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CS 163: Data Structures

Design Write-up

The purpose of this program was to simulate an oscars voting poll where the user would nominate their own actors for a given award and also supply the amount of votes. This program would prompt the user to enter in a nominee to add to the bst and also ask for the correspond number of votes based upon the decision of the user. The bst structure used her is a good way to store data based on the value of the data where searching later results in logarithmic performance.

The data structure used in this program is a good fit for the requirements of the program specifications. The binary search tree utilized in this program was a good fit as the main structure to handle the input from the user and to manage the data obtained. I think that the binary search tree is a useful data structure in order to store data since it is manageable and an efficient way to store elements since one side of the tree is less than the other, the data being stored is efficiently placed for when a search is to be taken place, the tree can be traversed in a way more efficient than a linear linked list because the data can be split in half, and only traverse half the data rather than go through the entire list to find your element.

I am not sure if a better data structure could be used to at this point to solve this problem more efficiently since i am aware of more advanced data structures, but the most recent one i am aware of is the binary search tree. I think that this is an efficient approach to handle the problem given and that this abstraction will suffice ignored to solve the problem at given hand. I think that maybe if a collection of data structures were used such as various linked lists, hash abstraction, and maybe a stack or queue in various orderings, could potentially cut down on the complexity of the code and make it shorter.

The way I approached this assignment was very closely related to the structure of the Lab 7 and used the functions closely related to that lab itself. I used the same templates and procedures that were in the pre labs in order to solve this problem. Although I am aware of different alternatives which would have made this assignment easier to work with and may cut down on some redundant coding that I might have place in my code. The way I approached this program was to find an algorithm to find a way to insert into a bst . I tried my best to follow this algorithm and to keep the code as short as possible.

What was no so efficient about my program was the way I couldn’t get the all of the functions into the cpp file and instead had some of the functions in main.cpp file. I tried to separate the functions and place them into the cpp file but when I did so the program wouldn’t work any longer. This is something that if I had more time to work on the problem would have been solved but I couldn’t figure it out as the deadline approached. If I had more time to work on this program I would have written the code in a way where all of the functions were written in one cpp file rather having to implement some of the files in the main file. I think that this approached would have kept the program cleaner and more efficient.