3) (5 pts) ALG (Tries)

Suppose we insert the following strings into a trie:

    cantaloupe
    loop
    lop
    lobby
    cantilever

(a) How many nodes would the resulting trie contain, including the root node?

   25 (Grading: 2 pts, 1 pt for answer 23, 24,26,27)

(b) What integer value would we store in the *count* variable in the **root node** of the resulting trie? Note that the count variable should be set to the number of valid words with end nodes stored within that sub-trie.

   5 (Grading: 1 pt all or nothing

(c) If we subsequently deleted both "lobby" and "loop" from the trie, how many total nodes would be deallocated over the course of those two deletion operations?

   5 (Grading: 2 pts, 1 pt if put 6, 7 or 8)

Computer Science Foundation Exam

August 27, 2023

Section C

ALGORITHM ANALYSIS

NO books, notes, or calculators may be used,
and you must work entirely on your own.

SOLUTION

Question #	Max Pts	Category	Score
1	10	ANL	
2	10	ANL	
3	5	ANL	
TOTAL	25		

You must do all 3 problems in this section of the exam.

Problems will be graded based on the completeness of the solution steps and **not** graded based on the answer alone. Credit cannot be given unless all work is shown and is readable. Be complete, yet concise, and above all **be neat**. For each coding question, assume that all of the necessary includes (stdlib.h, stdio.h, math.h, string.h) for that particular question have been made.