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Lab Report

Lab 3 Option B

Introduction

In this lab we were suppose to use avl trees and a red and black tree and implement some words into the trees. During this lab there was two methods that were supposed to be done the max anagrams and print anagrams.

Proposed Solution design and implementation

The way I started to do this lab was first start with the Node class. In my node class what I did was implement the item which is the string and the height of the tree that will be used in the avl tree and the red and black tree. The I started the method get height which this will update the height as I start putting in the strings or words in the tree this will updates the nodes or the tree. As I also put in into this avl tree we have to rebalance everything to make sure its property stays so that why I use the method avl balance tree. This will balance the right side and the left side of each parent that is being implemented depending on the length of the word. When balancing the tree there is also some methods that were used in this which are the rotation methods or the right side and the left side of the avl tree. Then I started with the red and black tree has some similarities with the avl tree. In the red and black tree I used the methods tree updates the height which as you update the tree you have to updates the tree so that its balanced. I also had the insert method and the rotate right and rotate left which is part of the balance situation where it can balance the tree depending on the words that its inputting. In the red and black tree there are also colors involved which are part of the inserting method where it balances and changes the color of the word in this case. The I used the binary search tree method to implement the avl tree to make the tree for the avl tree. In the method print anagrams is here most of the work is done where it has to sort the words for the tree. Finally in my main I asked the user to choose between a avl tree and the red and black tree and print out the multiple solutions of the word.

Experimental results

Although I didn't achieve the real solution I would say an experimental method would be implementing a different text file with id numbers or names from a list of students. So technically just changing you r text file.

Conclusion

In the progress of making the co de I learned how to properly use a avl tree and a red and black tree. I also learned how the implementations of string methods work and how the trees re- balance depending on the tree and the data that is going into the tree. In my code I had lots of conflicts and wasn't able to achieved the complete solution to this lab but overall learned the main functions of the tree.

Appendix

https://github.com/abpena/abpena