DEPARTMENT OF BASIC SCIENCE AND HUMANITIES
INSTITUTE OF ENGINEERING AND MANAGEMENT, KOLKATA

"LIBRARY MANAGEMENT SYSTEM"

Submitted by:-

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Section: I
Class Roll Number: 24
Stream: ECE
Subject: Programming for Problem Solving
Subject Code: ESC-103 (Pr)

Under the supervision of:-
Prof. Swarnendu Ghosh

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(PROJECT REPORT SUBMITTED IN FULFILLMENT OF THE REQUIREMENTS FOR THE SECOND SEMESTER)

CERTIFICATE OF RECOMMENDATION

We hereby recommend that the project prepared under our supervision by **Subhradip Bal**, entitled **"Library Management System"** be accepted in fulfillment of the requirements for the degree of fulfillment of the second semester.

Head of the Department IEM, Kolkata	Project Supervisor Basic Science and Humanities

1. Introduction:

This project is assigned to me for developing a Library Management System with the help of basic C programming language.

The basic aim of the project is to create a library management system where we need to put up basic book and reader details and thereby with the help of c programming, we have to create a portal (.exe file) for adding new books, searching books, adding new reader, searching readers, issuing books, submitting books, deleting books, deleting readers and finally seeing all the books in the library at a glance.

2. Variable Description:

The different variables used in this project are listed under:-

1. int- To store integer datatypes.
2. char- To store character datatypes.

3. Function Description:

The different functions (structures) used in this project are listed under:-

1. reader- For storing the required reader details *vis.* name, id and due date.
2. book- For storing the required book details *viz.* name, author, availability and reader info.

4. Source Code:

Library Management System.c

```
#include <stdio.h>
#include <stdlib.h>
int main(){
    struct reader{
        int id;
        char name[20];
        char due;
        int dbid;
    } rdr[10]={0};
    struct book{
```

```
        int id;
        char name[30];
        char author[20];
        char avbl;
        int rid;
    } bk[20]={0};
    int choice, searchid, searchid1, n, m, i;
    printf("\n\t\tWELCOME!\n");
    do{
    printf("\n\tLibrary Management System\n\t========================\n1. Add
a new book\t\t2. Search book\n3. Add new reader\t4. Search reader\n5. Issue
book\t\t6. Submit book\n7. Delete book\t\t8. Delete reader\n9. List of
books\t10. Exit\n\nEnter your choice: ");
    scanf("%d", &choice);
    switch(choice){
        case 1:
                for( i=0; i<20; i++){
                    if (bk[i].id==0){
                        printf("Enter name of the book: ");
                        scanf("%s", bk[i].name);
                        printf("Enter name of the author: ");
                        scanf("%s", bk[i].author);
                        printf("Enter book ID: ");
                        scanf("%d", &bk[i].id);
                        bk[i].avbl='y';
                        bk[i].rid=0;
                        i=20;
                        printf("Book added successfully.\n\n");
                    }
                }break;
        case 2:
                printf("Enter book ID: ");
                scanf("%d", &searchid);
                n=0;
                for( i=0; i<20; i++){
                    if (searchid == bk[i].id){
                    printf("\n\tBook Information\nBook ID: %d\tBook Name:
%s\nAuthor Name: %s\nAvailable: %c\tDue by Reader ID: %d\n", bk[i].id,
bk[i].name, bk[i].author, bk[i].avbl, bk[i].rid);
                    n++;
                    }
                }if(n==0){
                    printf("Book not found.\n\n");
                }break;
        case 3:
                for(i=0; i<10; i++){
                    if (rdr[i].id==0){
                        printf("Enter Reader's name: ");
                        scanf("%s", rdr[i].name);
                        printf("Enter Reader id: ");
                        scanf("%d", &rdr[i].id);
```

```
                        rdr[i].due='n';
                        rdr[i].dbid=0;
                        i=10;
                        printf("Reader added successfully.\n\n");
                    }
                }break;
        case 4:
                printf("Enter Reader ID: ");
                scanf("%d", &searchid);
                n=0;
                for(i=0; i<10; i++){
                    if (searchid==rdr[i].id){
                        printf("\n\tReader Information\nReader ID: %d\tReader
Name: %s\nDue: %c\t\tDue book ID: %d\n", rdr[i].id, rdr[i].name, rdr[i].due,
rdr[i].dbid);
                    n++;
                    }
                }if(n==0){
                    printf("Reader not found.\n\n");
                }   break;
        case 5:
                printf("Enter book ID: ");
                scanf("%d", &searchid);
                printf("Enter reader ID: ");
                scanf("%d", &searchid1);
                n=0;
                m=0;
                for(i=0; i<20; i++){
                    if (searchid==bk[i].id && bk[i].avbl=='y'){
                        bk[i].avbl='n';
                        bk[i].rid=searchid1;
                        n++;
                        i=20;
                    }
                }for(i=0; i<10; i++){
                    if (searchid1==rdr[i].id && rdr[i].due=='n'){
                        rdr[i].due='y';
                        rdr[i].dbid=searchid;
                        m++;
                        i=10;
                    }
               }if(n==1 && m==1){
                    printf("Book issued successfully.\n\n");
               }else if(n==1 && m==0){
                   for( i=0; i<20; i++){
                        if (searchid==bk[i].id){
                            bk[i].avbl='y';
                            bk[i].rid=0;
                            i=20;
                        }
```

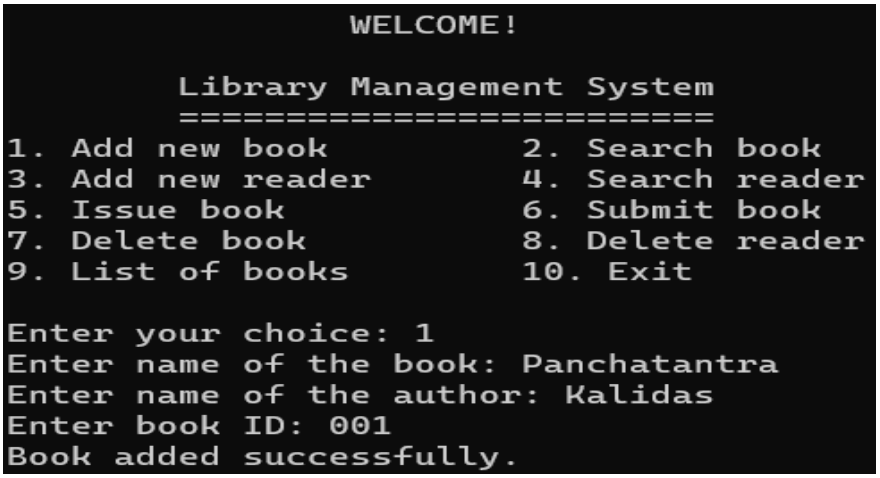
```
            }printf("Book not issued.\nReader has a due book.\n\n");
        }break;
case 6:
        printf("Enter book ID: ");
        scanf("%d", &searchid);
        for(i=0; i<20; i++){
            if (searchid==bk[i].id){
                bk[i].avbl='y';
                searchid1=bk[i].rid;
                bk[i].rid=0;
            }
        }for(i=0; i<10; i++){
            if (searchid1==rdr[i].id){
                rdr[i].due='n';
                rdr[i].dbid=0;
            }
        }printf("Book ID %d submitted successfully.\n\n", searchid);
break;
case 7:
        printf("Enter book ID to be deleted: ");
        scanf("%d", &searchid);
        n=0;
        for(i=0; i<20; i++){
            if (searchid==bk[i].id){
                for(i=i; i<20; i++){
                    bk[i]=bk[i+1];
                }n++;
            }
        }if(n!=0){
            printf("Book ID %d deleted.\n\n", searchid);
        }else
            printf("Book not found.\n\n");
break;
case 8:
        printf("Enter reader ID to be deleted: ");
        scanf("%d", &searchid);
        n=0;
        for(i=0; i<10; i++){
            if (searchid==rdr[i].id){
                for(i=i; i<10; i++){
                    rdr[i]=rdr[i+1];
                }
                n++;
            }
        }if(n!=0){
            printf("Reader ID %d deleted.\n\n", searchid);
        }else
            printf("Reader not found.\n\n");
break;
case 9:
```

```
                n=0;
                for( i=0; i<20; i++){
                    if(bk[i].id != 0){
                        n++;
                    }
                }printf("\n\t\tBook list\tTotal books:
%d\n\nID\tName\t\t\tAuthor\t\t\tAvailable\tReader ID\n\n", n);
                for( i=0; i<20; i++){
                    if(bk[i].id != 0){
                    printf("%d\t%s\t\t%s\t\t%c\t\t%d\n", bk[i].id, bk[i].name,
bk[i].author, bk[i].avbl, bk[i].rid);
                    }
                }break;
        case 10:
                printf("\n\tTHANK YOU!");
                exit(0);
        break;
        default:
                   printf("CHOICE NOT FOUND!! Please enter choice between 1 and
10.\n\n");
                        }
    }while(choice!=10);
    return 0;
}
```

5. Outputs:

Sample outputs (screenshots) to demonstrate the functionalities in programs are listed below.

1. Adding a book…



2. Searching for a book…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 2
Enter book ID: 001

        Book Information
Book ID: 1      Book Name: Panchatantra
Author Name: Kalidas
Available: y    Due by Reader ID: 0
```

3. Adding a new reader…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 3
Enter Reader's name: Sammy
Enter Reader id: 14
Reader added successfully.
```

4. Searching for a reader…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 4
Enter Reader ID: 14

        Reader Information
Reader ID: 14   Reader Name: Sammy
Due: n          Due book ID: 0
```

5. Issuing a book…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 5
Enter book ID: 001
Enter reader ID: 14
Book issued successfully.
```

6. Submitting a book…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 6
Enter book ID: 1
Book ID 1 submitted successfully.
```

7. Removing a book…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 7
Enter book ID to be deleted: 1
Book ID 1 deleted.
```

8. Removing a reader…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 8
Enter reader ID to be deleted: 14
Reader ID 14 deleted.
```

9. Viewing the list of all books in the library…

```
        Library Management System
        =========================
1. Add new book          2. Search book
3. Add new reader        4. Search reader
5. Issue book            6. Submit book
7. Delete book           8. Delete reader
9. List of books         10. Exit

Enter your choice: 9

                Book list       Total books: 4

ID      Name                    Author                  Available       Reader ID

2       Cindrella               Timmy           n               14
1       Panchatantra            Kalidas         y               0
3       Potter          Jackey          y               0
4       Physics         Ramanujan               n               12
```