be placed, for this recursion is used to search through the nodes and find where each node should be placed. Being the left side the one used the "son" with a lower value than the "parent" node and the right side for higher values. PosOrden runs through the tree from left to right printing the lower values first.

3.4 For insertion and search in the binary tree the complexity is O(logn) if the tree is a "well" distributed. If not, then the complexity can be up to even O(n). PosOrden however has a complexity of O(n).

3.5 n refers to the number of nodes in the tree.

4) Practice for midterms

4.1

4.1.1 *B*
4.1.2 *D*

4.2 *C*

4.3

4.3.1 False

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4.3.2 0
4.3.3 a.left, suma - a.left.data
4.3.4 a.right, suma - a.right.data

4.4
4.4.1 C
4.4.2 A
4.4.3 D
4.4.4 A

4.5
4.5.1 p == toInsert
4.5.2 toInsert > p

4.6
4.6.1 D

4.7
4.7.1 A
4.7.2 B

4.8

4.9 A

4.10 No

4.11
4.11.1 A
4.11.2 A
4.11.3 No

4.12
4.12.1 I
4.12.2 B
4.12.3 B

4.13
4.13.1 Raiz.id
4.13.2 A

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