**Programming Project Report**

Name: SANKALP PANDEY

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**Academic Integrity Statement:** I pledge that I have neither given nor received unauthorized help on this programming assignment.

**Problem Statement:**

The goals of this assignment were to practice working with trees. The program inputs were the menu options, and the books.csv file. Another input were the parameters for the insert function. The outputs were the contents of the tree, tree size, tree height. The error handling required was for the menu selection and making sure that the program notified the user that a book wasn’t found if it wasn’t there.

**Design:**

I used a tree created with a linked list. For the most part, the program just focused on traversing through the tree and balancing when something was changed. The pros of this were that it was relatively simple to implement, and the cons were that I had to use a lot of documentation to adapt the code for an int to a Node.

**Implementation:**

I started with using my old Book class. Next, implemented the Node class. The brunt of the work was in the Tree class. I worked on each function from the menu one at a time and made sure it worked in main. I worked on loading it and printing it. Then search. Then inserting and deleting.

**Testing:**

I used the normal inputs like 1, 2, 3, 4, 5, 6 for the menu and then negatives and integers greater than 6 and made sure it worked as intended. I made it to where the program notified the user that a book wasn’t found if it wasn’t there. Everything worked as expected.

Sample:

HOMEWORK 7

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1) Load

2) Search

3) Insert

4) Delete

5) Print

6) Quit

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>>2

Enter book title to search: League of Legends

Book not found.

HOMEWORK 7

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1) Load

2) Search

3) Insert

4) Delete

5) Print

6) Quit

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>>4

Enter book title to delete: League of Legends

Book not found.

HOMEWORK 7

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1) Load

2) Search

3) Insert

4) Delete

5) Print

6) Quit

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>>6

Quitting.

**Conclusions:**

The overall result of the assignment was that I gained experience working with a binary search tree. It was a success. I would do it the dame way next time, I think the implementation process was optimized because I got to test it as I progressed. The project took around 3 hours.