MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Skill Based Mini Project Report

on

Library Management System

Submitted By:

Aditya Soni

0901CD211006

Faculty Mentor:

Mahesh Parmar

ASSISTANT PROFESSOR

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MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

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CERTIFICATE

This is certified that **Aditya Soni** (0901CD211006) has submitted the project report titled **Library Management System** under the mentorship of **Mahesh Parmar**, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.

Mahesh Parmar
Faculty Mentor
Assistant Professor
Computer Science and Engineering

DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of **Mahesh Parmar**, **Assistant Professor**, Department of Computer Science and Engineering**.**

I declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

Aditya Soni
0901CD211006
1st Year,
Computer Science and Engineering

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Aditya Soni
0901CD211006
1st Year,
Computer Science and Engineering

ABSTRACT

The Library Management System is an application for assisting a librarian in managing a book library in a university. The system would provide basic set of features to add/update student details , add/update book details, and manage log in specifications for the system.

Library Management System is a type of Management Information System, its development include the establishment and maintenance of back-end database and front-end application development aspects. For the former require the establishment of data consistency and integrity of the strong data security and good libraries. As for the latter requires the application fully functional, easy to use and so on.

TABLE OF CONTENTS

<u>ABBREVIATION</u>

- **OOPs -> Object Oriented Programming**

- **QUE -> QUESTIONS**

- **And different variables**

Chapter 1: INTRODUCTION

1.1 What is OOPs:

- **Object-oriented programming** (**OOPs**) is a programming paradigm based on the concept of "objects", which can contain data and code. The data is in the form of fields (aka attributes or properties), and the code is in the form of procedures (aka methods).

- **OOPs** concentrates on the objects that programmers desire to manipulate rather than the logic necessary to do so. Large, sophisticated, and actively updated or maintained programmes are a good fit for this method of development. This encompasses mobile applications as well as design and production software. OOPs, for instance, can be applied to management information system softwares.

1.2 PROCEDURE :

- Create objects of the class student_reg.
- Store static data of students for login purpose.
- Create variable array of data type struct library.
- Call function libtest(). The function libtest contains the static data for all the books available in the library.
- Initialize and declare all the variables required for the functioning of the program.
- Now create an array of objects of class student_reg for storing the details of newly registered candidates.
- Now we'll call the function digilib. digilib() stores the welcoming pattern of digital library.
- Now the function 'options' is called. Here we'll pass all the necessary arguments required for the working of this function.
    - This function is used to provide user the following functions :
    - Register a new student.
    - Login.
    - Exit.
        - If user chooses the option 'a', the further process takes place-
            - The program takes the input of user's name and id.
        - If user chooses the option 'b',
            - The user is required to provide the login id.
        - If user chooses the option 'c',
            - The program comes to an end.

- In case if the user chooses the option 'a' or 'b', after providing the necessary details, the user is redirected to the page containing the following operations:
    - View Book List.
    - Issue Book.
    - Return Book.
    - Back.
        - If user chooses the operation (i),
            - The user is shown the list of all the available books in the library.

- If user chooses the operation (ii),
    - o The user will be shown the book list and then the user is required to enter the serial number of the book which the user wants to issue.
    - o In case, if a user doesn't enter serial number from the book list displayed above, the message-

        "No Such Book Found" will be displayed.
    - o If the selected book is already issued, the message-

        "This book has already been issued" will be displayed.
    - o In all other cases, the book will be successfully issued.

- If user chooses the operation (iii),
    - o If no book has been issued, the user will be shown the message -
        - "No books have been issued yet.".
    - o Else,
        - The user will be required to enter the serial number of the book which the user wants to return.
        - In case, if a user doesn't enter the correct serial number, the message-

        - "No Such Book in the Records" will be displayed.
    - o If the selected book is not issued, the message-
        - "This book has not been issued yet" will be displayed.
    - o In all other cases, the book will be successfully returned.

- If user chooses the operation (iv),
    - o The user will be redirected to the main page.

Chapter 2: FLOW CHART

START → Display Options → Choose 1.Register 2.Login 3.Exit

A → Display Options

Choose 1.Register 2.Login 3.Exit:
- 1 → 1.Register a Student Take input Name and ID → X
- 2 → 2.Login Enter Login ID → Y
- 3 → 3.Exit → STOP
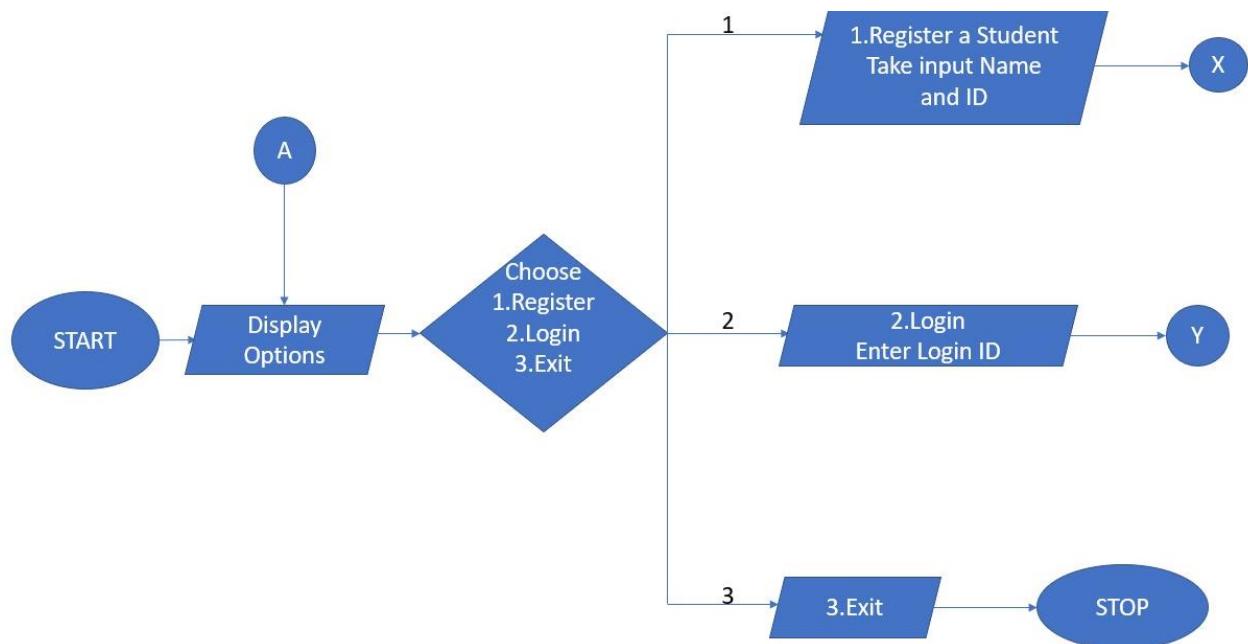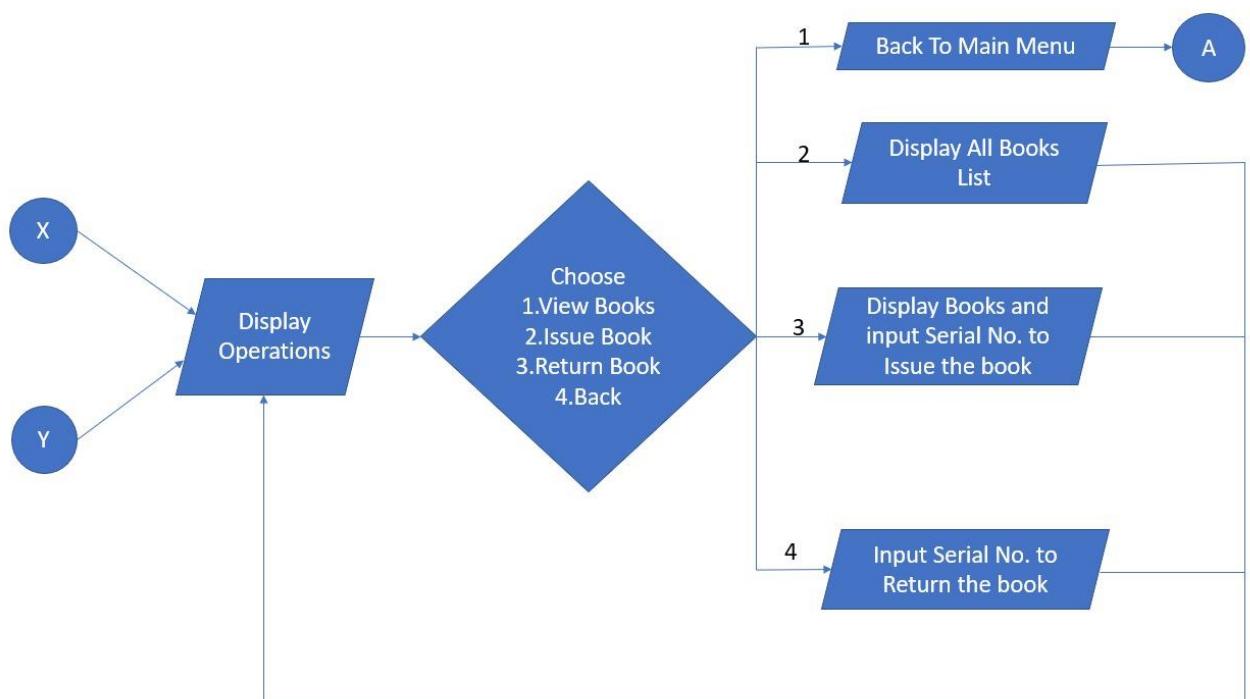
Chapter 3: CLASS DIAGRAM

student_reg

- student name
- student id

+ new student()
+ wlcm()
+ wlcm(int)
+ wlcm(string)

Chapter 4: CODE IN C++ OOPS

```cpp
#include<iostream>
#include<string>
#include<conio.h>

using namespace std;

int lid;
bool issue[10];

char issueb(int m)
{
      if(issue[m]==0){
      return 'N';
      }
      else
      return 'Y';
}

struct library
{
      int serial;
      string bookname;
      string author;
};

void digilib()
{
      cout<<"\n--------------------------------------------------------------------------------------------------------------\n";

      cout<<"\n\t\t\t#########################################################";
      cout<<"\n\t\t\t###########                                 ############";
      cout<<"\n\t\t\t###########         DIGITAL
      LIBRARY        ############";
      cout<<"\n\t\t\t###########                                 ############";

      cout<<"\n\t\t\t#########################################################";
```

```cpp
        cout<<"\n\n--------------------------------------------------------------------------
        ---------------------------------\n\n";
}

void libtest(struct library  a[])
{
        a[0].serial=1;
        a[0].bookname = "Harry Potter Volume1";
        a[0].author = "           J.K. Rowling         ";
        issue[0]=0;

        a[1].serial=2;
        a[1].bookname = "Think and Grow Rich";
        a[1].author = "           Napoleon Hill       ";
        issue[1]=0;

        a[2].serial=3;
        a[2].bookname = "The Alchemist";
        a[2].author = "               Paulo Coelho       ";
        issue[2]=0;

        a[3].serial=4;
        a[3].bookname = "The Lord of the Rings";
        a[3].author = "           J.R.R. Tolkien        ";
        issue[3]=0;

        a[4].serial=5;
        a[4].bookname = "A Tale of Two Cities";
        a[4].author = "           Charles Dickens        ";
        issue[4]=0;

        a[5].serial=6;
        a[5].bookname = "My Journey         ";
        a[5].author = "           Dr. A.P.J. Abdul Kalam";
        issue[5]=0;

        a[6].serial=7;
        a[6].bookname = "Rich Dad Poor Dad";
        a[6].author = "           Robert T. Kiyosaki ";
        issue[6]=0;
        a[7].serial=8;
        a[7].bookname = "The Hunger Games";
```

```cpp
        a[7].author = "               Suzanne Collins  ";
        issue[7]=0;

        a[8].serial=9;
        a[8].bookname ="The Chronicles of Narnia";
        a[8].author = "       C.S. Lewis        ";
        issue[8]=0;

        a[9].serial=10;
        a[9].bookname = "Gone with the Wind";
        a[9].author = "          Margaret Mitchell";
        issue[9]=0;

}

void pattern()
{
        cout<<"\n                ###############  BOOK
        LIST  ###############                  \n\n";

        cout<<"========================================================
================================================================\n";

        cout<<"S.No.          BOOK
        NAME                        AUTHOR            ISSUED(Y/N)\n";

        cout<<"========================================================
================================================================\n";
}


class student_reg
{
        string name;
        int id;
        public:
        student_reg(){
                name = " ";
                id=0;
        }

        student_reg(string n,int i){
                name=n;
```

```cpp
                    id=i;
            }

            void newstudent()
            {
                    cout<<"\t\t\t\tEnter Your Name :";
                    cin.ignore();
                    getline(cin,name);
                    cout<<"\t\t\t\tEnter Your ID :";
                    cin>>id;
                    cout<<"\t\t\t\tYou are now Successfully registered\n"<<endl;
            }

            void wlcm()
            {
                    cout<<"\t\t\t\tWelcome To Digital Library "<<name<<endl;
            }

            void wlcm(int i)
            {
                    cout<<"\n\n\t\t\t\tChoose from the options below"<<endl;
                    cout<<"\t\t\t\t1.View Book List\n\t\t\t\t2.Issue Book\n\t\t\t\t3.Return
                    Book\n\t\t\t\t4.Back\n\t\t\t\t"<<endl;
            }

            void wlcm(string s)
            {
                    cout<<"\t\t\t\tWelcome To Digital Library "<<s<<endl;
            }

            friend void options(int ch,student_reg s[],int ch1,struct library lib[],int st,
                                    int sr,int k,int n,int idl,int ab,student_reg
                                     stcstudent,student_reg stcstudent1);

};

void options(int ch,student_reg s[],int ch1,struct library lib[],int st,int sr,int k,int n,int
            idl,int ab,student_reg stcstudent,student_reg stcstudent1)
{
    do
        {
                    cout<<"\n\n\t\t\t\tChoose from the options below:"<<endl;
                    cout<<"\t\t\t\t1.Register a new student\n";
```

```cpp
                    cout<<"\t\t\t\t2.Login\n\t\t\t\t\t";
                    cout<<"3.Exit\n\t\t\t\t\t";
                    cin>>ch;
                    switch(ch){
                            case 1:{
                                     k++;
                                    s[k].newstudent();
                                    s[k].wlcm();
                    LG:
                    do{
                            s[k].wlcm(1);
                            cin>>ch1;
                            switch(ch1){
                                    case 1:
                                            pattern();
                                            for(int i=0;i<10;i++){
                                                    cout<<lib[i].serial<<"\t\t";
                                                    cout<<lib[i].bookname<<"\t\t";
                                                    cout<<lib[i].author<<"\t\t";
                                                    cout<<issueb(i)<<"\n";
                                            }
                                            break;
                                    case 2:
                                            pattern();
                                            for(int i=0;i<10;i++){
                                                    cout<<lib[i].serial<<"\t\t";
                                                    cout<<lib[i].bookname<<"\t\t";
                                                    cout<<lib[i].author<<"\t\t";
                                                    cout<<issueb(i)<<"\n";
                                            }
                                            cout<<"\t\t\t\tEnter the serial number of the book
                                            you want to issue\t\t\t\t"<<endl;
                                            cin>>st;
                                            if(!issue[st-1]&&(st>=1&&st<=10)){
                                            issue[st-1]=1;
                                            cout<<"\t\t\t\tYour book has been successfully
                                            issued\n\n"<<endl;
                                            n++;
                                            }
                                            else if(st>10||st<1)
                                            {
                                                    cout<<"\t\t\t\tNo Such Book Found";
                                            }
```

```cpp
                                else{
                                        cout<<"\t\t\t\tThis book has already been
                                        issued";
                                }

                                break;
                        case 3:
                                if(n==0){
                                        cout<<"\t\t\t\t!! No books have been issued
                                        yet !!";
                                }
                                else if{
                                        cout<<"\t\t\t\tEnter the serial number of the
                                        book you want to return\t\t\t\t"<<endl;
                                        cin>>sr;
                                        if(issue[sr-1]&&(sr>0&&sr<=10)){
                                                issue[sr-1]=0;
                                                cout<<"\t\t\t\tYour book has been
                                                successfully returned\n\n"<<endl;
                                        n--;
                                }
                                else if(sr>10||sr<1){
                                        cout<<"\t\t\t\tNo Such Books in the
                                        Records\n";
                                }
                                else{
                                        cout<<"\t\t\t\tThis book has not been issued
                                        yet\n";
                                }
                                }
                                break;

                case 4:
                        cout<<"\t\t\t\tThankyou for using digital library"<<endl;
                        break;

            default:
                        cout<<"\n\t\t\t\t!!Wrong input!!";
        }
        } while(ch1!=4);
        break;
}
```

```cpp
        case 2:
                 cout<<"\t\t\t\t\tEnter your id:";
                cin>>idl;
                if((idl==stcstudent.id) || (idl==stcstudent1.id)){
                if(idl==stcstudent.id){
                        ab=0;
                }
                else{
                        ab=1;
                }
                if(ab==0){
                        s[k].wlcm(stcstudent.name);}
                else if(ab==1){
                        s[k].wlcm(stcstudent1.name);}
                        goto LG;
                }
            else{
                        cout<<"\t\t\t\t!! No login details found!!"<<endl;
                }

     case 3:
    {
        cout<<"\t\t\t\tThankyou for using digital library"<<endl;
         break;
    }

    default:
     cout<<"\n\t\t\t\t!!Wrong input!!";
    }

  }while(ch!=3);
 }

int main()
{
        student_reg stcstudent("Chirag Bachwani",1001);
        student_reg stcstudent1("Ujjawal Jain",1002);
        struct library lib[10];
        libtest(lib);
        int k=-1,ch,st,b,sr,n=0,idl,ab;
        int ch1;
        student_reg s[10];
        digilib();
```

```
        options(ch,s,ch1,lib,st,sr,k,n,idl,ab,stcstudent,stcstudent1);
        return 0;
}
```

Chapter 5: PROGRAM OUTPUT SNIPPETS

```
------------------------------------------------------------------------

        ############################################################
        ###########                                    ###########
        ###########           Digital Library          ###########
        ###########                                    ###########
        ############################################################


------------------------------------------------------------------------




                        Choose from the options below:
                        1.register a new student
                        2.Login
                        3.Exit
```

```
Choose from the options below:
1.register a new student
2.Login
3.Exit
1
Enter your name :Ansh Maheshwari
Enter your id :1
You are now Successfully registered

Welcome to digital library Ansh Maheshwari


Choose from the options below
1.view book list
2.issue book
3.Return book
4.Back
```

```
1

            ##############   BOOK LIST   ##############


===============================================================================
S.No.          BOOK NAME                     AUTHOR             ISSUED(Y/N)
===============================================================================
1              Harry Potter Volume1          J.K. Rowling            N
2              Think and Grow Rich           Napoleon Hill           N
3              The Alchemist                 Paulo Coelho            N
4              The Lord of the Rings         J.R.R. Tolkien          N
5              A Tale of Two Cities          Charles Dickens         N
6              My Journey                    Dr. A.P.J. Abdul Kalam  N
7              Rich Dad Poor Dad             Robert T. Kiyosaki      N
8              The Hunger Games              Suzanne Collins         N
9              The Chronicles of Narnia      C.S. Lewis              N
10             Gone with the Wind            Margaret Mitchell       N


                        Choose from the options below
                        1.view book list
                        2.issue book
                        3.Return book
                        4.Back
```

```
                        Choose from the options below
                        1.view book list
                        2.issue book
                        3.Return book
                        4.Back

2

            ##############   BOOK LIST   ##############


===============================================================================
S.No.          BOOK NAME                     AUTHOR             ISSUED(Y/N)
===============================================================================
1              Harry Potter Volume1          J.K. Rowling            N
2              Think and Grow Rich           Napoleon Hill           N
3              The Alchemist                 Paulo Coelho            N
4              The Lord of the Rings         J.R.R. Tolkien          N
5              A Tale of Two Cities          Charles Dickens         N
6              My Journey                    Dr. A.P.J. Abdul Kalam  N
7              Rich Dad Poor Dad             Robert T. Kiyosaki      N
8              The Hunger Games              Suzanne Collins         N
9              The Chronicles of Narnia      C.S. Lewis              N
10             Gone with the Wind            Margaret Mitchell       N
                        Enter the serial number of the book you want to issue
1

                        Your book has been successfully issued
```

```
                        Your book has been successfully issued




                        Choose from the options below
                        1.view book list
                        2.issue book
                        3.Return book
                        4.Back

1

              ###############   BOOK LIST   ###############

================================================================================
S.No.          BOOK NAME                          AUTHOR              ISSUED(Y/N)
================================================================================
1              Harry Potter Volume1               J.K. Rowling             Y
2              Think and Grow Rich                Napoleon Hill            N
3              The Alchemist                      Paulo Coelho             N
4              The Lord of the Rings              J.R.R. Tolkien           N
5              A Tale of Two Cities               Charles Dickens          N
6              My Journey                         Dr. A.P.J. Abdul Kalam   N
7              Rich Dad Poor Dad                  Robert T. Kiyosaki       N
8              The Hunger Games                   Suzanne Collins          N
9              The Chronicles of Narnia           C.S. Lewis               N
10             Gone with the Wind                 Margaret Mitchell        N
```

```
                        Choose from the options below
                        1.view book list
                        2.issue book
                        3.Return book
                        4.Back


3

                        Enter the serial number of the book you want to return

1

                        Your book has been successfully returned




                        Choose from the options below
                        1.view book list
                        2.issue book
                        3.Return book
                        4.Back
```

```
Choose from the options below
1.view book list
2.issue book
3.Return book
4.Back


4


Thankyou for using digital library


Choose from the options below:
1.register a new student
2.Login
3.Exit
2
Enter your id:1001
Welcome to digital library chirag


Choose from the options below
1.view book list
2.issue book
3.Return book
4.Back
```

```
Choose from the options below
1.view book list
2.issue book
3.Return book
4.Back


4


Thankyou for using digital library


Choose from the options below:
1.register a new student
2.Login
3.Exit
3
Thankyou for using digital library
```

<u>CONCLUSION</u>

The project LIBRARY MANAGEMENT SYSTEM is for computerizing the working in a library. The software takes care of all the requirements of an a library and is capable to provide easy and effective storage of information related to books & users.

REFERENCES

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