### BLOCKCHAIN BASED CERTIFICATE VERIFICATION SYSTEM”

### A PROJECT REPORT

*Submitted by*

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*In partial fulfillment of the Requirements for the Degree of*

## BACHELOR OF TECHNOLOGY COMPUTER SCIENCE AND BUSINESS SYSTEMS



**DEPARTMENT OF DATA SCIENCE AND BUSINESS SYSTEMS**

## FACULTY OF ENGINEERING AND TECHNOLOGY SRM INSTITUTE OF SCIENCE AND TECHNOLOGY NOVEMBER 2022

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Dr. Paul T Sheeba Dr. M. Lakshmi

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Signature of Internal Examiner Signature of External Examiner

**ABSTRACT**

### Library Management System

### Libraries are power houses of knowledge which enable people to obtain and develop knowledge, it also helps people with studies clearing their doubts and queries without the help of others.

### Managing libraries efficiently helps reduce time required for searching for the required book, it also helps keep record of borrowed books helping to find lost books and defaulters along with these benefits it helps the library management system keeps track of time for borrowed books.

### Library management system is a simple console application using linked list in C programming language. User can perform basic library management operations like issuing books, returning the issued books and displaying records of the issued books with the user details. Each book in the library has a unique identification number. The user issues the book by entering the book ID and the user details. Each user can issue only one book at a time. When the user returns the issued book, the book is available in the library for issuing again. The record of the issued book with user details can also be viewed.

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N HIRIDHARAN

RUDRRESH P

P V THARUNN RAJ

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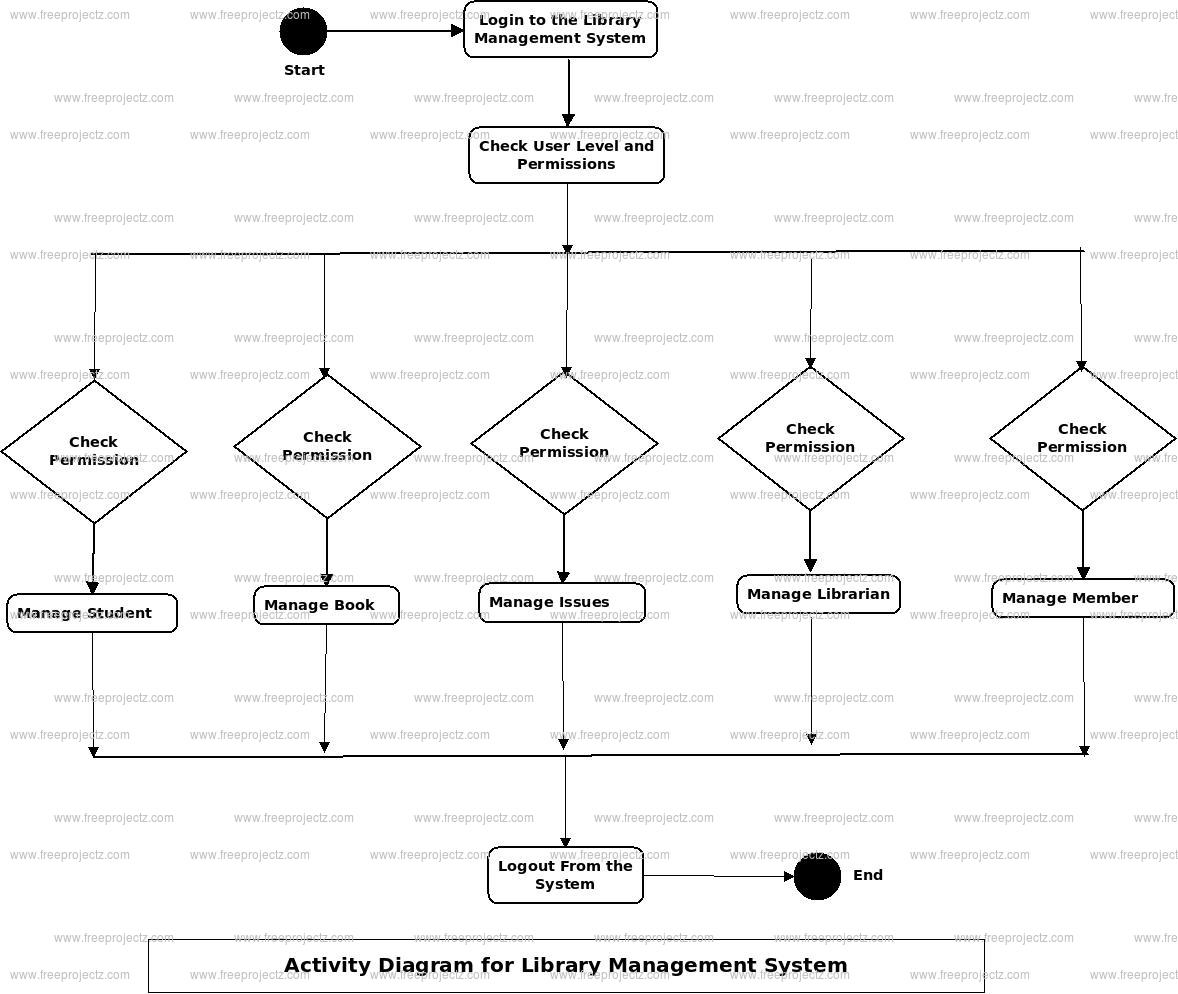
## ABBREVIATIONS

|  |  |
| --- | --- |
| **GUI** | Graphical User Interface |
| **C** | C language |
| **PTP** | Peer To Peer |
| **STRUCT** | Data Structures |
| **LL** | Linked List |
| **STK** | Stack |
| **STR** | String |
|  |  |

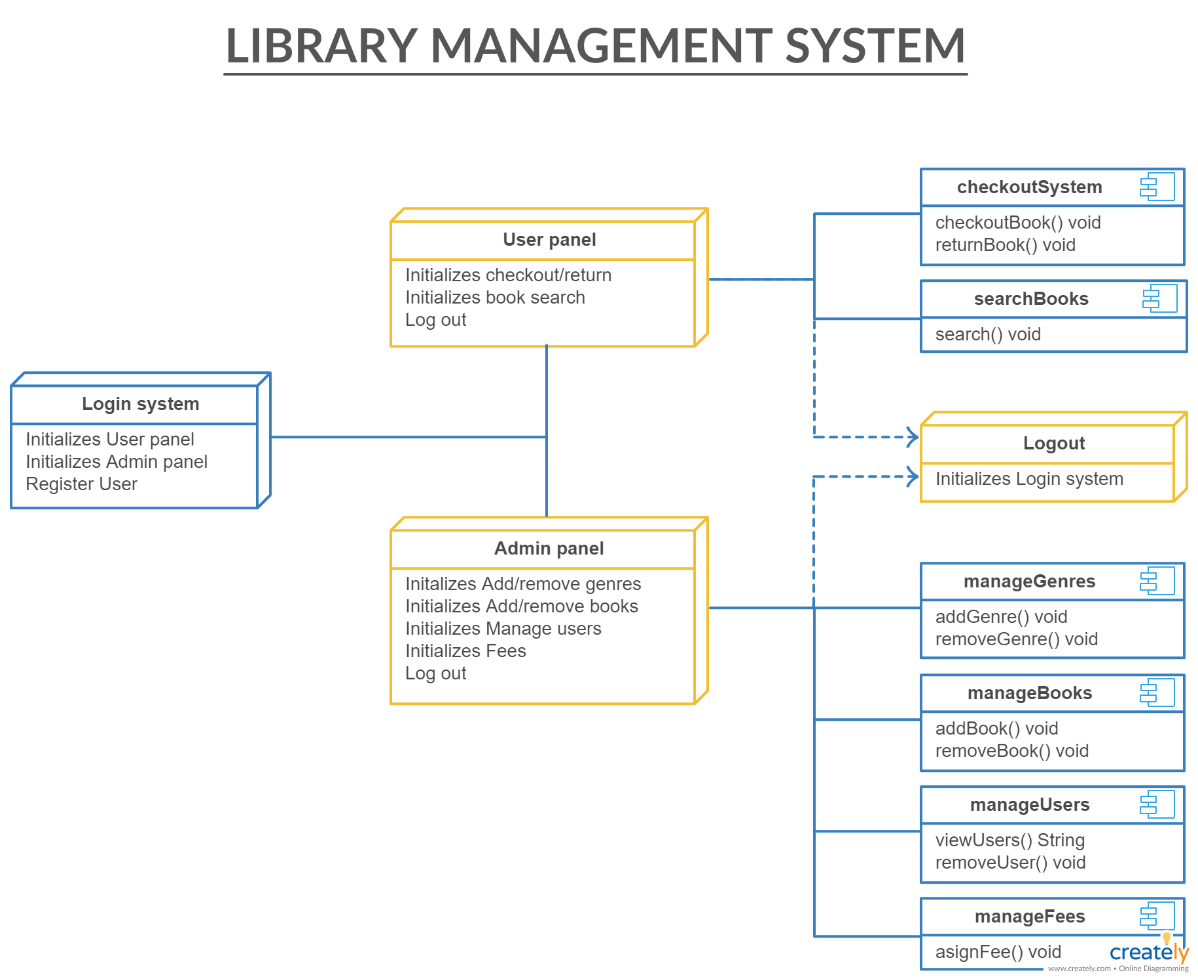
**CHAPTER 1**

## SYSTEM DESIGN

## 1.1 ACTIVITY DIAGRAM



**1.2 ARCHITECTURE DIAGRAM**



**CHAPTER 2**

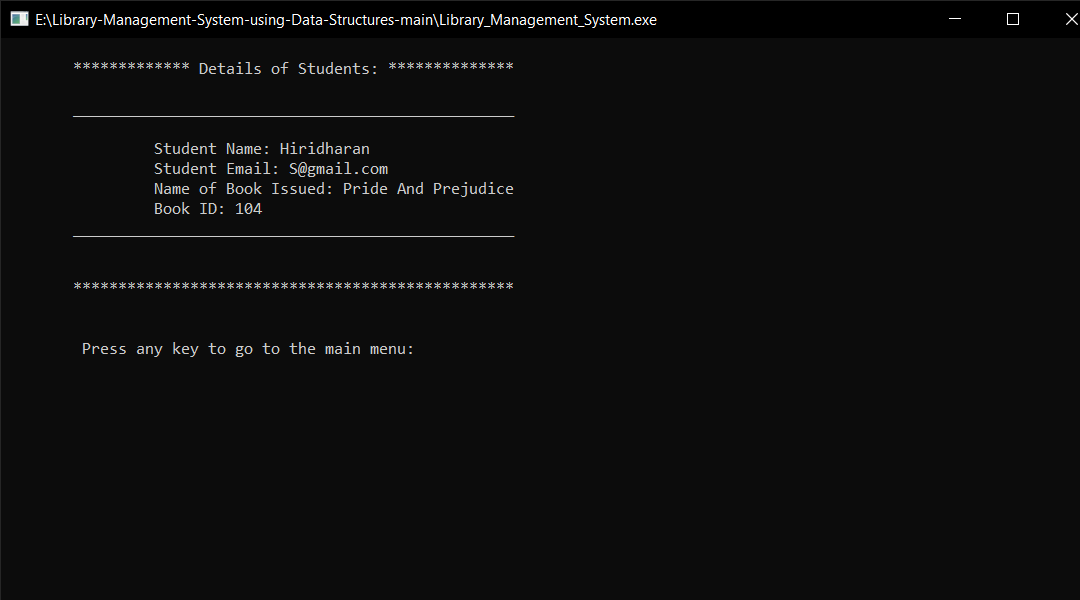
**OUTPUT**

# 1.3 First page output:

# C:\Users\HIRIDHARAN\Videos\Captures\E__Library-Management-System-using-Data-Structures-main_Library_Management_System.exe 20-11-2022 09_59_47 PM.png

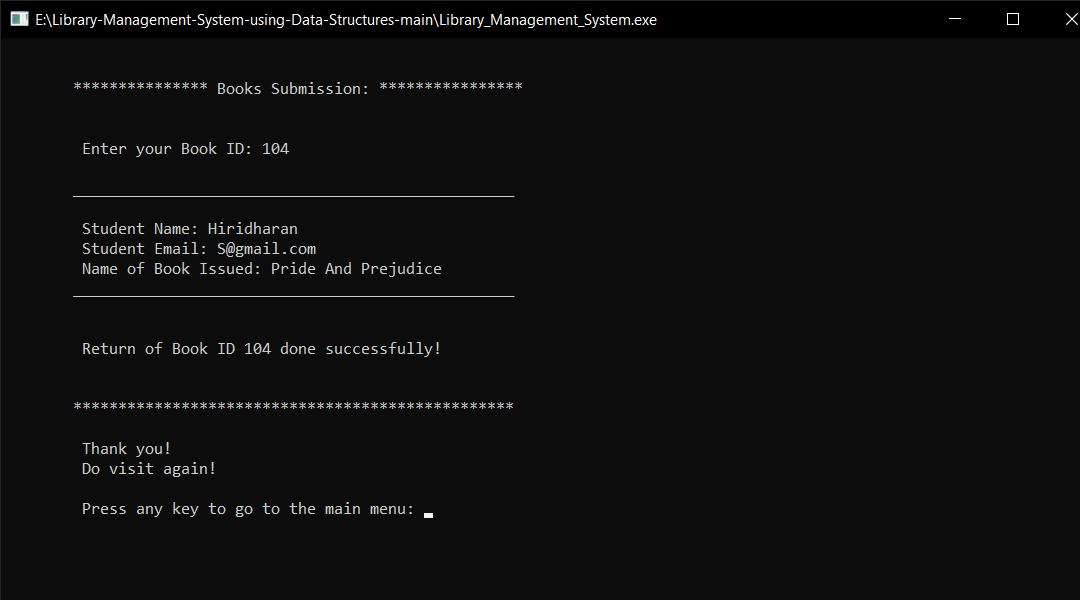
**FIG 1.1**

**Student details output:**

****

**FIG 1.2**

**Book Returnee output:**

****

**FIG 1.3**

**CHAPTER 3**

**CONCLUSION**

Library Management system is sure to provide a soulution to improve uniformity and integrity among students, book enthusiasts, readers and librarian by improving the system organizationally and basically by alleviating user experience and providing a better way to organize and find

## CHAPTER 4 REFERENCES

1. Book of Data structures through C G. S Baluja.

2. Pieren Garry Department of computer science

New York University.

3.Paul Xavier department of algorithms in c

Amsterdam.

4. Surendrakumar Ahuja IItdelhi department of

computer science delhi .

5. Nick jones department of data mining Australia.

6.Wikipedia sequential search.

|  |
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|  |
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## APPENDIX

**SourceCode:**

**#include <stdio.h>**

**#include <conio.h>**

**#include <stdlib.h>**

**#include <malloc.h>**

**#include <string.h>**

**struct book{**

**char name[30];**

**char author[30];**

**int id;**

**struct book \*next;**

**};**

**struct student{**

**char name[30];**

**char email[20];**

**char book[20];**

**char a[30];**

**int id;**

**struct student \*next;**

**};**

**struct book \*start\_lib=NULL;**

**struct student \*start=NULL;**

**struct book \*initialize\_lib(struct book \*);**

**struct student \*book\_issue(struct student \*);**

**struct student \*book\_return(struct student \*);**

**struct book \*diplay\_lib(struct book \*);**

**struct book \*delete\_book(int);**

**struct book \*add\_book(char [],char [],int);**

**void display(struct student \*);**

**void greetings();**

**void main\_menu();**

**int main(){**

**start\_lib=initialize\_lib(start\_lib);**

**greetings();**

**main\_menu();**

**return 0;**

**}**

**void greetings(){**

**printf("\n\n");**

**printf("\t\t\t \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \* ---------------------------- \*\n");**

**printf("\t\t\t \* WELCOME TO STUDENT LIBRARY \*\n");**

**printf("\t\t\t \* ---------------------------- \*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\n\n");**

**printf("\t\t\t \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \* ------------------------ \*\n");**

**printf("\t\t\t \* STUDENT LIBRARY \*\n");**

**printf("\t\t\t \* ------------------------ \*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \* Mumbai,Maharashtra,India \*\n");**

**printf("\t\t\t \* Email: studentlib@gmail.com \*\n");**

**printf("\t\t\t \* Contact:8800991010,8800992020 \*\n");**

**printf("\t\t\t \* \*\n");**

**printf("\t\t\t \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\n\n\t\t\t Press any key to continue: ");**

**getch();**

**}**

**void main\_menu(){**

**int choice;**

**do{**

**printf("\n\n");**

**printf("\n\t\t\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\n\t\t\t\t MAIN MENU: ");**

**printf("\n\t\t\t\t 1.ISSUE OF BOOKS ");**

**printf("\n\t\t\t\t 2.RETURN OF BOOKS ");**

**printf("\n\t\t\t\t 3.DISPLAY STUDENT DETAILS ");**

**printf("\n\t\t\t\t 4.EXIT\n ");**

**printf("\n\t\t\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\n\t\t\t\t Enter your choice: ");**

**scanf("%d",&choice);**

**switch(choice){**

**case 1:{**

**start=book\_issue(start);**

**break;**

**}**

**case 2:{**

**start=book\_return(start);**

**break;**

**}**

**case 3:{**

**display(start);**

**break;**

**}**

**case 4:{**

**exit(1);**

**}**

**default:{**

**printf("\n\t\t\t\t ...Invalid Option!...\n");**

**printf("\n\t\t\t\t Press any key to try again: ");**

**getch();**

**}**

**}**

**}while(choice!=4);**

**}**

**struct book \*initialize\_lib(struct book \*start){**

**struct book \*ptr,\*new\_book1,\*new\_book2,\*new\_book3,\*new\_book4,\*new\_book5;**

**new\_book1=(struct book \*)malloc(sizeof(struct book));**

**new\_book1->next=NULL;**

**start\_lib=new\_book1;**

**strcpy(new\_book1->name,"The Kite Runner");**

**strcpy(new\_book1->author,"Khaled Hosseini");**

**new\_book1->id=101;**

**ptr=new\_book1;**

**new\_book2=(struct book\*)malloc(sizeof(struct book));**

**new\_book2->next=NULL;**

**strcpy(new\_book2->name,"To Kill A Mockingbird");**

**strcpy(new\_book2->author,"Harper Lee");**

**new\_book2->id=102;**

**ptr->next=new\_book2;**

**ptr=new\_book2;**

**new\_book3=(struct book\*)malloc(sizeof(struct book));**

**new\_book3->next=NULL;**

**strcpy(new\_book3->name,"The Alchemist");**

**strcpy(new\_book3->author,"Paulo Coelho");**

**new\_book3->id=103;**

**ptr->next=new\_book3;**

**ptr=new\_book3;**

**new\_book4=(struct book\*)malloc(sizeof(struct book));**

**new\_book4->next=NULL;**

**strcpy(new\_book4->name,"Pride And Prejudice");**

**strcpy(new\_book4->author,"Jane Austen");**

**new\_book4->id=104;**

**ptr->next=new\_book4;**

**ptr=new\_book4;**

**new\_book5=(struct book\*)malloc(sizeof(struct book));**

**new\_book5->next=NULL;**

**strcpy(new\_book5->name,"A Tale Of Two Cities");**

**strcpy(new\_book5->author,"Charles Dickens");**

**new\_book5->id=105;**

**ptr->next=new\_book5;**

**return start\_lib;**

**}**

**struct student \*book\_issue(struct student \*start){**

**struct book \*ptr;**

**struct student \*ptr2,\*new\_student;**

**int i=1,id,flag=0;**

**if(start\_lib==NULL){**

**printf("\n\t\t\t\t No books left in the library to issue!\n\t\t\t\t Sorry for the inconvenience!\n");**

**}else{**

**system("cls");**

**ptr=start\_lib;**

**printf("\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Books Available: \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**while(ptr!=NULL){**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**printf("\n\t Book %d",i);**

**printf("\n\t Book Title: %s",ptr->name);**

**printf("\n\t Name of Author: %s",ptr->author);**

**printf("\n\t Book ID: %d",ptr->id);**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**ptr=ptr->next;**

**i++;**

**}**

**printf("\n\n\t Enter the Book ID: ");**

**scanf("%d",&id);**

**ptr=start\_lib;**

**while(ptr!=NULL){**

**if(ptr->id==id){**

**flag=1;**

**break;**

**}**

**ptr=ptr->next;**

**}**

**if(flag==1){**

**ptr=start\_lib;**

**while(ptr->id!=id){**

**ptr=ptr->next;**

**}**

**new\_student=(struct student \*)malloc(sizeof(struct student));**

**printf("\n\t Enter Student Details:\n ");**

**printf("\n\t Enter your Name: ");**

**scanf("%s",new\_student->name);**

**printf("\n\t Enter your Email: ");**

**scanf("%s",new\_student->email);**

**strcpy(new\_student->book,ptr->name);**

**strcpy(new\_student->a,ptr->author);**

**new\_student->id=ptr->id;**

**new\_student->next=NULL;**

**printf("\n\t Issue of Book ID %d done successfully!\n",new\_student->id);**

**printf("\n\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**if(start==NULL){**

**start=new\_student;**

**}else{**

**ptr2=start;**

**while(ptr2->next!=NULL){**

**ptr2=ptr2->next;**

**}**

**ptr2->next=new\_student;**

**}**

**start\_lib=delete\_book(new\_student->id);**

**printf("\n\n\t Press any key to go to the main menu: ");**

**getch();**

**system("cls");**

**}else{**

**printf("\n\t\t ...Invalid Option!...\n");**

**printf("\n\t\t Press any key to try again: ");**

**getch();**

**system("cls");**

**}**

**}**

**return start;**

**}**

**struct student \*book\_return(struct student \*start){**

**struct student \*ptr,\*preptr;**

**char bookname[30],authorname[30];**

**int flag=0,id,identity,c=0,d=1;**

**printf("\n\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* Books Submission: \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\n\n\t Enter your Book ID: ");**

**scanf("%d",&identity);**

**ptr=start;**

**while(ptr!=NULL){**

**if(ptr->id==identity){**

**flag=1;**

**break;**

**}**

**ptr=ptr->next;**

**}**

**if(flag==1){**

**ptr=start;**

**while(ptr!=NULL){**

**c++;**

**ptr=ptr->next;**

**}**

**ptr=start;**

**while(ptr->id!=identity){**

**d++;**

**ptr=ptr->next;**

**}**

**ptr=start;**

**if( d==1 ){**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**printf("\n\t Student Name: %s",start->name);**

**printf("\n\t Student Email: %s",start->email);**

**printf("\n\t Name of Book Issued: %s",start->book);**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**printf("\n\n\t Return of Book ID %d done successfully!\n",identity);**

**printf("\n\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**strcpy(bookname,start->book);**

**strcpy(authorname,start->a);**

**id=start->id;**

**start=start->next;**

**free(ptr);**

**add\_book(bookname,authorname,id);**

**}else{**

**ptr=start;**

**while(ptr->id!=identity){**

**preptr=ptr;**

**ptr=ptr->next;**

**}**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**printf("\n\t Student Name: %s",ptr->name);**

**printf("\n\t Student Email: %s",ptr->email);**

**printf("\n\t Name of Book Issued: %s",ptr->book);**

**printf("\n\t Book ID: %d",ptr->id);**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**strcpy(bookname,ptr->book);**

**strcpy(authorname,ptr->a);**

**id=ptr->id;**

**preptr->next=ptr->next;**

**free(ptr);**

**add\_book(bookname,authorname,id);**

**}**

**printf("\n\t Thank you! \n\t Do visit again! ");**

**printf("\n\n\t Press any key to go to the main menu: ");**

**getch();**

**system("cls");**

**}else{**

**printf("\n\tSorry the book doesn't exist! Please recheck the entered ID");**

**printf("\n\t\t\t\t Press any key to try again: ");**

**getch();**

**system("cls");**

**}**

**return start;**

**}**

**void display(struct student \*start){**

**struct student \*ptr;**

**ptr=start;**

**while(ptr!=NULL){**

**printf("\n\t\*\*\*\*\*\*\*\*\*\*\*\*\* Details of Students: \*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**printf("\n\t\t Student Name: %s",ptr->name);**

**printf("\n\t\t Student Email: %s",ptr->email);**

**printf("\n\t\t Name of Book Issued: %s",ptr->book);**

**printf("\n\t\t Book ID: %d",ptr->id);**

**printf("\n\t\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\n");**

**printf("\n\n\t\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\n");**

**ptr=ptr->next;**

**}**

**printf("\n\n\t Press any key to go to the main menu: ");**

**getch();**

**system("cls");**

**}**

**struct book \*delete\_book(int id){**

**struct book \*ptr,\*preptr;**

**int c=0;**

**ptr=start\_lib;**

**while(ptr!=NULL){**

**c++;**

**ptr=ptr->next;**

**}**

**if(c==1){**

**ptr=start\_lib;**

**start\_lib=NULL;**

**free(ptr);**

**}else if(start\_lib->id==id){**

**ptr=start\_lib;**

**start\_lib=start\_lib->next;**

**free(ptr);**

**}else{**

**ptr=start\_lib;**

**while(ptr->id!=id){**

**preptr=ptr;**

**ptr=ptr->next;**

**}**

**preptr->next=ptr->next;**

**free(ptr);**

**}**

**return start\_lib;**

**}**

**struct book \*add\_book(char bookname[30],char authorname[30],int id){**

**struct book \*ptr,\*new\_book;**

**new\_book=(struct book \*)malloc(sizeof(struct book));**

**strcpy(new\_book->name,bookname);**

**strcpy(new\_book->author,authorname);**

**new\_book->id=id;**

**new\_book->next=NULL;**

**if(start\_lib==NULL){**

**start\_lib=new\_book;**

**}else{**

**ptr=start\_lib;**

**while(ptr->next!=NULL){**

**ptr=ptr->next;**

**}**

**ptr->next=new\_book;**

**}**

**return start\_lib;**

**}**