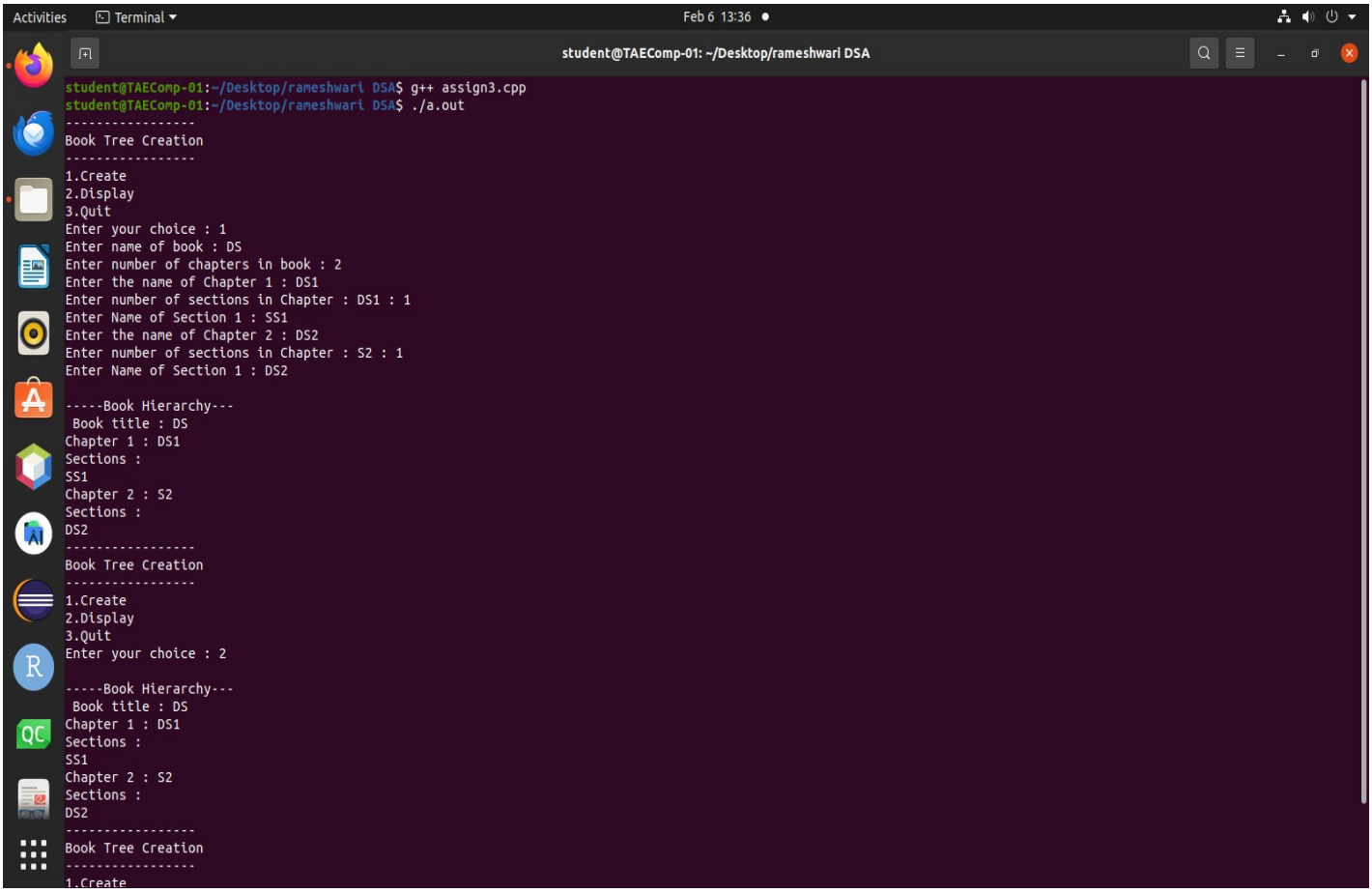
Assignment 3

Code:

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

struct node
{
   string label;
   //char label[10];
   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:


Activities
Terminal
Feb 6 13:36
student@TAEComp-01: ~/Desktop/rameshwari DSA
student@TAEComp-01:~/Desktop/rameshwari DSA$ g++ assign3.cpp
student@TAEComp-01:~/Desktop/rameshwari DSA$ ./a.out

Book Tree Creation

1.Create
2.Display
3.Quit
Enter your choice : 1
Enter name of book : DS
Enter number of chapters in book : 2
Enter the name of Chapter 1 : DS1
Enter number of sections in Chapter : DS1 : 1
Enter Name of Section 1 : SS1
Enter the name of Chapter 2 : DS2
Enter number of sections in Chapter : S2 : 1
Enter Name of Section 1 : DS2
-----Book Hierarchy---
Book title : DS
Chapter 1 : DS1
Sections :
SS1
Chapter 2 : S2
Sections :
DS2

Book Tree Creation

1.Create
2.Display
3.Quit
Enter your choice : 2
-----Book Hierarchy---
Book title : DS
Chapter 1 : DS1
Sections :
SS1
Chapter 2 : S2
Sections :
DS2

Book Tree Creation

1.Create