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**ROLL NO. :** A-61

**PRACTICAL NO. B1**

**CODE:**

#include <iostream>

#include <string>

using namespace std;

struct Node {

string label;

int childCount;

Node\* children[10];

Node() : childCount(0) {

for (int i = 0; i < 10; i++) {

children[i] = NULL;

}

}

};

class BookTree {

public:

BookTree() : root(NULL) {}

void createTree();

void displayTree();

private:

Node\* root;

};

void BookTree::createTree() {

if (root != NULL) {

cout << "Book tree already exists. Please delete it before creating a new one." << endl;

return;

}

root = new Node;

cout << "Enter name of book: ";

cin.ignore();

getline(cin, root->label);

cout << "Enter number of chapters in book: ";

cin >> root->childCount;

cin.ignore();

for (int i = 0; i < root->childCount; i++) {

root->children[i] = new Node;

cout << "Enter the name of Chapter " << i + 1 << ": ";

getline(cin, root->children[i]->label);

cout << "Enter number of sections in Chapter " << root->children[i]->label << ": ";

cin >> root->children[i]->childCount;

cin.ignore();

for (int j = 0; j < root->children[i]->childCount; j++) {

root->children[i]->children[j] = new Node;

cout << "Enter Name of Section " << j + 1 << ": ";

getline(cin, root->children[i]->children[j]->label);

}

}

}

void BookTree::displayTree() {

if (root == NULL) {

cout << "Book tree does not exist. Please create one before displaying it." << endl;

return;

}

cout << "\n-----Book Hierarchy---" << endl;

cout << "Book title: " << root->label << endl;

for (int i = 0; i < root->childCount; i++) {

cout << "Chapter " << i + 1 << ": " << root->children[i]->label << endl;

cout << "Sections: " << endl;

for (int j = 0; j < root->children[i]->childCount; j++) {

cout << root->children[i]->children[j]->label << endl;

}

}

cout << endl;

}

int main() {

int choice;

BookTree bookTree;

while (true) {

cout << "-----------------" << endl;

cout << "Book Tree Creation" << endl;

cout << "-----------------" << endl;

cout << "1. Create" << endl;

cout << "2. Display" << endl;

cout << "3. Quit" << endl;

cout << "Enter your choice: ";

cin >> choice;

cin.ignore();

switch (choice) {

case 1:

bookTree.createTree();

break;

case 2:

bookTree.displayTree();

break;

case 3:

cout << "Thanks for using this program!!!" << endl;

return 0;

default:

cout << "Wrong choice!!!" << endl;

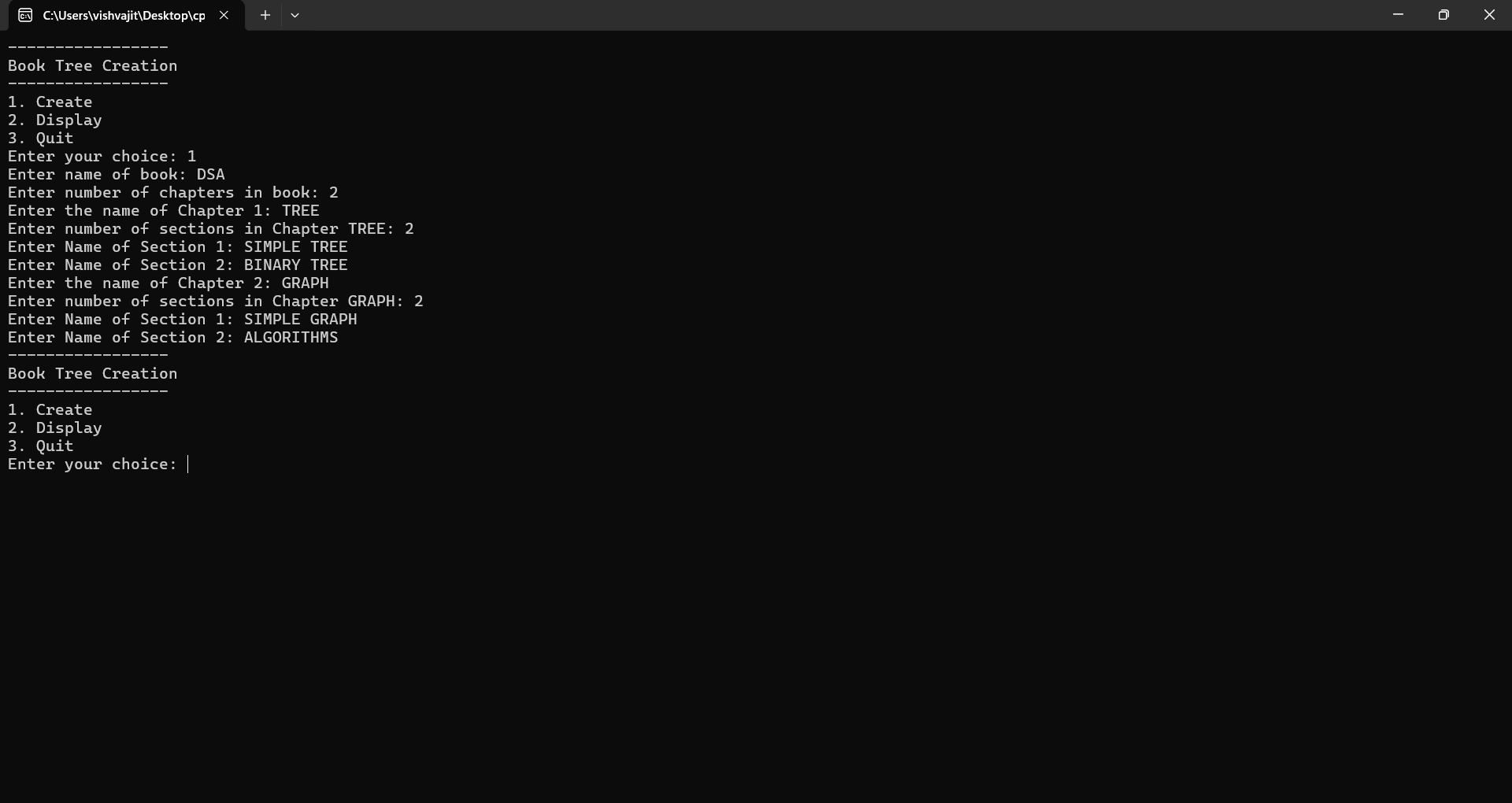
}

}

return 0;

}

**OUTPUT:**

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