Data Structure Lab. Final Project Report

My project has 4 part.It includes searching , hashing , sorting and listing part. I used 1.000,10.000.100.000 passwords text file while writing code.

In the first part I started with searching , first of all i didn't use any linked list or struct array or something like that . I thought that i can search a key in the text. Don't need to use another objects.I created a char array, while loop and i used strcmp function in order to compare key and word which in the text. I also used fscanf function to assign a string into char array.Then when you enter a key ,function is not making an effort and doesn't use memory frequently.So in terms of time ,memory, productivity, it gives importance.

In the second part ,i created a hashtable and basic structer array. Firstly, all passwords in the text are assigned into struct array . After that , i created a hashvalue function in order to place strings into hashtable. After i created hashvalue function , the strings which in the struct array were placed in the hashtable in order. After hashing, i counted collision and writed on the screen. In the last step , i created basic sequantial searching for hashing. When you enter a key if it is in the list , you can see how many collision has, or else you will see a warning "Key is not in the list!".

In the third part , Sorting part , firstly i created a linked list then the strings from text are assigned into that linked list.Then in the sorting part ,i used bubble sort because if you are using big data , buble sort is a good choice for memory efficiency . Designating and writing are more easer than other sorting algorithms . It takes more times than others but for the memory efficieny it's suitable.

In the fourth part, again i created a new linked list but this time it includes also score . Then the strings from text are assigned into that linked list , After that in order to assign to score , i created a score function , this function taking the strings from node and according to the rules in the function ,returning their scores . Score means that multiplication of strings' lenght and letters . Score represents the strenght of the strings (passwords). After the scores are assigned , i used bubble sort again in order to show the top 10 strongest and most weakest password. In the buble part strings' scores are sorted.

In the main part a basic menu is designated and all functions are called one by one . Tablesize is determined as 2671 because when i use less than 2671, count of collision is increasing . The best number for my function is 2671.

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