

PRESENTATION



PROGRAMMING LANGUAGES

Library Management System



GROUP 7

NGUYEN DUY THUC

NGUYEN BICH DIEP

MICHAEL MARSHAL ZENNOM

PHAM THI MY DUNG

PHAM THE CHIEN

NGUYEN TIEN DAT



TABLE OF CONTENTS

Introduction

Discussion

Designing

Conclusion

Introduction

- Library management system: a project created to maintain library records
- Readers: view and search
- Administrators: add, edit, search and delete information about books and manage borrowers

What is the project about?



Why do we choose this - specifying how important of the project?

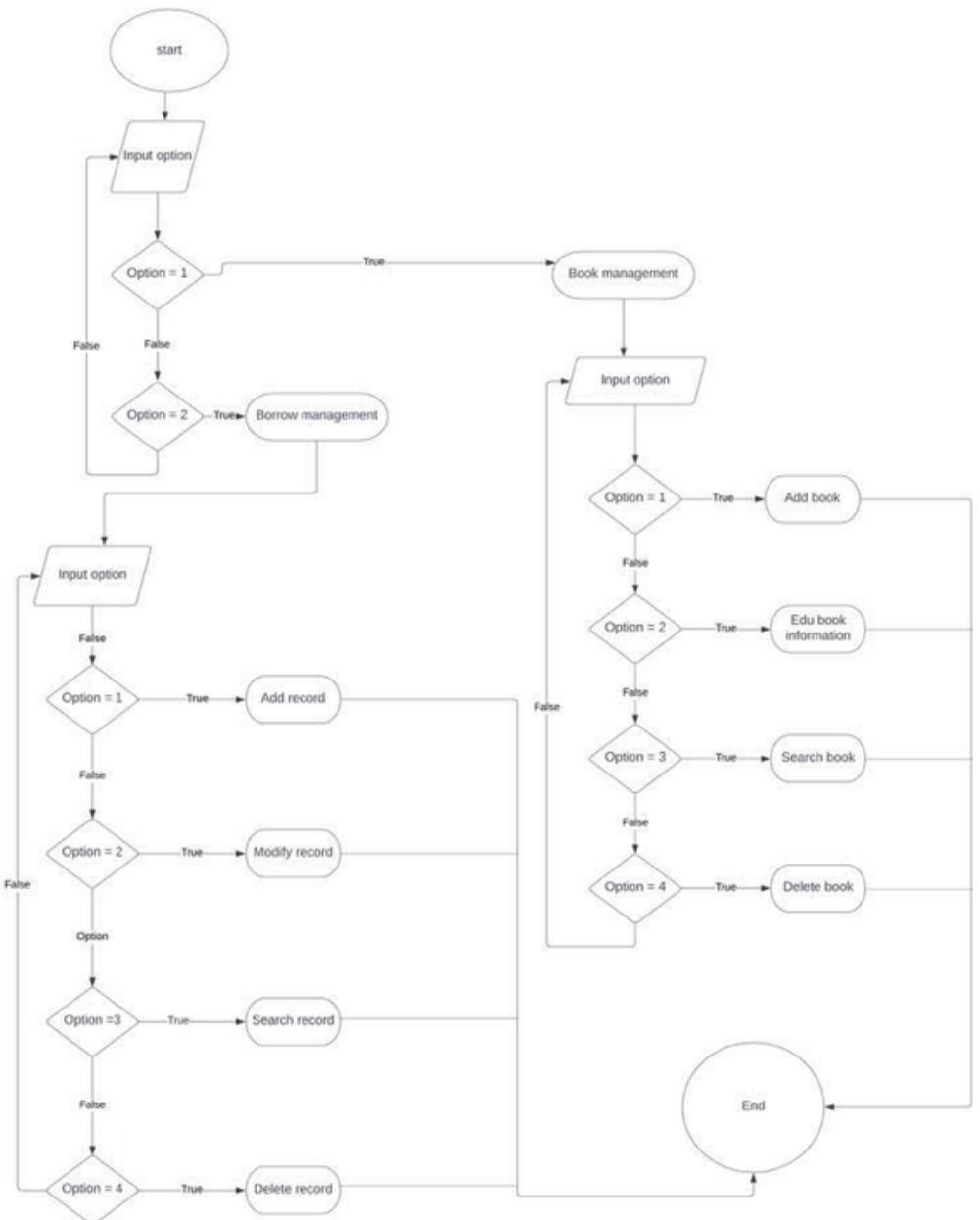


- + Helps maintain a useful database for the entry of new books and records of borrowed members
- + Reduces the manual recording burden of management
- + Allows curators to maintain library resources in a more efficient way



Designing

Module 1: Overall interface flowcharts for algorithms



User Interface

```
Monday, 5/12/2022
Hello, admin

+-----+
| LIBRARY MANAGEMENT SYSTEM |
+-----+

1. Book Management
2. Borrower Management
3. Sign out
4. Exit

Enter choice => 
```

```
Monday, 5/12/2022
Hello, admin

+-----+
| BOOK MANAGEMENT |
+-----+

1. Add Books
2. Edit Books
3. Search Books
4. Delete Books
5. Exit

Enter choice => 
```

```
Monday, 5/12/2022
Hi, thuc

+-----+
| READER MENU |
+-----+

1. Trending Books
2. Search Books
3. Sign out
4. Exit

Enter choice => 
```

```
Monday, 5/12/2022
Hello, admin

+-----+
| BORROWER MANAGEMENT |
+-----+

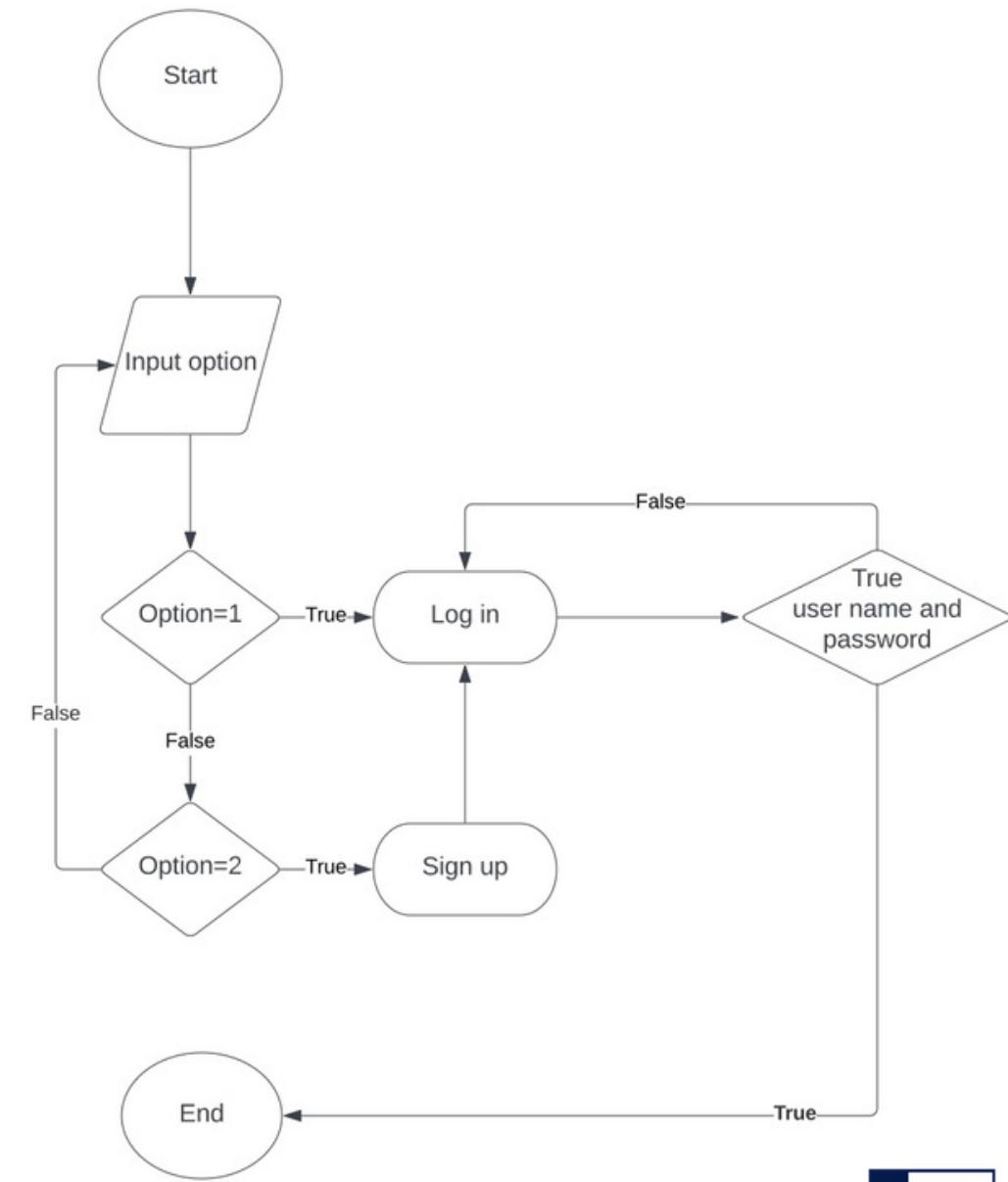
1. Add record
2. Modify record
3. Search record
4. Delete record
5. Exit

Enter choice => 
```

Designing

Module 2- Function login

Login flowcharts for
algorithms



Login illustration

Wednesday, 14/12/2022

* * * * *
* * * * *
* * * * *
* * * * *

1. Log in 2. Sign up

Your option:

Wednesday, 14/12/2022

* * * * *
* * * * *
* * * * *
* * * * *

1. Log in 2. Sign up

Your option: 1

USERNAME: 1
PASSWORD: *

Notification X

Your username or password is wrong

OK

Login illustration

Wednesday, 14/12/2022

* * * * *
* * * * *
* * * * *
* * * * *

1. Log in 2. Sign up

Your option:

Wednesday, 14/12/2022

* * * * *
* * * * *
* * * * *
* * * * *

1. Log in 2. Sign up

Your option: 1

USERNAME: 1
PASSWORD: *

Notification X

Your username or password is wrong

OK

Login illustration

C:\Users\ADMIN\Documents\Project3.exe

```
WELCOME  
TO  
LIBRARY  
MANAGEMENT  
SYSTEM
```

Enter any key to continue.....

C:\Users\ADMIN\Documents\Project3.exe

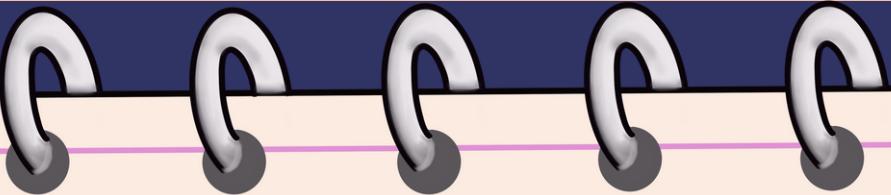
```
Wednesday, 14/12/2022  
Hello, admin
```

```
*****  
* LIBRARY MANAGEMENT SYSTEM *  
*****
```

```
1. Book Management  
2. Borrower Management  
3. Sign out  
4. Exit
```

```
Enter choice => -
```

Login



- Char : declare usernames and passwords
 - Use the command “ switch - case” to choose between Log In and Sign Up
 - if (c==13) break; else printf ("*") and : make the password to "*" and exclude the enter button

- Break: to end the program

A screenshot of a computer interface. On the left is a code editor window titled "main.c" showing C code. The code includes functions for reading input from the user and writing data to a file named "account.txt". It handles options for logging in or signing up, and it uses the `strcpy` and `fwrite` functions. The code editor has a toolbar at the top and a status bar at the bottom. On the right is a terminal window titled "C:\Users\ADMIN\Documents\Project3.exe" showing the program's output. The output shows a menu with "1. Log in" and "2. Sign up", followed by a successful account creation message and a prompt to press any key to log in.

```
1261     else printf("*");
1262     i++;
1263   }break;
1264 case '2':
1265   printf(" \n\n\t\t USERNAME: ");
1266   fflush(stdin);
1267   scanf("%[^n]",&act.user);
1268   printf(" \n\n\t\t PASSWORD: ");
1269   fflush(stdin);
1270   i=0;
1271   while (i<20) {
1272     if (kbhit) {
1273       // fetch typed character into ch
1274       password[i] = getch();
1275       if ((int)password[i] == 13)
1276         break;
1277       printf("*");
1278       i++;
1279     }
1280   }
1281   password[i]='\0';
1282   strcpy(act.pass,password);
1283   fp=fopen("account.txt","ab+");
1284   fwrite(&act,sizeof(act),1,fp);
1285   fclose(fp);
1286   printf("\n\n\tCreate account successfully!!!\n");
1287   printf("\n\n\tPress any keys to login...");
1288   fflush(stdin);
1289   getch();
1290   system("cls");
1291   date();
1292   printf("\n\t*****");
1293   printf("\n\t\t *          *");
1294   printf("\n\t\t *      LOGIN      *");
1295   printf("\n\t\t *          *");
1296   printf("\n\t*****\n\n");
1297   goto C;
1298 default:
1299   printf("\nYour option is invalid!\n");
1300   printf("Press any keys to try again ...");
1301   getch();
1302   system("cls");
1303   goto A;
1304 }
1305 password[i]='\0';
1306 i=0;
```

A screenshot of a terminal window titled "C:\Users\ADMIN\Documents\Project3.exe". The window displays the following text:
Wednesday, 14/12/2022

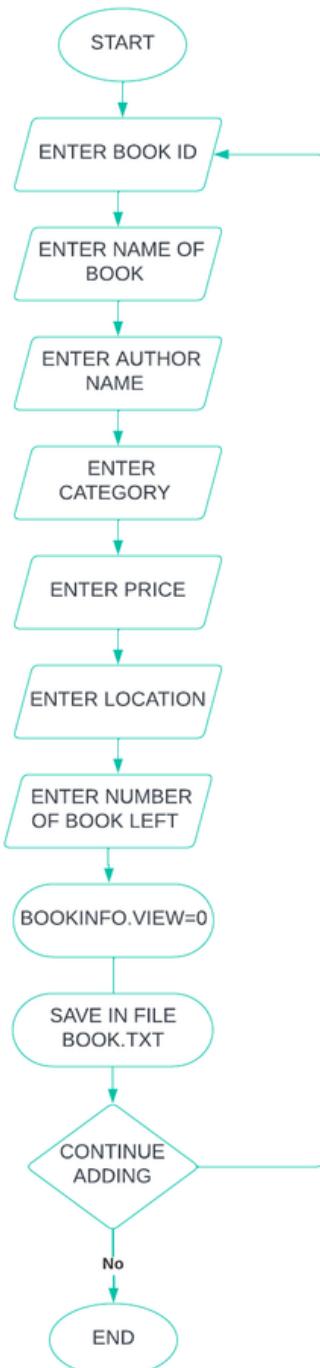
*
*
*
*
*

1. Log in 2. Sign up
Your option: 2
USERNAME: 2
PASSWORD: *
Create account successfully!!!
Press any keys to login...
Break
default:

Signup illustration

- **Strcpy:** his function is used to copy one string to another
- **Fwrite:** to write a block of data

Module 3- Function Add book



```
Sunday, 4/12/2022
Hello, admin

*****
*          *
*          ADD BOOK
*          *
*****
```

Sunday, 4/12/2022
Hello, admin

Enter book ID: 123

Enter name of book: Miserables

```
*****
*          *
*          ADD BOOK
*          *
*****
```

Sunday, 4/12/2022
Hello, admin

Enter book ID: 123

Enter name of book: Miserables

Enter author name: Victor Hugo

Enter category: Novel

Enter price: 100\$

Enter location: G3

Enter number of books left: 56

The terminal window shows the program's interaction with the user. It displays a title screen with a decorative border. The user is prompted to enter a book ID (123), name ('Miserables'), author ('Victor Hugo'), category ('Novel'), price ('100\$'), location ('G3'), and the number of books left ('56'). The program then adds this information to the database.

`fflush(stdin)`: flush the output buffer of the stream

```

while(i == 1) {
    printf("\n\n\tEnter book ID: ");
    fflush(stdin);
    scanf("%s", &bookinfo.bookID);
    printf("\n\tEnter name of book: ");
    fflush(stdin);
    scanf("%[^\\n]", &bookinfo.name_of_book);
    printf("\n\tEnter author name: ");
    fflush(stdin);
    scanf("%[^\\n]", &bookinfo.author);
    printf("\n\tEnter category: ");
    fflush(stdin);
    scanf("%s", &bookinfo.category);
    printf("\n\tEnter price: ");
    fflush(stdin);
    scanf("%s", &bookinfo.price);
    printf("\n\tEnter location: ");
    fflush(stdin);
    scanf("%s", &bookinfo.location);
    printf("\n\tEnter number of books left: ");
    fflush(stdin);
    scanf("%s", &bookinfo.available);
    strcpy(bookinfo.view, "0");
    fp=fopen("book.txt", "ab+");
    fwrite(&bookinfo, sizeof(bookinfo), 1, fp);
    fclose(fp);
    printf("\n\n\t\tAdd book successfully!!!");
    printf("\n\n\t\t1. Continue adding book");
    printf("\n\t\t2. Exit");
    printf("\n\n\tYour option => ");
    scanf("%d", &i);
}

class MirrorX(bpy.types.Operator):
    """This adds an X mirror to the selected object"""
    bl_idname = "object.mirror_mirror_x"
    bl_label = "Mirror X"

```

```

    @classmethod
    def poll(cls, context):
        return context.active_object is not None

    @classmethod
    def execute(self, context):
        ob = context.object
        if ob is None:
            return {'CANCELLED'}
        if ob.type != 'MESH':
            return {'CANCELLED'}
```

-strcpy: copy one string to another

-fopen: open a file to perform various operations

-fwrite: write up to count items

-fclose: closes a stream pointed to by stream

```

Sunday, 4/12/2022
Hello, admin

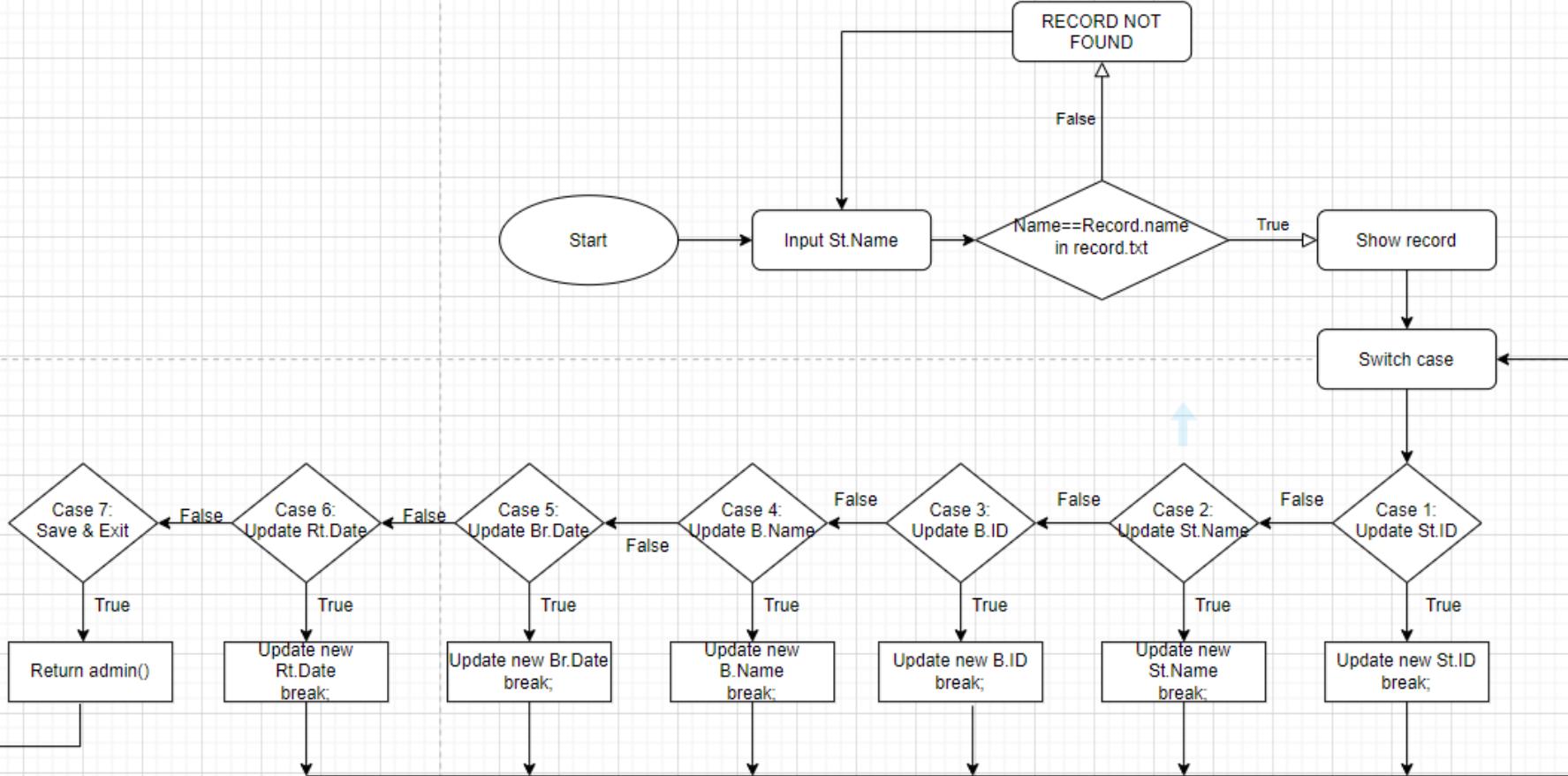
-----
*          ADD BOOK
*-----
```

Enter book ID: 123
Enter name of book: Miserables
Enter author name: Victor Hugo
Enter category: Novel
Enter price: 100\$
Enter location: G3
Enter number of books left: 56

Add book successfully!!
1. Continue adding book
2. Exit

Your option => -

Modify record



Modify_record

```
.....  
scanf("%[^\\n]",&book);  
fp = fopen ("record.txt", "ab+");  
while(fread(&record, sizeof(record), 1, fp)==1)  
{  
    if( strcmp(book,record.name)==0)  
    {  
        p=0;  
        printf ("\n\t\tRecord Found!");  
        printf("\n\tStudent ID: %s", record.studentID);  
        printf("\n\tStudent Name: %s", record.name);  
        printf("\n\tBook ID: %s", record.bookID);  
        printf("\n\tBook: %s", record.book);  
        printf("\n\tBorrow Date: %s",record.borrow_date);  
        printf("\n\tReturn Date: %s\\n", record.return_date);  
        getch();  
        while(TRUE)
```

- **fflush(stdin):** flush the output buffer of the stream.
- **while:** help system repeat the command “Enter Student Name Editing:” in case the statements below are false.
- **fread:** read the block of data from the stream.
- **fopen:** open a file
- **strcmp:** compare the string arguments.
- **fseek:** to point file “record.txt”

Modify_record

```
*****
*          EDIT RECORD
*
*****
Enter Student Name Editing: Dung
Record Found!
Student ID: 21070509
Student Name: Dung
Book ID: 1
Book: Jujutsu Kaisen
Borrow Date: 5/12/2022
Return Date:
```



```
*****
Student ID: 21070509
Student Name: Dung
Book ID: 1
Book: Jujutsu Kaisen
Borrow Date: 5/12/2022
Return Date:

1. Update Student ID
2. Update Student Name
3. Update Book ID
4. Update Book Name
5. Update Borrow Date
6. Update Return Date
7. Save and exit

Enter choice => 6

Enter New Return Date: 7/12/2022

1. Update Student ID
2. Update Student Name
3. Update Book ID
4. Update Book Name
5. Update Borrow Date
6. Update Return Date
7. Save and exit

Enter choice =>
```



SEARCH

Search book:

Search by name command is used to search for books using names.

Search by category command is used to search for books using category when searching for a particular book.

Search by ID command: This enable the user to search for a book using the ID of a book

Search by Author command: This command is for a user to search a book using the author.

Search by Price: User can be able to search using prices .

```

void search_book(int n){
    FILE *temporary,*tmp1,*tmp2;
    int i=1;
    int p=1;
    int size;
    int option=0;
    int view;
    char view2[8];
    char book[30];
    printf("\n\n");
    printf("\n\t\t\t ****\n\t\t\t *      *\n\t\t\t *      SEARCH BOOK      *\n\t\t\t *      *\n\t\t\t ****\n\t\t\t\n\t\t\t1. Search by Name");
    printf("\n\t\t\t2. Search by Category");
    printf("\n\t\t\t3. Search by ID");
    printf("\n\t\t\t4. Search by Author");
    printf("\n\t\t\t5. Search by Price (less than)");
    printf("\n\t\t\t6. Exit");
    printf("\n\n\tEnter Choice => ");
    fflush(stdin);
    scanf("%d",&option);
    if (option==1)
    {
        printf("\n\n\tEnter name of book: ");

```

fclose function: this function closes a pointed to by stream. it deletes all buffers that are associated with the stream before closing it.

fopen function: Is a library function that is used to open a file to perform various operations which include writing and reading.

fwrite function: this function is used to write up to count items, each of size bytes in length, from buffer to the output stream.

fseek function: this is used to move file pointer associated with a given file to a specific position.

```
        fclose(fp);
        fclose(temporary);
        tmp1=fopen("book.txt","wb");
        tmp2=fopen("tempfile.txt","rb");
        if (p==1){
            printf("\n\n\t\tRECORD NOT FOUND");
            goto G;
        }
        else{
            printf("\n\n\t\tRECORD SUCCESSFULLY DELETED");
            while
                (fread(&bookinfo,sizeof(bookinfo),1,tmp2)==1)
                {
                    fwrite(&bookinfo,sizeof(bookinfo),1,tmp1);
                }
                if (NULL != tmp1) {
                    fseek (tmp1, 0, SEEK_END);
                    size = ftell(tmp1);
                    if (0 == size) {
                        while
                            (fread(&bookinfo,sizeof(bookinfo),1,tmp2)==0)
```

while function: This function is repeatedly executes a target statement as long as a given condition is true

```
tflush(stdin);
scanf("%[^\\n]",&book);
fp=fopen("book.txt","rb+");
while(fread(&bookinfo,sizeof(bookinfo),1,fp)==1)
{
    if (strcmp(bookinfo.name_of_book,book) ==0)
    {
        p=0;
        printf("\n\tID: %s", bookinfo.bookID);
        printf("\n\tName: %s", bookinfo.name_of_book);
        printf("\n\tAuthor: %s", bookinfo.author);
        printf("\n\tCategory: %s", bookinfo.category);
        printf("\n\tPrice: %s",bookinfo.price);
        printf("\n\tLocation: %s", bookinfo.location);
        printf("\n\tAvailable: %s", bookinfo.available);
        printf("\n\tView: %s\n",bookinfo.view);
        getch();
```

strcpy function: It is used to copy the character array pointed by the source of the location pointed by the destination.

temporary function: Is used to hold a value temporarily.

```
strcpy(view2, bookinfo.view);
view = atoi(bookinfo.view);
view+=1;
itoa(view,bookinfo.view, 10);
fp=fopen("book.txt","ab+");
fwrite(&bookinfo,sizeof(bookinfo),1,fp);
fclose(fp);
fp=fopen("book.txt","rb");
temporary=fopen("tempfile.txt", "wb");
while (fread(&bookinfo,sizeof(bookinfo),1,fp)==1)
{
    if
        (strcmp(bookinfo.name_of_book,book)==0&&strcmp(bookinfo.view,view2)==0)
    {
        p=0;
        continue;
    }
    else
    {
        fwrite(&bookinfo,sizeof(bookinfo),1,temporary);
    }
}
```

Void search :

this function is used to return type, it indicates that the function does not return a value

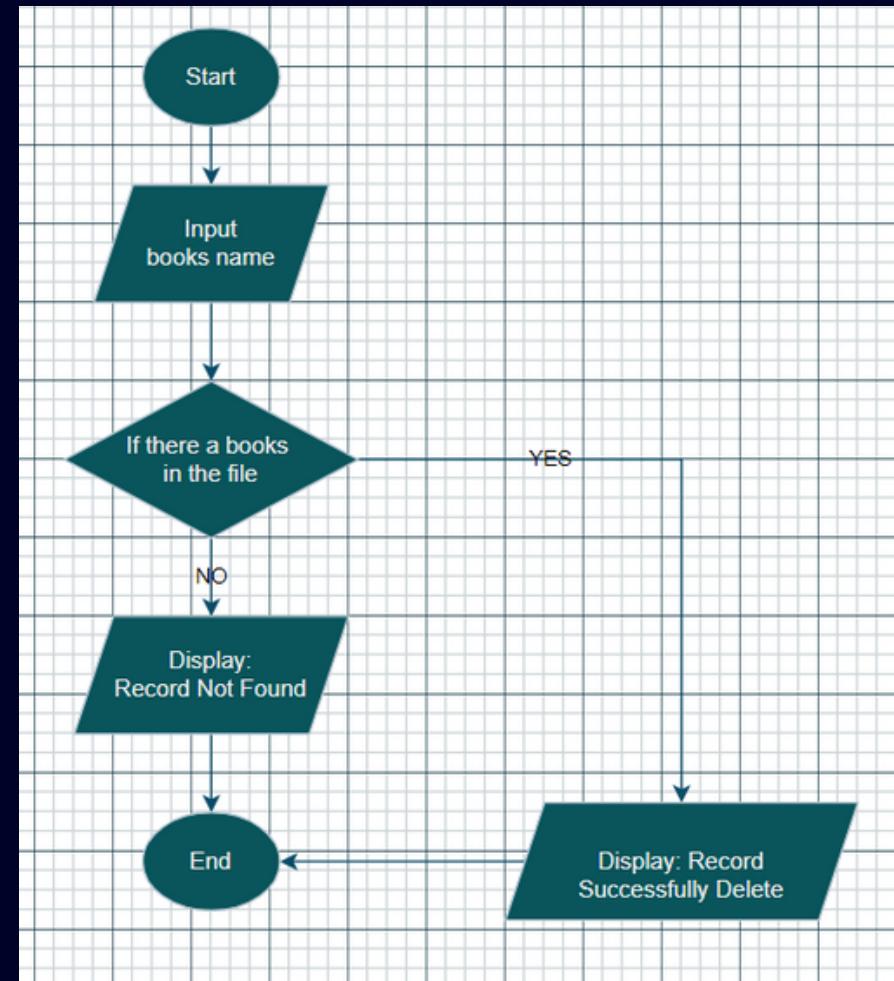
```
void search_book(int n){  
    FILE *temporary,*tmp1,*tmp2;  
    int i=1;  
    int p=1;  
    int size;  
    int option=0;  
    int view;  
    char view2[8];  
    char book[30];  
    printf("\n\n");  
    printf("\n\t\t\t *****\n\t\t\t *\n\t\t\t *      SEARCH BOOK      *\n\t\t\t *\n\t\t\t *****\n\t\t\t\n\t1. Search by Name");  
    printf("\n\t\t\t2. Search by Category");  
    printf("\n\t\t\t3. Search by ID");  
    printf("\n\t\t\t4. Search by Author");  
    printf("\n\t\t\t5. Search by Price (less than)");  
    printf("\n\t\t\t6. Exit");  
    printf("\n\n\t\tEnter Choice => ");  
    fflush(stdin);  
    scanf("%d",&option);  
    if (option==1)
```

Delete Books

```
fp=fopen("book.txt","rb");
temporary=fopen("tempfile.txt","wb");
printf("\n\n\tEnter name of book to delete: ");
fflush(stdin);
scanf("%[^\\n]",&book);
while (fread(&bookinfo,sizeof(bookinfo),1,fp)==1)
{
    if (strcmp(bookinfo.name_of_book,book)==0)
    {
        p=0;
        continue;
    }
    else
    {
        fwrite(&bookinfo,sizeof(bookinfo),1,temporary);
    }
}
fclose(fp);
fclose(temporary);
if (p==1){
    printf("\n\n\t\tRECORD NOT FOUND");
    goto E;
}
else{
    printf("\n\n\t\tRECORD SUCCESSFULLY DELETED");
```

This function asks the book id from the admin for the book want to delete. In this function, I am creating a temporary binary file and copy all the data from the existing file except the book whose book id entered by the admin. In the last renamed the temporary bin file with an existing binary file.

Delete Books flowchart



Delete Books

If there no books are found
in the file

```
Monday, 5/12/2022
Hello, admin

*****
*
*
*          DELETE BOOK
*
*****
Enter name of book to delete: Harry Potter

RECORD NOT FOUND
-----
Process exited after 25.76 seconds with return value 3221225477
Press any key to continue . . .
```

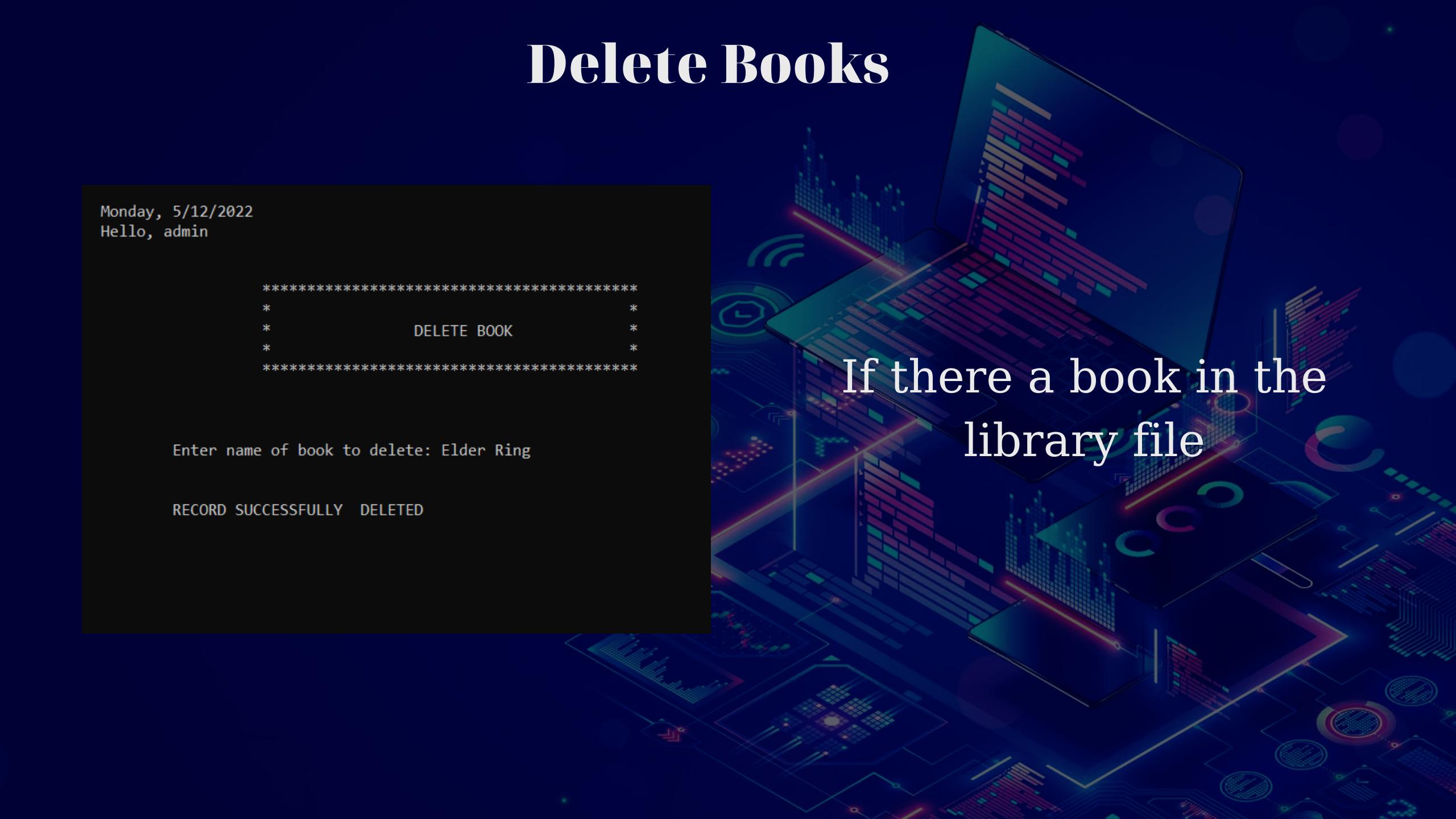
Delete Books

```
Monday, 5/12/2022  
Hello, admin
```

```
*****  
*  
*          DELETE BOOK  
*  
*****
```

```
Enter name of book to delete: Elder Ring
```

```
RECORD SUCCESSFULLY DELETED
```

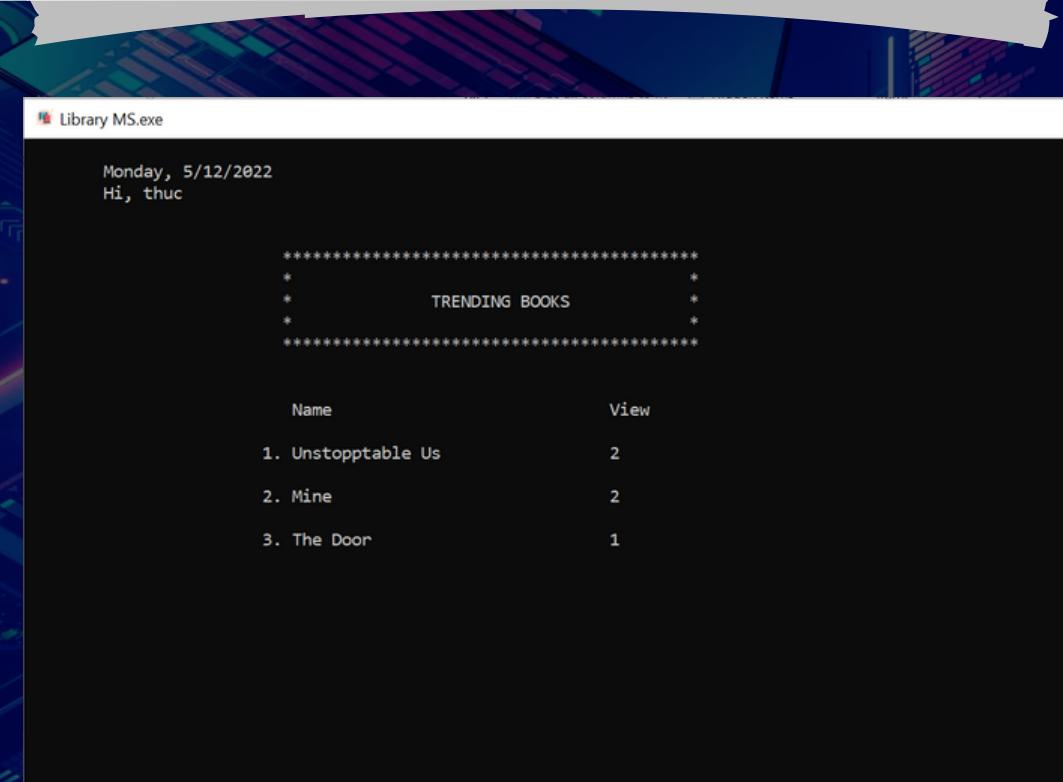


If there a book in the library file

Module 7- Function Trending book

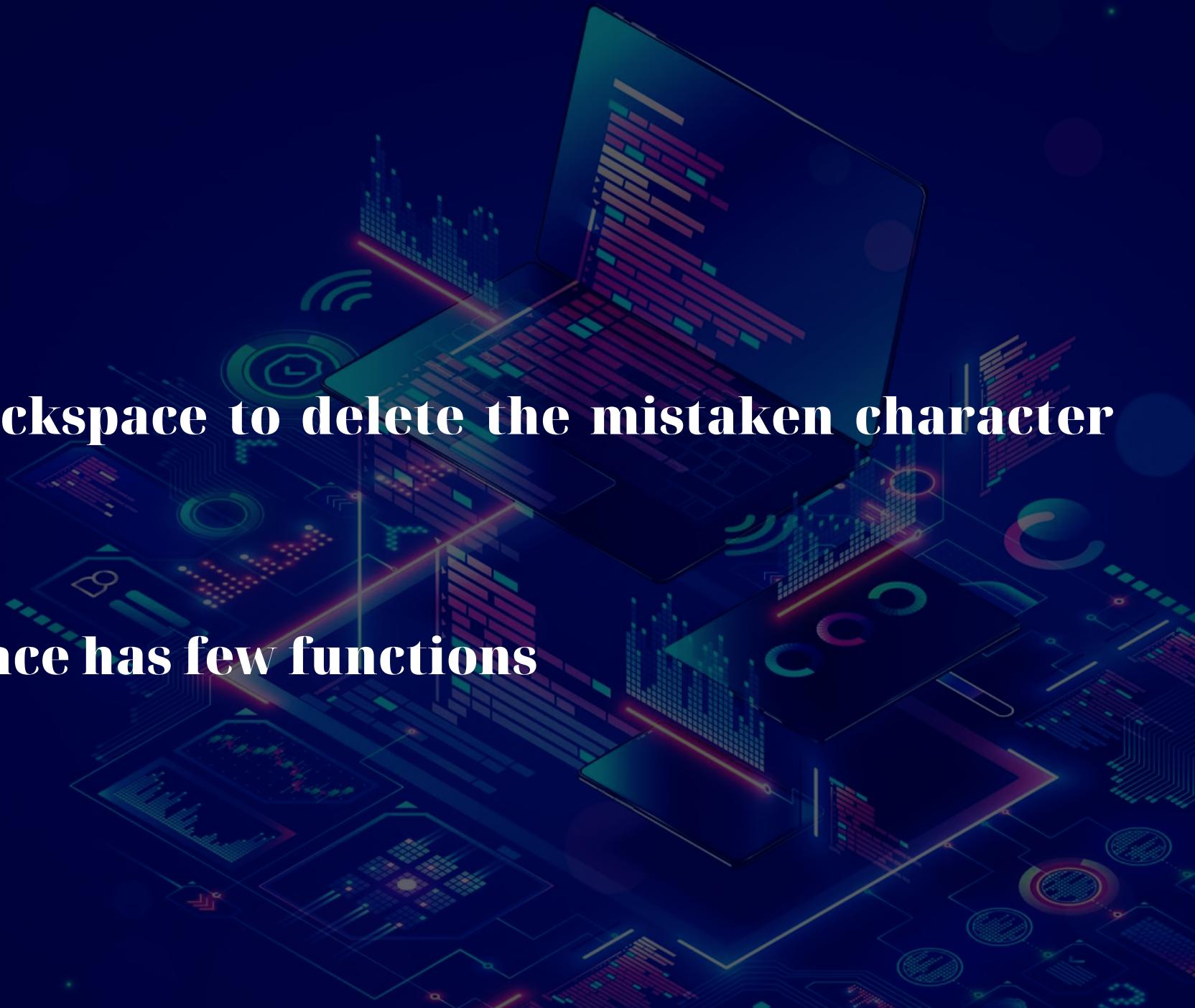
```
void trending_book()
{
    system("cls");
    int view,max1=0,max2=0,max3=0;
    char max11[30],max12[30],max13[30];
    fp=fopen("book.txt","rb");
    while(fread(&bookinfo,sizeof(bookinfo),1,fp)==1)
    {
        view=atoi(bookinfo.view);
        if (max1<=view)
        {
            max3=max2;
            max2=max1;
            max1=view;
            strcpy(max13,max12);
            strcpy(max12,max11);
            strcpy(max11,bookinfo.name_of_book);
        }
    }
}
```

atoi(): convert string into number
strcpy(): transfer information from one string to another string



Discussion

- 1. Users can't use backspace to delete the mistaken character when logging in**
- 2. The reader interface has few functions**



Conclusion

- 1. Mastering the basic programming skills for functions, switch case, if else, while, file, etc...**
- 2. Combine individual commands to create more complicated code**