project 1

English word frequency list

Data Structures

20th October,2021

1 Background

BSTs are good data structures for concepts like *SET* s or *MAP* s. In this course, you will learn two very important BSTs, *RB-Tree* and *B-Tree*. The former one is the backbone for std::map of C++, while the later one is a key data structure used in databases.

2 Your Mission

You mission is to design and implement a **English word information frequency list** with the trees. You program should be able to store informations in-memory and respond to user's commands. The pattern of a record is `word-(part of speech,frequency)`,for instance `cat-(N,10000)`.

3 Percentage Point

Your program should be able to react to

	Item	score	Description
Red-Black tree(45)	Initialization	5	Initialize the tree with init.txt
	Delete by command	8	Delete the key-value pair indexed by key.If the key doesn't exist, show the error message like "key x missing"
	Delete by file	4	Delete the tree with delete.txt
	Insert by command	8	Insert a key-value pair into your tree, if the key already exists, show the error message like "key x conflict"
	Insert by file	4	Insert the tree with insert.txt
	update by command	5	update a key-value pair if key already exists otherwise insert the key-value pair as a new one
	Search	6	show the value in the pair indexed by key,if the key doesn't exist,show the error message as "key x missing"
	Dump	5	show all the key -value pairs, these pairs should appear in key's lexicographical order.

B-tree(45)	Initialization	5	The same as red-black tree
	Delete by command	8	
	Delete by file	4	
	Insert by command	8	
	Insert by file	4	
	update by command	5	
	Search	6	
	Dump	5	
Document		5	Your documentations should at least contain your design details of your program and your thoughts about the project.
Coding style		5	Easier to read
Bouns		/	Other thing like a friendly UI,cache for faster searching,etc. The scores you will get will be decided by interview.**While your whole score will not surpass 100.**

Requirements

- You should implement the RB-tree and B-tree in two sepearate files.
- Don't change the file we offered(init.txt,insert.txt,delete.txt)
- **DDL:11.30 23:59**
- Upload both the file and document to the e-learning by name_studentId_pj1.zip

- Don't copy the codes by either classmates or from the Internet.0 point for both the plagiarist and plagiarized ones.