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Assignment No. 3

A book consists of chapters, chapters consists of sections & sections consist of subsection. Construct a tree and print the nodes.

General Tree:- General tree is a tree in which each node can have either one or many child nodes.

Functions

* void create_tree() :- This function is used to create ~~nodes~~ root
root = new node(); and assign a label and the member of chapter it contains.
cin >> root → label;
cin >> ch_count = tchapters;
Using a for loop, we can assign pointer to each chapter that we create. Similarly, count the number of sections by taking the input from the user.
root → child[i] → child[j] = new node

* void_display(node * r,) :- This function takes the root pointers & displays the contents of the book from root node ie. label or name to the sub_sections of the node. ie leaf node.

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Using for loops we can display the sections of the book.

```
for(j=0, j<r, -> child[i] -> ch_count ; j++)
{
  cout << r, -> child[i] -> child[j] -> label;
}
```

We print the name of the sections using the above loop.

Root node :-

```
struct node
{
 char label[10]
 int ch_count;
 struct node * child[10];
} * root;
```

First assign root = NULL

```
 root = new node();
 cout << "Enter name of book";
 cin >> root -> label
```

Child node :- The child node is also created using dynamic memory allocation.

```
root -> child[i] = new_node;
```

Here child[i] is the address folder of the child & its name is given using root -> child[i] -> label.

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* Applications of Trees

1) Storing naturally heirarchial study :- Trees are used to store the data in heirarchial ~~study~~ structure.

2) Heap :- It is also a data tree structure implement using arrays.

3) Facebook

4) GPS networking system.