

Cs352 — Homework #5

Tries

February 26, 2004

Due Time: 3/5/04 (9:00PM).

Turnin ID: *cs352_asg5*

Submission in pairs is allowed.

In this homework you need to implement the trie, as introduced in class. Your program needs to accept the following commands given by the users, for a set S of words, over the alphabet $\Sigma = \{a, b, \dots, a + N\}$. Here N is a constant (specified by a `#define` command). So for example, if $N = 3$ (as in the example program), then $\Sigma = \{a, b, c, d\}$. Each command is followed by a Carriage-Return.

- c** — Create an empty trie for S . Here we assume that S is empty (i.e., contains no elements). After each command is entered, the program should return with the corresponding prompt, as does the example program in the course directory.
- i w** — Insert the word w into the trie for S . For example, **i hello** should insert the word “hello” into S .
- d w** — Delete the word w from the trie for S . For example, **d hello** should delete the word “hello” from S . (make sure to free the unused cells).
- p** print all words currently stored in the tree, in lexicographically increasing order (again — check the example program for the exact format).

Attempting to insert an existing word, or attempt to delete a non-existing word, calling an undefined command, or specifying a word that contains a letter which is out of range, should cause an error message — see the example program.

In the ‘insert’ and ‘delete’ commands, you can assume that there is a single blank character separating the command from the word.

The program should halt if the “malloc” command returns NULL. It should print an error message (you can pick any meaningful message).