Assignment No. 3

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Programme:

```
#include <iostream>
#include <string.h>
using namespace std;

struct node
{
   string label;

   int ch_count;
   struct node *child[10];
} * root;

class GT
{
public:
   void create_tree();
   void display(node *r1);

   GT()
   {
      root = NULL;
   }
};
```

```
void GT::create_tree()
{
   int tbooks, tchapters, i, j, k;
   root = new node;
   cout << "Enter name of book : ";
   cin.get();
   getline(cin, root->label);
   cout << "Enter number of chapters in book : ";
   cin >> tchapters;
   root->ch_count = tchapters;
   for (i = 0; i < tchapters; i++)
   {
      root->child[i] = new node;
      cout << "Enter the name of Chapter " << i + 1 << " : ";
      cin.get();
      getline(cin, root->child[i]->label);
      cout << "Enter number of sections in Chapter : " << root->child[i]->label << " : ";
      cin >> root->child[i]->ch_count;
      for (j = 0; j < root->child[i]->ch_count; j++)
      {
         root->child[i]->child[j] = new node;
         cout << "Enter Name of Section " << j + 1 << " : ";
         cin.get();
         getline(cin, root->child[i]->child[j]->label);
      }
   }
}

void GT::display(node *r1)
{
   int i, j, k, tchapters;
   if (r1 != NULL)
   {
```

```
        cout << "\n-----Book Hierarchy---";
        cout << "\n Book title : " << r1->label;
        tchapters = r1->ch_count;
        for (i = 0; i < tchapters; i++)
        {

            cout << "\nChapter " << i + 1;
            cout << " : " << r1->child[i]->label;
            cout << "\nSections : ";
            for (j = 0; j < r1->child[i]->ch_count; j++)
            {
                cout << "\n"<< r1->child[i]->child[j]->label;
            }
        }
    }
    cout << endl;
}

int main()
{
    int choice;
    GT gt;
    while (1)
    {
        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;
        switch (choice)
```

```
    {
    case 1:
       gt.create_tree();
    case 2:
       gt.display(root);
       break;
    case 3:
       cout << "Thanks for using this program!!!";
       exit(1);
    default:
       cout << "Wrong choice!!!" << endl;
    }
  }
  return 0;
}
```

Output: