#include<iostream>

#include<string.h>

using namespace std;

struct book\_node

{

char title[20];

int chapt\_count;

struct book\_node \*down[10];

}\*root;

class book

{

public:

void create\_tree();

void display(book\_node \*r);

book()

{

root=NULL;

}

};

void book::create\_tree()

{

int i,j,k;

root=new book\_node;

cout<<"Enter name of the book: "<<endl;

fflush(stdin);

gets(root->title);

cout<<"Enter total number of chapters in the book: "<<endl;

cin>>root->chapt\_count;

// cout<<root->chapt\_count;

for(i=0;i<root->chapt\_count;i++)

{

root->down[i]=new book\_node;

cout<<"Enter Name for chapter "<<i+1<<endl;

fflush(stdin);

gets(root->down[i]->title);

cout<<"Enter no. of sections in "<<root->down[i]->title<<endl;

cin>>root->down[i]->chapt\_count;

cout<<"Enter details for chapter " <<i+1<<endl;

for(j=0;j<root->down[i]->chapt\_count;j++)

{

root->down[i]->down[j]=new book\_node;

cout<<"Enter title for section "<<j+1<<endl;

fflush(stdin);

gets(root->down[i]->down[j]->title);

cout<<"Enter no. of sub sections in section "<<j+1<<endl;

cin>>root->down[i]->down[j]->chapt\_count;

for(k=0;k<root->down[i]->down[j]->chapt\_count;k++)

{

root->down[i]->down[j]->down[k]=new book\_node;

cout<<"Enter title for subsection "<<k+1<<endl;

fflush(stdin);

gets(root->down[i]->down[j]->down[k]->title);

}

}

}

}

void book::display(book\_node \*r)

{ int i,j,k;

if(r!=NULL)

{

cout<<"\*index\*"<<endl;

cout<<"Book Title: "<<r->title<<endl<<endl;

for(i=0;i<r->chapt\_count;i++)

{ cout<<"\t";

cout<<"Chapter " <<i+1<<": "<<r->down[i]->title<<endl;

for(j=0;j<r->down[i]->chapt\_count;j++)

{

cout<<"\t\t";

cout<<"Section "<<j+1<<": "<<r->down[i]->down[j]->title<<endl;

for(k=0;k<r->down[i]->down[j]->chapt\_count;k++)

{ cout<<"\t\t\t";

cout<<"Sub Section "<<k +1<<": "<<r->down[i]->down[j]->down[k]->title<<endl;

}

}

}

}

}

int main()

{

int choice;

book book;

while(1)

{

cout<<"Menu:"<<endl;

cout<< "Book tree structure"<<endl;

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

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

cout<<"3. Exit"<<endl;

cout<< "Enter your choice"<<endl;

cin>>choice;

switch(choice)

{

case 1:

book.create\_tree();

break;

case 2:

book.display(root);

break;

case 3:

exit(0);

}

}

return 0;

}

/\*output :

Menu:

Book tree structure

1. Create tree

2. Display tree

3. Exit

Enter your choice

1

Enter name of the book:

DSA

Enter total number of chapters in the book:

2

Enter Name for chapter 1

Intro

Enter no. of sections in Intro

2

Enter details for chapter 1

Enter title for section 1

probing

Enter no. of sub sections in section 1

2

Enter title for subsection 1

linear probing

Enter title for subsection 2

quadratic probing

Enter title for section 2

hashing

Enter no. of sub sections in section 2

3

Enter title for subsection 1

double hash

Enter title for subsection 2

rehashing

Enter title for subsection 3

extendible hashing

Enter Name for chapter 2

trees

Enter no. of sections in trees

1

Enter details for chapter 2

Enter title for section 1

binary tree

Enter no. of sub sections in section 1

2

Enter title for subsection 1

full binary tree

Enter title for subsection 2

complete binary tree

Menu:

Book tree structure

1. Create tree

2. Display tree

3. Exit

Enter your choice

2

\*index\*

Book Title: DSA

Chapter 1: Intro

Section 1: probing

Sub Section 1: linear probing

Sub Section 2: quadratic probing

Section 2: hashing

Sub Section 1: double hash

Sub Section 2: rehashing

Sub Section 3: extendible hashing

Chapter 2: trees

Section 1: binary tree

Sub Section 1: full binary tree

Sub Section 2: complete binary tree

Menu:

Book tree structure

1. Create tree

2. Display tree

3. Exit

Enter your choice

3\*/