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Assignment-3

Input Code:

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

struct node {
char name[20];

    node *next;
node *down;
int flag; };

class Gll
{ char ch[20];
    int n,i;
    node *head=NULL,*temp=NULL,*t1=NULL,*t2=NULL;
public:
    node *create();
void insertb();
void insertc();
void inserts();
void insertss();
void displayb();
};
node *Gll::create()
{ node *p=new(struct node); p-
>next=NULL; p->down=NULL;     p-
>flag=0;    cout<<"\n enter the
name";      cin>>p->name;
return p;
}

void Gll::insertb()
{ if(head==NULL)
       { t1=create();
       head=t1; } else
       { cout<<"\n book exist";
       }
}
void Gll::insertc()
{
       if(head==NULL)
       { cout<<"\n there is no book";
       }
       else
       { cout<<"\n how many chapters you want to insert";
             cin>>n; for(i=0;i<n;i++)
             { t1=create();
             if(head->flag==0)
             {
```

```
                  head->down=t1;   head->flag=1;
            }
      else        {           temp=head;
temp=temp->down;        while(temp-
>next!=NULL)
                  temp=temp->next;
temp->next=t1;
            }
            }
      }
} void

Gll::inserts()

{ if(head==NULL)
      { cout<<"\n there is no book";
      }
      else
      { cout<<"\n Enter the name of chapter on which  you want to enter the
section";
            cin>>ch;
temp=head;
            if(temp->flag==0)
            {
                  cout<<"\n their are no chapters on in book";
      }
else        {
                  temp=temp->down;
            while(temp!=NULL)
            {
                  if(!strcmp(ch,temp->name))
                  {
            cout<<"\n how many sections you want to enter";
cin>>n;                 for(i=0;i<n;i++)
            {                     t1=create();
if(temp->flag==0)
                              {
            temp->down=t1;                temp-
>flag=1;                cout<<"\n******";
t2=temp->down;
                  }
      else              {

                                    cout<<"\n#####";
                                    while(t2->next!=NULL)
                                    {
                                          t2=t2->next;
                                    }
                                    t2->next=t1;
                  }
      }                 break;
      }
                    temp=temp->next;

            }
            }
      }
} void

Gll::insertss()
```

```
{ if(head==NULL)
       { cout<<"\n there is no book";
       }
       else
       { cout<<"\n Enter the name of chapter on which  you want to enter the
section"; cin>>ch; temp=head;
             if(temp->flag==0)
             { cout<<"\n their are no chapters on in book";
             }
             else
             { temp=temp->down;
                   while(temp!=NULL)
                   { if(!strcmp(ch,temp->name))
                         { cout<<"\n enter name of section in which you want
to enter the sub section"; cin>>ch;

                               if(temp->flag==0)
                               { cout<<"\n their are no sections ";
                               }
                               else
                               { temp=temp->down;
                                     while(temp!=NULL)
                                     { if(!strcmp(ch,temp->name))
                                           { cout<<"\n how many subsections
you want to enter";
                                                 cin>>n;
                                                 for(i=0;i<n;i++) {
                                                 t1=create(); if(temp-
                                                 >flag==0) {temp-
                                                 >down=t1; temp->flag=1;
cout<<"\n******";
                                                       t2=temp->down;
                                                       }
                                                       else
                                                       { cout<<"\n#####";
                                                             while(t2->next!
=NULL)

                                                       { t2=t2->next;
                                                       }
                                                       t2->next=t1;
                                                 }
                                           }
                                           break;
                                     }
                                     temp=temp->next;
                               }
                         }
                         temp=temp->next;
                   }
             }
       }
}

void Gll::displayb()
{
if(head==NULL)
{ cout<<"\n book not exist";
}
else
```

```
{ temp=head;
      cout<<"\n NAME OF BOOK:  "<<temp->name; if(temp-
      >flag==1)
      { temp=temp->down;
            while(temp!=NULL)
            { cout<<"\n\t\tNAME OF CHAPTER:  "<<temp->name;
                  t1=temp; if(t1->flag==1)
                  { t1=t1->down;
                        while(t1!=NULL)
                        { cout<<"\n\t\t\t\tNAME OF SECTION:  "<<t1->name;
                              t2=t1; if(t2->flag==1)
                              { t2=t2->down;
                                    while(t2!=NULL)
                                    {   cout<<"\n\t\t\t\t\t\tNAME   OF
SUBSECTION:  "<<t2->name;
                                          t2=t2->next;
                                    }
                              } t1=t1-
                              >next;
                        }
                  }
                  temp=temp->next;
            }
      }
} } int
main() {
Gll g;   int x;
            while(1)
{
cout<<"\n\n enter your choice";
            cout<<"\n 1.insert book";
cout<<"\n 2.insert chapter";              cout<<"\n
3.insert section";                  cout<<"\n 4.insert
subsection";                  cout<<"\n 5.display
book";                  cout<<"\n 6.exit";
                        cin>>x;
                  switch(x)
                  {
                              case 1:          g.insertb();
        break;                case 2:          g.insertc();
        break;                case 3:          g.inserts();
       break;                case 4:          g.insertss();
```

```
        break;                  case 5:          g.displayb();
            break;                      case 6:        exit(0);

                    }
             }
             return 0;
}
```

Output:

```
 enter your choice
1.insert book
 2.insert chapter
 3.insert section
 4.insert subsection
 5.display book
6.exit1  enter the
nameDSA


 enter your choice
1.insert book
 2.insert chapter
 3.insert section
 4.insert subsection
 5.display book  6.exit2  how many
chapters you want to insert3  enter
the nameHashing  enter the nameGraph
enter the nameTree


 enter your choice
1.insert book
 2.insert chapter
 3.insert section
 4.insert subsection
 5.display book
 6.exit3
 Enter the name of chapter on which  you want to enter the sectionHashing
how many sections you want to enter1  enter the namecollisionresolution
******

 enter your choice
1.insert book
 2.insert chapter
 3.insert section
 4.insert subsection
 5.display book
 6.exit3
 Enter the name of chapter on which  you want to enter the sectionTree
how many sections you want to enter1  enter the nameTypes
******

 enter your choice
1.insert book
 2.insert chapter
 3.insert section
 4.insert subsection
 5.display book
 6.exit4
```

Enter the name of chapter on which you want to enter the sectionHashing

enter name of section in which you want to enter the sub

sectioncollisionresolution how many subsections you want

to enter2 enter the nameopen

****** enter the
nameclose

#####

enter your choice
1.insert book
2.insert chapter
3.insert section
4.insert subsection
5.display book
6.exit4

Enter the name of chapter on which you want to enter the section

Tree enter name of section in which you want to enter the sub

sectionTypes how many subsections you want to enter2 enter the

nameGenralTree

******
enter the nameBinaryTree

#####

enter your choice
1.insert book
2.insert chapter
3.insert section
4.insert subsection
5.display book
6.exit4

Enter the name of chapter on which you want to enter the sectiongraph
enter your choice 1.insert book
2.insert chapter
3.insert section
4.insert subsection
5.display book
6.exit3

Enter the name of chapter on which you want to enter the sectionGraph

how many sections you want to enter1 enter the nameTypes

******

enter your choice
1.insert book
2.insert chapter
3.insert section
4.insert subsection
5.display book
6.exit5

```
NAME OF BOOK:  DSA
           NAME OF CHAPTER:  Hashing
                       NAME OF SECTION:  collisionresolution
                                   NAME OF SUBSECTION:  open
                                   NAME OF SUBSECTION:  close
           NAME OF CHAPTER:  Graph
                       NAME OF SECTION:  Types
           NAME OF CHAPTER:  Tree
                       NAME OF SECTION:  Types
                                   NAME OF SUBSECTION:  GenralTree
                                   NAME OF SUBSECTION:  BinaryTree

 enter your choice
1.insert book
 2.insert chapter
 3.insert section
 4.insert subsection
 5.display book
 6.exit
```