Patrick Ray

Programming Assignment 5

Dr. H

Info 211

BST Spell Checker

Description

This assignment was to implement the spell checker program and change the code so instead of using a linked list we would use a binary search tree instead. Using the word parser, the binary search tree uses its array of 26 for every letter in the alphabet and places the words it finds in the search tree based on the letter the word starts with.

Observation

There weren't any big problems to overcome in this assignment. All that needed to be done was to change it from a linked list to a binary search tree and replace the add and contains methods to search and insert. When the program was finished, there were some noticeable differences from the last spell checker. The binary search tree spell checker was better in time efficiency. Since the linked list is singular and cannot move backwards, the binary search tree would be better. Not only that but the comparisons went down a lot in the binary search tree. The linked list has the time complexity of O(N) where the time complexity of the binary search tree is log(N).

```
run:
words found: 914054.0
words not found: 64537.0
Average comparisons:  16.35637500629066
Average comparisons not found: 11.490199420487473
BUILD SUCCESSFUL (total time: 3 seconds)
```