#include <iostream>

#include <fstream>

#include <cstdlib>

#include <string.h>

using namespace std;

void intro();

void main\_setup();

void add\_book();

void edit\_book();

void delete\_book();

void search\_book();

void add\_library\_user();

void edit\_library\_user();

void delete\_library\_user();

void search\_library\_user();

void issue\_book();

void delete\_issued\_book();

void back\_up();

struct book

{

   char book\_name[100];

   char ISBN[100];

   char author\_name[100];

   char publisher\_name[100];

   int no\_of\_copies;

   string date\_of\_issue;

};

struct user

{

   int library\_id;

   char first\_name[100];

   char last\_name[100];

   string d\_o\_b;

   char identity[100];

};

int main()

{

    main\_setup();

    return 0;

}

void intro()

{

    system("cls");

    system("color 3f");

    cout << endl << endl ;

    cout << "\t\t----------------------------------------------------------------------------------\n" ;

    cout << "\t\t:                                                                                :\n" ;

    cout << "\t\t--------------#         UOS :  Library Management System          #---------------\n" ;

    cout << "\t\t:                                                                                :\n" ;

    cout << "\t\t----------------------------------------------------------------------------------\n" ;

    cout << endl << endl;

}

void main\_setup()

{

    system ("cls");

    system ("color 30");

    cout << endl << endl ;

    cout << "\t\t----------------------------------------------------------------------------------\n" ;

    cout << "\t\t:                                                                                :\n" ;

    cout << "\t\t--------------#         UOS :  Library Management System          #---------------\n" ;

    cout << "\t\t:                                                                                :\n" ;

    cout << "\t\t----------------------------------------------------------------------------------\n\n" ;

    cout << "            Press option key to activate the following function\n" << endl ;

    cout << "\t(0). Add New Book\n\t(1). Edit Book\n\t(2). Delete Book\n\t(3). Search Book\n\t(4). Add Library User\n\t(5). Edit Library User\n\t(6). Delete Library User\n\t(7). Search Library User\n\t(8). Issue Book\n\t(9). Delete Issued Book\n\t\t ";

    cout << "(10). To Quit" << endl ;

    int n;

    cout << "Please select from above numbers to activate that the function " <<endl;

    cin >> n;

    while (n<0 || n>10)

        {

            cout << "Invalid input" <<endl;

            cout << "      Please! select only from the above mentioned numbers" <<endl;

            cin >> n;

        }

    if(n==0)

        add\_book();

    else if(n==1)

        edit\_book();

    else if(n==2)

        delete\_book();

    else if(n==3)

        search\_book();

    else if(n==4)

        add\_library\_user();

    else if(n==5)

        edit\_library\_user();

    else if(n==6)

        delete\_library\_user();

    else if(n==7)

        search\_library\_user();

    else if(n==8)

        issue\_book();

    else if(n==9)

        delete\_issued\_book();

    else if(n==10)

        back\_up();

}

void add\_book()

{

    intro();

loop:

    cout << "\tAdd New Book  ( Please add required information in the appropriate field ) " <<endl<<endl;

    char ch;

    book obj;

    ofstream myfile("book.txt",ios::app);

    cout << "Enter Book Name:\t";

    cin >> obj.book\_name;

    cout << "Enter ISBN:\t";

    cin >> obj.ISBN;

    cout << "Enter Author Name:\t";

    cin >> obj.author\_name;

    cout << "Enter Publisher Name:\t";

    cin >> obj.publisher\_name;

    cout << "Enter No. of copies:\t";

    cin >> obj.no\_of\_copies;

    cout << "Enter date of Issue:\t";

    cin >> obj.date\_of\_issue;

    myfile<<obj.book\_name<<" " <<obj.ISBN<<" "<<obj.author\_name<<" "<<obj.publisher\_name<<" "<<obj.no\_of\_copies<<" "<<obj.date\_of\_issue<<endl;

    myfile.close();

    cout << endl;

    cout << "\tPress 'A' to add new book and 'R' to go main setup" << endl;

    cin >> ch;

    if(ch=='a'||ch=='A')

        {

            intro();

            cout << "The book information was not duplicate and the new book information is successfully added in the system!" << endl;

            goto loop;

            }

    if(ch=='r'||ch=='R')

        main\_setup();

}

void add\_library\_user()

{

    intro();

    int pass=8704;

    int word;

    cout << "Enter Password to add user" <<endl;

    cin >> word;

    if (pass==word)

    {

    loop:

        intro();

        ofstream userfile("user.txt",ios::app);

        user obj;

        int ch;

        cout << "Select the option to add User" << endl;

        cout << "\t(1). Student\n\t(2). Employ " << endl;

        cin >> ch;

        if (ch==1)

        {

            intro();

             cout << "Enter student , Library ID" <<endl;

            cin >> obj.library\_id;

            cout << "Enter first name of student" <<endl;

            cin >> obj.first\_name;

            cout << "Enter last name of student" <<endl;

            cin >> obj.last\_name;

            cout << "Enter student DOB" << endl;

            cin >> obj.d\_o\_b;

            userfile<<obj.library\_id<<" "<<obj.first\_name<<" "<<obj.last\_name<<" "<<obj.d\_o\_b<<" "<<"Student"<<endl;

            userfile.close();

            cout << "Press 1 to add another user and 0 to go main setup" <<endl;

            cin >> ch;

            if (ch==1)

                goto loop;

            else if (ch==0)

                main\_setup();

        }

        else if (ch==2)

        {

            intro();

            cout << "Enter employ , Library ID" <<endl;

            cin >>obj.library\_id;

            cout << "Enter first name of employ" <<endl;

            cin >> obj.first\_name;

            cout << "Enter last name of employ" <<endl;

            cin >> obj.last\_name;

            cout << "Enter employ DOB" <<endl;

            cin >>obj.d\_o\_b;

            userfile<<obj.library\_id<<" "<<obj.first\_name<<" "<<obj.first\_name<<" "<<obj.last\_name<<" "<<obj.d\_o\_b<<" "<<"Employ"<<endl;

            userfile.close();

            cout << "Press 1 to add another user and 0 to go main setup" <<endl;

            cin >> ch;

            if (ch==1)

            goto loop;

            else if (ch==0)

                main\_setup();

        }

    }

    else if (word!=pass)

    {

        int ch;

        cout << "You have entered incorrect Password!\n\t Enter again or press 0 to go main setup" <<endl;

        if (ch==0)

            main\_setup();

    }

}

void edit\_book()

{

    intro();

    loop:

        int ch;

        char isbn[100];

        char new\_book\_name[100];

        book obj;

        cout << "\tSelect option key to access the book\n\t(1). Access book by isbn\n\t(2). Access book by name" <<endl;

        cin >> ch;

        if (ch==1)

        {

            cout << "Enter book ISBN" <<endl;

            cin >> isbn;

        }

        else if (ch==2)

        {

            cout << "Enter book name" <<endl;

            cin >> new\_book\_name;

        }

        ifstream openfile("book.txt" , ios::app);

        ofstream editbookfile("edit\_book.txt" , ios::app);

        while (openfile>>obj.ISBN>>obj.book\_name>>obj.author\_name>>obj.publisher\_name>>obj.no\_of\_copies>>obj.date\_of\_issue)

          {

    if(strcmp(isbn,obj.ISBN)==0 || strcmp(new\_book\_name,obj.book\_name)==0)

    {

    cout<<"Enter New Book Name : ";

    cin>>obj.book\_name;

    cout<<"Enter ISBN : ";

    cin>>obj.ISBN;

    cout<<"Enter Author Name : ";

    cin>>obj.author\_name;

    cout<<"Enter Publisher name : ";

    cin>>obj.publisher\_name;

    cout<<" Enter no. of copies : ";

    cin>>obj.no\_of\_copies;

    cout<<" Date of issue : ";

    cin>>obj.date\_of\_issue;

    }

    editbookfile<<obj.ISBN<<"    "<<obj.book\_name<<"    "<<obj.author\_name<<"    "<<obj.publisher\_name<<"    "<<obj.no\_of\_copies<<"    "<<obj.date\_of\_issue<<endl;

    }

            editbookfile.close();

        openfile.close();

cout<<"The book data is successfully Edited"<<endl<<endl<<"Press 'R' to go back to main menu OR Press 'E'  to edit other book"<<endl;

      cin>>ch;

      if(ch=='r'|| ch=='R')

        main\_setup();

      if(ch=='e'||ch=='E')

        goto loop;

}

void edit\_library\_user()

{

    loop:

          intro();

   user obj;

 int id;

ifstream openuser("user.txt",ios::app);

ofstream edituser("edit\_user.txt",ios::app);

cout<<"Enter User ID you want to edit"<<endl;

cin>>id;

while(openuser>>obj.library\_id>>obj.first\_name>>obj.last\_name>>obj.d\_o\_b>>obj.identity){

    if(id==obj.library\_id){

        cout<<"Enter New name of user : ";

cin>>obj.first\_name;

cout<<"Enter last name of user : ";

cin>>obj.last\_name;

cout<<"Enter New ID : ";

cin>>obj.library\_id;

cout<<"Enter DOB : ";

cin>>obj.d\_o\_b;

    cout<<"User identity 'Student or Employ': ";

cin>>obj.identity;

        }

  edituser<<obj.library\_id<<"      "<<obj.first\_name<<"      "<<obj.last\_name<<"      "<<obj.d\_o\_b<<obj.identity<<"       "<<endl;

    }

openuser.close();

edituser.close();

 if( remove( "user.txt"  ) != 0)

    cout<<"User not removed " <<endl;

    else if( rename( "edit\_user.txt"  ,  "user.txt" ) != 0 )

       cout<<"User not renamed "<<endl;

      else {

      cout<<"The User data is successfully Edited"<<endl<<endl;

      int ch;

        cout<<"  (a). Return to main setup"<<"   "<<"(e). Edit another user"<<endl;

        cin>>ch;

        if(ch=='a'|| ch=='A')

            main\_setup();

        if(ch=='e'|| ch=='E')

            goto loop;

}

}

void search\_book()

{

loop:

    intro();

int ch;

char isbn[100];

char new\_book\_name[100];

book obj;

cout<<"(1). Access Book by ISBN"<<endl<<"(2).Access book by Name"<<endl;

cin>>ch;

if(ch==1){

    cout<<"Enter ISBN : ";

    cin>>isbn;

    }

 if(ch==2){

    cout<<"Enter Book name : ";

    cin>>new\_book\_name;

 }

ifstream openfile("book.txt",ios::app);

while(openfile>>obj.ISBN>>obj.book\_name>>obj.author\_name>>obj.publisher\_name>>obj.no\_of\_copies>>obj.date\_of\_issue){

if(strcmp(isbn,obj.ISBN)==0){

     cout<<obj.ISBN<<"   "<<obj.book\_name<<"   "<<obj.author\_name<<"   "<<obj.publisher\_name<<"   "<<obj.no\_of\_copies<<"   "<<obj.date\_of\_issue<<endl;

}

else if(strcmp(new\_book\_name,obj.book\_name)==0){

     cout<<obj.ISBN<<"   "<<obj.book\_name<<"   "<<obj.author\_name<<"   "<<obj.publisher\_name<<"   "<<obj.no\_of\_copies<<"   "<<obj.date\_of\_issue<<endl;

}

}

openfile.close();

 cout<<endl<<endl<<"Press 0 to go back to main menu OR Press 1  to search again book"<<endl;

      cin>>ch;

      if(ch==0)

        main\_setup();

      if(ch==1)

        goto loop;

}

void search\_library\_user()

{

loop:

    intro();

user obj;

int ch;

int id;

char name[100];

cout<<"(1). Search By ID"<<endl<<"(2). Search by name"<<endl;

cin>>ch;

if(ch==1){

    cout<<"Enter ID : ";

    cin>>id;

    }

 if(ch==2){

    cout<<"Enter User  name : ";

    cin>>name;

 }

 ifstream openuser("user.txt",ios::app);

while(openuser>>obj.library\_id>>obj.first\_name>>obj.last\_name>>obj.d\_o\_b>>obj.identity){

    if(id=obj.library\_id){

cout<<obj.library\_id<<"      "<<obj.first\_name<<"      "<<obj.last\_name<<"      "<<obj.d\_o\_b<<"      "<<obj.identity<<endl;

}

else if(strcmp(name , obj.first\_name)==0){

    cout<<obj.library\_id<<"      "<<obj.first\_name<<"      "<<obj.last\_name<<"      "<<obj.d\_o\_b<<"       "<<obj.identity<<endl;

}

}

openuser.close();

cout<<endl<<endl<<"Press 0 to go back to main menu OR Press 1  to search again book"<<endl;

        cin>>ch;

        if(ch==0)

            main\_setup();

        if(ch==1)

            goto loop;

}

void delete\_book()

{

loop:

    intro();

int ch;

char  isbn[100];

char new\_book\_name[100];

book obj;

cout<<"(1). Delete Book By ISBN"<<endl<<"(2).Delete Book by Name"<<endl;

cin>>ch;

if(ch==1){

    cout<<"Enter ISBN : ";

    cin>>isbn;

    }

 if(ch==2){

    cout<<"Enter Book name : ";

    cin>>new\_book\_name;

 }

ifstream openfile("book.txt",ios::app);

ofstream editbook("edit\_book.txt",ios::app);

while(openfile>>obj.ISBN>>obj.book\_name>>obj.author\_name>>obj.publisher\_name>>obj.no\_of\_copies>>obj.date\_of\_issue){

    if(strcmp(isbn,obj.ISBN)!=0){

if(strcmp(new\_book\_name,obj.book\_name)!=0)

    {

editbook<<obj.ISBN<<"   "<<obj.book\_name<<"   "<<obj.author\_name<<"   "<<obj.publisher\_name<<"   "<<obj.no\_of\_copies<<"   "<<obj.date\_of\_issue<<endl;

        }

}}

        editbook.close();

        openfile.close();

         if( remove( "book.txt" ) != 0){

        cout<<"File not removed " <<endl;}

      else if(rename( "edit\_book.txt"  ,  "book.txt" ) !=0 ){

      cout<<"file not renamed "<<endl;}

       else{

      cout<<"The book data is successfully Deleted"<<endl<<endl<<"Press 0 to go back to main menu OR Press 1  to Delete other book"<<endl;

      cin>>ch;

      if(ch==0)

        main\_setup();

      if(ch==1)

        goto loop; }

}

void delete\_library\_user()

{

loop:

     intro();

user obj;

bool flag;

int id;

ifstream openuser("user.txt",ios::app);

ofstream edituser("edit\_user.txt",ios::app);

cout<<"Enter User ID you want to deleted"<<endl;

cin>>id;

while(openuser>>obj.library\_id>>obj.first\_name>>obj.last\_name>>obj.d\_o\_b>>obj.identity){

    if(id=obj.library\_id){

edituser<<obj.library\_id<<"      "<<obj.first\_name<<"      "<<obj.last\_name<<"      "<<obj.d\_o\_b<<"       "<<obj.identity<<endl;

}

 if(id=obj.library\_id)

       {

           flag=true;

            cout<<"The User data is successfully Deleted"<<endl<<endl;

       }

}

openuser.close();

edituser.close();

if(flag != true )

{

    cout<<"The record against this ID in not found"<<endl;

}

 if( remove( "user.txt"  ) != 0)

    cout<<"User not removed " <<endl;

    else if( rename( "edit\_user.txt"  ,  "user.txt" ) != 0 )

       cout<<"User not renamed "<<endl;

int ch;

        cout<<"  (0). Return to main menu"<<"   "<<"(1). Delete another user"<<endl;

        cin>>ch;

        if(ch==0)

            main\_setup();

        if(ch==1)

            goto loop;

}

void issue\_book()

{

    loop:

        intro();

user ob;

book obj;

int id;

bool flag;

 ifstream openuser("user.txt");

 ifstream openfile("book.txt");

 ofstream issue("issue.txt",ios::app);

 cout<<"Enter user id you want to issue book : ";

 cin>>id;

 while(openuser>>ob.library\_id>>ob.first\_name>>ob.last\_name>>ob.d\_o\_b){

 if(id=ob.library\_id){

    flag=true;

   break;

 }}

 if(flag==true){

 intro();

cout<<"ISBN"<<"        "<<"Book Name"<<"       "<<"Author"<<"       "<<"Publisher"<<"       "<<"Copies"<<"       "<<"Issue date"<<endl;

  while(openfile>>obj.ISBN>>obj.book\_name>>obj.author\_name>>obj.publisher\_name>>obj.no\_of\_copies>>obj.date\_of\_issue){

     cout<<obj.ISBN<<"      "<<obj.book\_name<<"       "<<obj.author\_name<<"       "<<obj.publisher\_name<<"      "<<obj.no\_of\_copies<<"      "<<obj.date\_of\_issue<<endl;

} openfile.close();

char issue\_isbn[100];

cout<<"Enter book ISBN which you want to issue this user"<<endl;

 openfile.open("book.txt");

cin>>issue\_isbn;

  while(openfile>>obj.ISBN>>obj.book\_name>>obj.author\_name>>obj.publisher\_name>>obj.no\_of\_copies>>obj.date\_of\_issue){

if(strcmp(obj.ISBN,issue\_isbn)==0){

    issue<<ob.library\_id<<"\t"<<ob.first\_name<<"\t"<<obj.ISBN<<"\t"<<obj.book\_name<<"\t"<<obj.author\_name<<endl;

    cout<<"The book "<<obj.book\_name<<"  has been issued to user\t"<<ob.first\_name<<endl;

}}

 }

else if(flag!=true)

                {

                    cout<<"The user with this Id does not exist"<<endl;

                }

                issue.close();

            openfile.close();

            openuser.close();

int ch;

cout<<"(1). Issue another book to other user"<<"   "<<"(2).Return main menu"<<endl;

cin>>ch;

if(ch==1)

    goto loop;

if(ch==2)

    main\_setup();

}

void delete\_issued\_book()

{

loop:

      intro();

user ob;

book obj;

int id;

ifstream openissue("issue.txt");

ofstream editissue("edit\_issue.txt");

cout<<"Enter User ID you want to deleted"<<endl;

cin>>id;

bool flag;

while(openissue>>ob.library\_id>>ob.first\_name>>obj.ISBN>>obj.book\_name>>obj.author\_name){

        if(id!=ob.library\_id){

    editissue<<ob.library\_id<<"   "<<ob.first\_name<<"   "<<obj.ISBN<<"   "<<obj.book\_name<<"   "<<obj.author\_name<<endl;

}

 if(ob.library\_id==id)

       {

           flag=true;

       }

        cout<<"The User data is successfully Deleted"<<endl<<endl;

}

openissue.close();

editissue.close();

if(flag != true )

{

    cout<<"The record against this ID in not found"<<endl;

}

remove( "issue.txt"  );

    rename( "edit\_issue.txt"  ,  "issue.txt" );

      int ch;

        cout<<"  (0). Return to main menu"<<"   "<<"(1). Delete another user"<<endl;

        cin>>ch;

        if(ch==0)

            main\_setup();

        if(ch==1)

            goto loop;

}

 void back\_up()

{

    intro();

    cout << "\t\t\t\t\tPress any key to Exit!\n\n\n\n"<<endl;

}