A

Project Report

On

“**LIBRARY MANAGEMENT”**

Submitted in the partial fulfillment

For the Award of the Bachelor Degree Of

BCA



**Guided By: Submitted TO:**

Mehboob Ali KKC College,

Sardarshahar

**Submitted By:**

ABHISHEK SONI

ADITYA KUMAR DHAREWA

HEMANT SINGH RATHORE

ANIL KUMAR

**Index**

S.NO PARTICULARS PAGE.NO

1 Acknowledgement 3

2 Certificate 4

3 Project Profile 5

4 Table of Content 6

5 Software Requirement Specification 8

6 System Requirement Specification 11

7 Coding 12

8 Design 42

9 Project Testing 59

10 Data Flow Diagram 60

11 Conclusion 61

12 Bibloigraphy 62

**Acknowledgement**

It is pleasure to acknowledge many people who knowingly and unwittingly helped me, to complete my project. First of all let me praise God all the blessings, which carried me through all these years.

I am particularly indebted to **KKC PG COLLEGE, Sardarshahar** which include me at most respect for Human value and groomed me up in the field of software technology to take on the challenges of competitive corporate world.

A project is a type of activity in which we have to develop a working model for a particular problem. To achieve this, first of all we have to study it well. It kind of stuff is not possible without the help of a senior person or an expert who already worked in the same direction. We are thankful to all the faculties of C.S. department, HOD sir and all the college management, our project guide for the guidance he provided us and encouraged us to work on this project. It was not possible for us to prepare this project without their guidance and immense help.

I was able to work for such a good organization and excel in the work entrusted upon me. I am grateful to all my friends and well-wishes for providing feedback and support whenever required. Parents made us endure such time with their unfailing humor and warm wishes

**Self Certificate**

This is to certify, that practical project of “BCA” named “**LIBRARY MANAGEMENT”** has been successfully completed by “**ABHISHEK SONI**” student of **BCA** During the year 2018-19, in the partial fulfillment for the award of degree of BCA, offered by the MAHARAJA GANGA SINGH UNIVERSITY, BIKANER.

ABHISHEK SONI

**BCA FINAL**

**(MGSU)**

**Project Profile**

**Project Title** **LIBRARY MANAGEMENT**

**Application** Library\_Management.csproj

**Software Exposure**

* **Backend** C#
* **Front end** Microsoft Visual Studio 2010

**Hardware Requirement**

a) System Pentium Series Processor or Higher

b) Printer Deskjet / Laser Jet / DMP

c) Operating System Windows 98 /Xp/7/8/Vista/10

**Table of Content**

1**. Introduction**

2 .**Software model**

3.**Software Requirement Specifications**

**3.1 Introduction**

3.1.1 Purpose

3.1.2 Scope

3.1.3 Definitions, Acronyms and Abbreviations

3.1.4 References

3.1.5 Technologies to be used

3.1.6 Overview

**3.2 Overall Description**

3.2.1 Use case model survey

3.2.2 Database document

3.2.3 Assumptions and Dependencies

3.3 Specification Requirements

3.4 Concerns / Queries / Double if any:

**4 System Requirement Specifications**

H/W requirement

S/W requirement

**5 Coding**

**6. Designing**

**1. INTRODUCTION**

The Project “LIBRARY MANAGEMENT” is management software to manage books in the Library . It reached at the conclusion on the behalf of these information.

This project provides various information regarding Faculties, Students and Books which are issued from Library.

This project includes various modules like:-

1. Admin :-

(A) Manage Faculties.

(B) Manage Students.

(C) Manage Books.

2. Faculty :-

(A) Search Books.

(B) Return Books.

(C) Borrow Books

(D) Renew Book.

(E) View Book issue Details.

3. Student :-

(A) Search Books.

(B) Return Books.

(C) Borrow Books.

(D) View Book issue Details.

This is open source project which can be easily modified and can be expandable.

**2) Coding and Unit testing:-**In the coding and testing phase the designers are translated in software domain. Detailed documentation from the design phase can significantly reduce the coding effort. Testing at this phase focuses on making sure that any errors are identified and that the software meets its required specification.

**3) Integration and System Testing**: - In the integration and system testing phase at the program unit are integration and tested to ensure that the complete system meet software requirement. After this stage the software is delivered to the customer.

**4) Operation and Maintenance**: - Software will undoubtedly undergo changes after it is delivered to the customer. Software support/maintenance reapplies each of the preceding phases to existing software than a new one.

**3. SOFTWARE REQUIREMENT SPECIFICATION**

**3.1 Introduction**

**3.1.1 Purpose**

SRS provides feedback to the customer. An SRS is the customer’s assurance that the development organization understands the issues of problems to be solved and the software behavior necessary to address those problems. The SRS should be written in natural language.

The simple act of writing down software requirement in a well designed formal organizes information, places, and borders around the problem, solidifies ideas and helps break down the problem into its components parts in an orderly as a product validation check.

**3.1.2 Scope**

Small –scales Offices

Definitions Acronyms and Abbreviations

**3.1.3 Short name**

International standard BarcodeNumber (provided by the Publisher and it is unique)

**Sr** Registration no.

**Fc** Students faculty

**FN** Form no.

**DOB`** Date of birth

**Pwd** Password

**3.1.4 References**

**3.1.5 Technologies to be used**

We will use Microsoft Visual Studio 2010 & C# to develop our project .

**3.1.6 Overview**

The rest of the SRS contain the description of survey, database document for designing database, detail of software requirement (which is sufficient to enable designer to design a system satisfy to those requirement, and testers to test that the system satisfies those requirements, supporting information, any specific project related queries will be answered.

**3.2 Overall Description**

**3.2.1. Use case model survey**

**3.2.2. Database Document**

**4. SYSTEM REQUIREMENT SPECIFICATIONS**

* Minimum Software Requirement

MS window 98 or Higher

Visual Studio 2010 , Or Higher version

64MB Ram (128MB recommended)

* Minimum Hardware Requirement

Pentium II or Higher

A Hard Drive

A MS compatible Mouse

A CD Rom Drive

**CODING**

using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;

using System.Threading.Tasks;

namespace Library\_Management

{

public class LibraryBooks

{

public int bksBorrowed;

public object[,] book = new object[5, 2];

public object[,] bookIssue = new object[3, 2];

public virtual void catalouge()

{

System.Console.WriteLine("Admin's Catalouge Management");

}

public LibraryBooks()

{

char va = 'a';

for (int i = 0; i < 5; i++)

{

for (int j = 0; j < 1; j++)

{

book[i, j] = va;

va++;

}

for (int j = 1; j < 2; j++)

{

book[i, j] = 5;

}

}

}

}

public interface Lib

{

bool searchB(string s);

void borrow(String bor, DateTime t);

void returnBook(string s);

void Details();

}

class Faculty:LibraryBooks,Lib

{

public Faculty() : base()

{

bksBorrowed = 1;

for (int i = 0; i < 3; i++)

{

for (int j = 0; j < 2; j++)

{

bookIssue[i, j] = 0;

}

}

}

public bool searchB(string s)

{

bool a=true;

for(int i=0;i<5;i++)

{

for(int j=0;j<1;j++)

{

Console.WriteLine("The Book was :"+book[i,j].ToString());

String ff=book[i,j].ToString();

Console.WriteLine(ff.Equals(s));

if(ff.Equals(s))

{

a=true;

return a;

}

else

{

a=false;

}

}

}

return a;

}

public void borrow(String bor, DateTime t)

{

if(bor.Equals("b"))

{

Console.WriteLine("You Can't borrow this journal , It is only for reference !");

return;

}

Console.WriteLine("You issued "+this.bksBorrowed+" books");

if(this.bksBorrowed<5)

{

bookIssue[this.bksBorrowed,0]=bor;

bookIssue[this.bksBorrowed,1]=t;

this.bksBorrowed++;

}

else

{

Console.WriteLine("Sorry! you are not eligible !!!!");

}

}

public void returnBook(string s)

{

for(int i=0;i<5;i++)

{

for(int j=0;j<1;j++)

{

if(book[i,j].Equals(s))

{

book[i,j+1]=(int)book[i,j+1]+1;

}

}

}

for(int i=0;i<this.bksBorrowed;i++)

{

for(int j=0;j<1;j++)

{

if(this.bookIssue[i,j].Equals(s))

{

TimeSpan f;

f=DateTime.Today-(DateTime)this.bookIssue[i,j+1];

Console.WriteLine("The TimeSpan is "+f);

if(f.TotalDays>365)

{

Console.WriteLine("");

Console.WriteLine("Your Penalty is "+f.TotalDays\*2);

Console.WriteLine("");

}

}

}

}

bksBorrowed--;

}

public void Details()

{

Console.WriteLine("Name "+" "+"Issued Date");

for(int i=1;i<this.bksBorrowed;i++)

{

for(int j=0;j<2;j++)

{

Console.Write(this.bookIssue[i,j]+" "+" ");

}

Console.WriteLine();

}

}

public void renew(string k)

{

DateTime u;

for(int i=0;i<this.bksBorrowed;i++)

{

for(int j=0;j<1;j++)

{

if(bookIssue[i,j].Equals(k))

{

bookIssue[i,j+1]=DateTime.Today;

}

}

}

Console.WriteLine("Book has been Renewed!!!");

}

}

sealed class Admin:LibraryBooks

{

public int FacNo;

public int StuNo;

public Admin()

{

FacNo=0;

StuNo=0;

}

String[,] fname=new String[5,2];

public void createFaculty(String name,String pwd)

{

for(int i=0;i<=this.FacNo;i++)

{

for(int j=0;j<1;j++)

{

this.fname[i,j]=name;

}

for(int j=1;j<2;j++)

{

this.fname[i,j]=pwd;

}

}

}

String[,] sname = new String[5, 2];

public void createStudent(String name,String pawd)

{

for(int i=0;i<=this.StuNo;i++)

{

for(int j=0;j<1;j++)

{

this.sname[i,j]=name;

}

for(int j=1;j<2;j++)

{

this.sname[i,j]=pawd;

}

}

}

public int facchk(String n,String p)

{

Console.WriteLine("Faculty no. is "+this.FacNo);

int dla=0;

if(this.FacNo==0)

{

return 2;

}

else

{

for(int i=0;i<this.FacNo;i++)

{

for(int j=0;j<1;j++)

{

string ko=this.fname[i,j];

Console.WriteLine("Name Recieved "+ko);

if(ko.Equals(n))

{

dla=1;

if(this.fname[i,j+1].Equals(p))

{

return 1;

}

}

}

}

}

if(dla==0)

return 2;

else

return 0;

}

public int Stuchk(String n, String p)

{

int dla = 0;

if (this.StuNo == 0)

{

return 2;

}

else {

for (int i=0; i<StuNo; i++)

{

for (int j=0; j<1; j++)

{

if (this.sname[i,j+1].Equals(n))

{

dla=1;

if (this.sname[i,j+1].Equals(n))

{

return 1;

}

}

}

}

}

if (dla == 0)

return 2;

else

return 0;

}

public void viewFac()

{

Console.WriteLine("Name " + " " + "Password");

for (int i=0; i<this.FacNo; i++)

{

for (int j=0; j<2; j++)

{

Console.Write(this.fname[i, j] + " ");

}

Console.WriteLine(" ");

}

}

public void viewStu()

{

Console.WriteLine("Name " + " " + "Password");

for (int i = 0; i < this.StuNo; i++)

{

for (int j = 0; j < 2; j++)

{

Console.Write(this.sname[i, j] + " ");

}

Console.WriteLine(" ");

}

}

public void catalogue()

{

String ans ="yes";

do

{

Console.WriteLine("");

Console.WriteLine("|------------------------|");

Console.WriteLine("| 1.view Books |");

Console.WriteLine("| 2.Add Books |");

Console.WriteLine("| 3.Delete Books |");

Console.WriteLine("| 4.Return to main menu |");

Console.WriteLine("|------------------------|");

Console.WriteLine("");

int n = int.Parse(Console.ReadLine());

switch (n)

{

case 1:

Console.WriteLine("Book name " + " " + "Available copies");

for (int i=0; i<5; i++)

{

for (int j=0; j<2; j++)

{

Console.Write(this.book[i,j] +" ");

}

Console.WriteLine("");

}

break;

case 2:

Console.WriteLine("Enter the name of the books");

String sn = Console.ReadLine();

Console.WriteLine("Enter the no. of copies you want to add?");

int ner=int.Parse(Console.ReadLine());

for (int i=0; i<5; i++)

{

for (int j=0; j<1; j++)

{

String sd = book[i,j].ToString();

if (sd.Equals(sn))

{

Console.WriteLine("Found you !!!!!");

book[i,j+1]=(int)book[i,j+1]+ner;

break;

}

}

}

break;

case 3:

Console.WriteLine("Enter the name of the books");

String sn1=Console.ReadLine();

Console.WriteLine("Enter the no. of copies you want to remove?");

int n2 = int.Parse(Console.ReadLine());

for (int i=0; i<5; i++)

{

for (int j=0; j<1; j++)

{

Console.WriteLine("The book is " + book[i,j]);

String sd = book[i,j].ToString();

if (sd.Equals(sn1))

{

Console.WriteLine("Found !!!!!!!! This book is available.");

book[i,j+1]=(int)book[i,j+1]-n;

break;

}

}

}

break;

case 4:

return;

}

}while(ans.Equals("yes"));

}

}

class Student:LibraryBooks,Lib

{

public Student():base()

{

bksBorrowed=1;

for(int i=0;i<3;i++)

{

for(int j=0;j<2;j++)

{

bookIssue[i,j]=0;

}

}

}

public bool searchB(string s)

{

bool a=true;

for(int i=0;i<5;i++)

{

for(int j=0;j<1;j++)

{

Console.WriteLine("The Book Was : "+book[i,j].ToString());

String ff=book[i,j].ToString();

Console.WriteLine(ff.Equals(s));

if(ff.Equals(s))

{

a=true;

return a;

}

else

a=false;

}

}

return a;

}

public void borrow(String bor,DateTime t)

{

if(bor.Equals("b"))

{

Console.WriteLine("Sorry !!! The book is only for Reference");

return;

}

Console.WriteLine("You issued " + this.bksBorrowed + " books");

if(this.bksBorrowed<2)

{

bookIssue[this.bksBorrowed,0]=bor;

bookIssue[this.bksBorrowed,1]=t;

this.bksBorrowed++;

}

else

{

Console.WriteLine("Sorry !!! You Can't borrow anymore books!!!!");

Console.WriteLine("");

}

}

public void returnBook(string s)

{

for(int i=0;i<5;i++)

{

for(int j=0;j<1;j++)

{

if(book[i,j].Equals(s))

{

book[i,j+1]=(int)book[i,j+1]+1;

}

}

}

for(int i=0;i<this.bksBorrowed;i++)

{

for(int j=0;j<1;j++)

{

if(this.bookIssue[i,j].Equals(s))

{

TimeSpan f;

f=DateTime.Today-(DateTime)this.bookIssue[i,j+1];

Console.WriteLine("The Timespan is "+f);

if(f.TotalDays==15)

{

Console.WriteLine("Your Penalty is "+f.TotalDays\*2);

Console.WriteLine("");

}

}

}

}

bksBorrowed--;

}

public void Details()

{

Console.WriteLine("Name "+" "+"Issue Date");

for(int i=0;i<this.bksBorrowed;i++)

{

for(int j=0;j<2;j++)

{

Console.Write(this.bookIssue[i,j]+" "+" ");

}

Console.WriteLine();

}

Console.WriteLine("");

}

}

class Program

{

static void Main(string[] args)

{

String ans="yes";

Admin ade=new Admin();

do

{

Console.WriteLine("");

Console.WriteLine("|--------------------------------------------------------------|");

Console.WriteLine("| |");

Console.WriteLine("|-------------WELCOME TO LIBRARY MANAGEMENT SYSTEM-------------|");

Console.WriteLine("| Please Login into One of Following Accounts : |");

Console.WriteLine("| |");

Console.WriteLine("| 1.Admin |");

Console.WriteLine("| 2.Faculty |");

Console.WriteLine("| 3.Student |");

Console.WriteLine("| 4.Exit |");

Console.WriteLine("|--------------------------------------------------------------|");

Console.WriteLine("");

int ch=int.Parse(Console.ReadLine());

Program p=new Program();

switch(ch)

{

case 1:

p.adm(ade);

break;

case 2:

Console.WriteLine("Please enter your name");

String name=Console.ReadLine();

Console.WriteLine("Please enter your password");

String pwd=Console.ReadLine();

int w=ade.facchk(name,pwd);

if(w==1)

p.fac(ade);

else if (w == 2)

{

Console.WriteLine("New User !!!");

ade.createFaculty(name, pwd);

p.fac(ade);

}

else

{

Console.WriteLine("Wrong Password or Username!!!!");

}

break;

case 3:

Console.WriteLine("Please enter your name");

String nam=Console.ReadLine();

Console.WriteLine("Please enter your Password");

String pw=Console.ReadLine();

int b=ade.Stuchk(nam,pw);

if(b==1)

p.Stu(ade);

else if(b==2)

{

Console.WriteLine("New User !!!");

ade.createStudent(nam,pw);

p.Stu(ade);

}

else

Console.WriteLine("Wrong Password or Username!!!!");

break;

case 4:

Environment.Exit(0);

break;

default:

Console.WriteLine("Please Enter a valid Choice");

break;

}

Console.WriteLine("Do You want to Continue ? yes / no");

ans=Console.ReadLine();

if (ans.Equals("no"))

{

Environment.Exit(0);

}

}

while(ans.Equals("yes"));

}

public void fac(Admin ade)

{

String ans="yes";

Faculty f=new Faculty();

ade.FacNo+=1;

do

{

Console.WriteLine("");

Console.WriteLine("|--------------------------------------------------------------|");

Console.WriteLine("| |");

Console.WriteLine("| Please make a Choice from the following : |");

Console.WriteLine("| 1.Search Books |");

Console.WriteLine("| 2.Return Books |");

Console.WriteLine("| 3.Borrow Books |");

Console.WriteLine("| 4.Renew a Book |");

Console.WriteLine("| 5.View Book issue Details |");

Console.WriteLine("| 6.Return to Main menu |");

Console.WriteLine("|--------------------------------------------------------------|");

Console.WriteLine("");

int ch=int.Parse(Console.ReadLine());

ade.catalouge();

switch(ch)

{

case 1:

Console.WriteLine("Enter the name of Book");

String name=Console.ReadLine();

bool p=f.searchB(name);

if(p==true)

Console.WriteLine("Book Found");

else

Console.WriteLine("Book not Found");

break;

case 2:

Console.WriteLine("Enter the book you want to Return");

String g=Console.ReadLine();

f.returnBook(g);

break;

case 3:

Console.WriteLine("Enter the name of Book");

string y=Console.ReadLine();

Console.WriteLine("Enter the issue Date");

DateTime t=Convert.ToDateTime(Console.ReadLine());

f.borrow(y,t);

break;

case 4:

Console.WriteLine("Enter the book to Renew");

string k=Console.ReadLine();

f.renew(k);

break;

case 5:

f.Details();

break;

case 6:

return;

}

Console.WriteLine("Do you want to Continue ? yes / no");

ans=Console.ReadLine();

if (ans.Equals("no"))

{

Environment.Exit(0);

}

}

while(ans.Equals("yes"));

}

public void Stu(Admin ade)

{

String ans = "yes";

Faculty f=new Faculty();

ade.StuNo++;

Student l = new Student();

do

{

Console.WriteLine("");

Console.WriteLine("|--------------------------------------------------------------|");

Console.WriteLine("| |");

Console.WriteLine("| Please make a Choice from the following : |");

Console.WriteLine("| 1.Search Books |");

Console.WriteLine("| 2.Return Books |");

Console.WriteLine("| 3.Borrow Books |");

Console.WriteLine("| 4.View Book issue Details |");

Console.WriteLine("| 5.Return to Main menu |");

Console.WriteLine("|--------------------------------------------------------------|");

Console.WriteLine("");

int ch = int.Parse(Console.ReadLine());

l.catalouge();

switch (ch)

{

case 1:

Console.WriteLine("Enter the name of Book");

String name = Console.ReadLine();

bool p = l.searchB(name);

if (p == true)

Console.WriteLine("Book Found");

else

Console.WriteLine("Book not Found");

break;

case 2:

Console.WriteLine("Enter the book you want to Return");

String g = Console.ReadLine();

l.returnBook(g);

break;

case 3:

Console.WriteLine("Enter the name of Book");

string y = Console.ReadLine();

Console.WriteLine("Enter the issue Date");

DateTime t = Convert.ToDateTime(Console.ReadLine());

l.borrow(y, t);

break;

case 4:

l.Details();

break;

case 5:

return;

}

Console.WriteLine("Do you want to Continue ? yes / no");

ans = Console.ReadLine();

if (ans.Equals("no"))

{

Environment.Exit(0);

}

}

while (ans.Equals("yes"));

}

public void adm(Admin ade)

{

String ans="yes";

ade.StuNo++;

Student l=new Student();

do

{

Console.WriteLine("");

Console.WriteLine("|--------------------------|");

Console.WriteLine("| 1.Manage Faculties |");

Console.WriteLine("| 2.Manage Students |");

Console.WriteLine("| 3.Mantain Books |");

Console.WriteLine("| 4.Return to main menu |");

Console.WriteLine("| Please enter your choice |");

Console.WriteLine("|--------------------------|");

Console.WriteLine("");

int ch=int.Parse(Console.ReadLine());

l.catalouge();

switch(ch)

{

case 1:

ade.viewFac();

break;

case 2:

ade.viewStu();

break;

case 3:

ade.catalogue();

break;

case 4:

return;

}

Console.WriteLine("Do you want to Continue ? yes / no");

ans=Console.ReadLine();

if (ans.Equals("no"))

{

Environment.Exit(0);

}

}

while(ans.Equals("yes"));

}

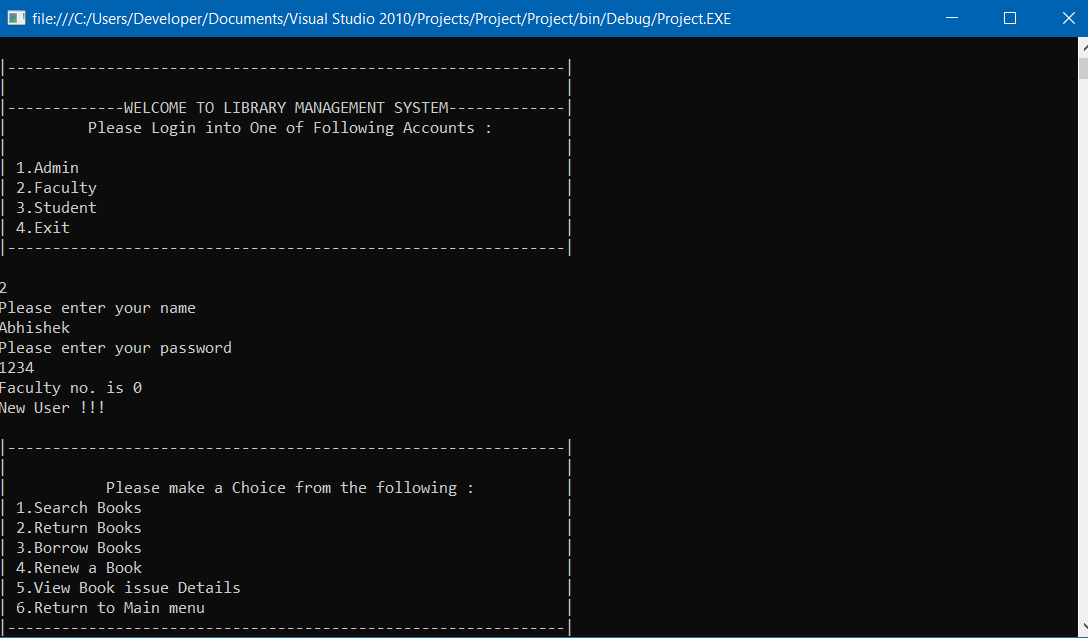
}

}

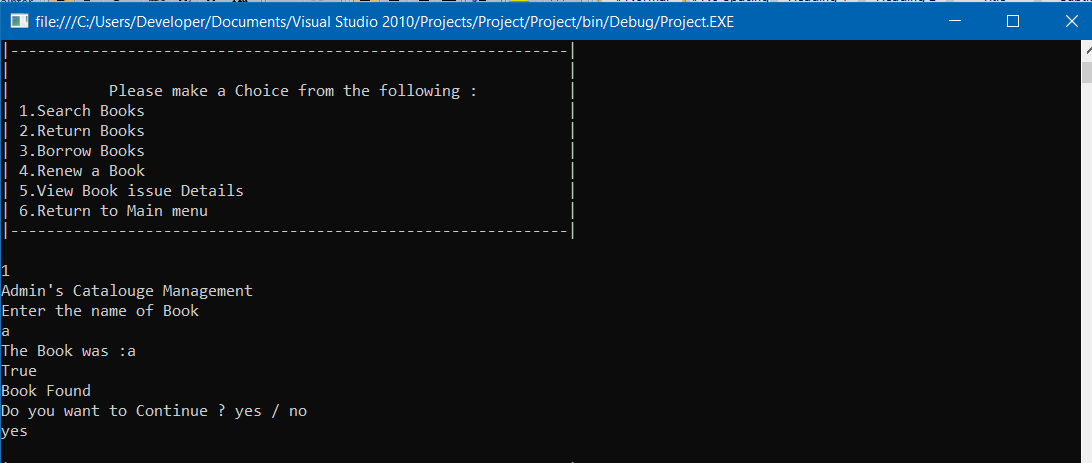
**DESIGN**

**1. Faculty**

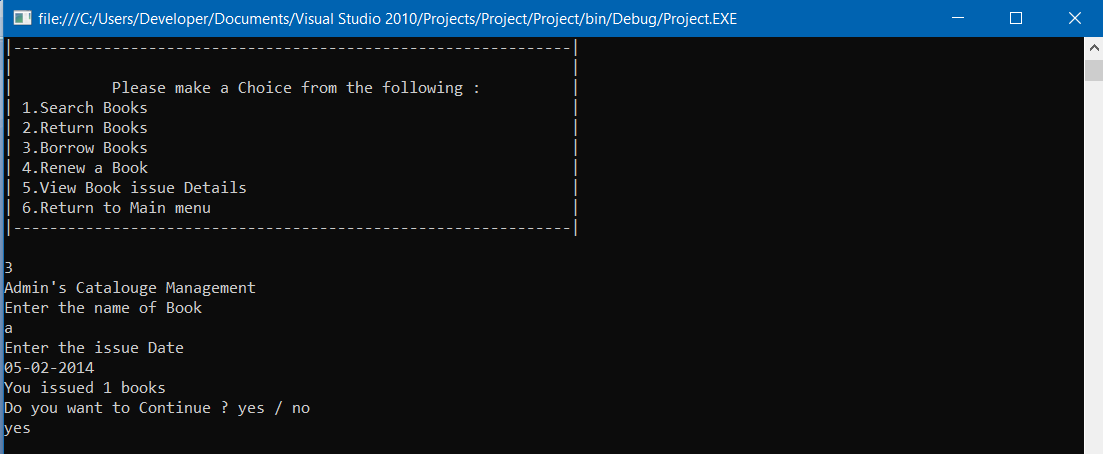
**1.1 Faculty Login**

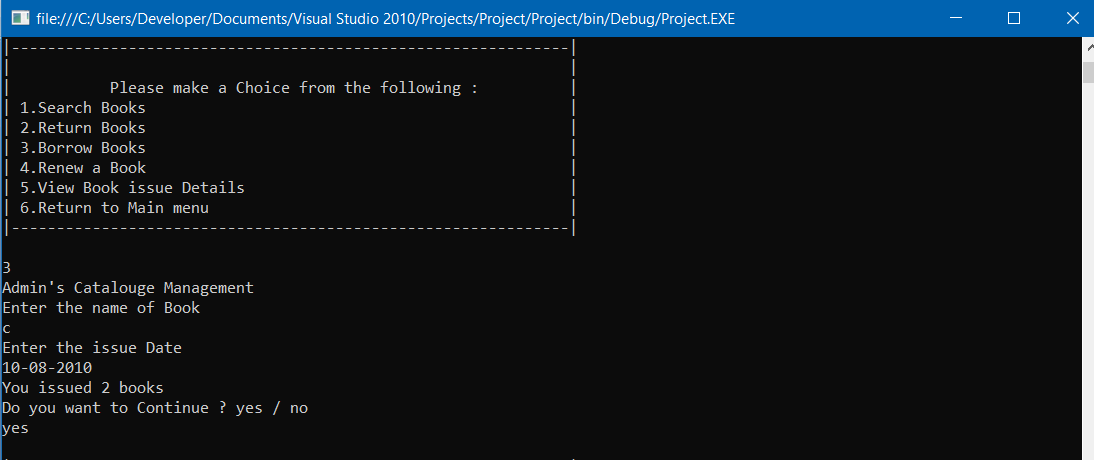
****

**1.2 Search Books**

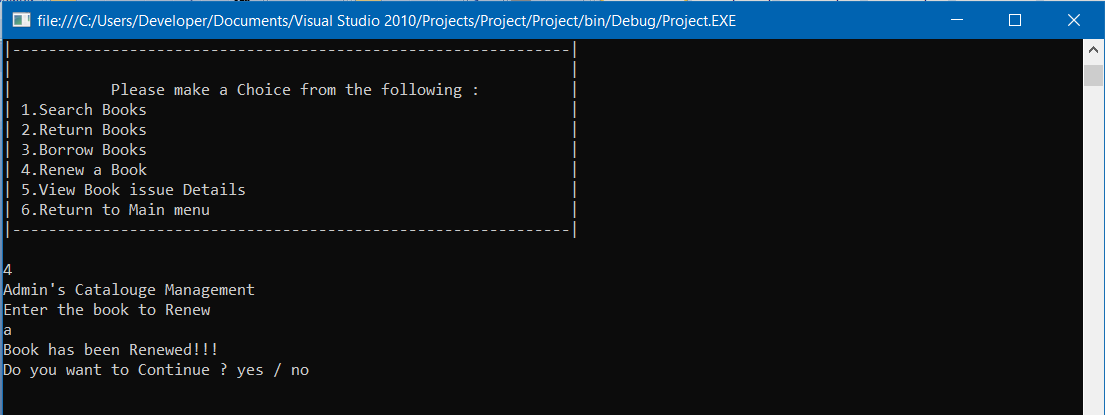
****

**1.3 Borrow Books**

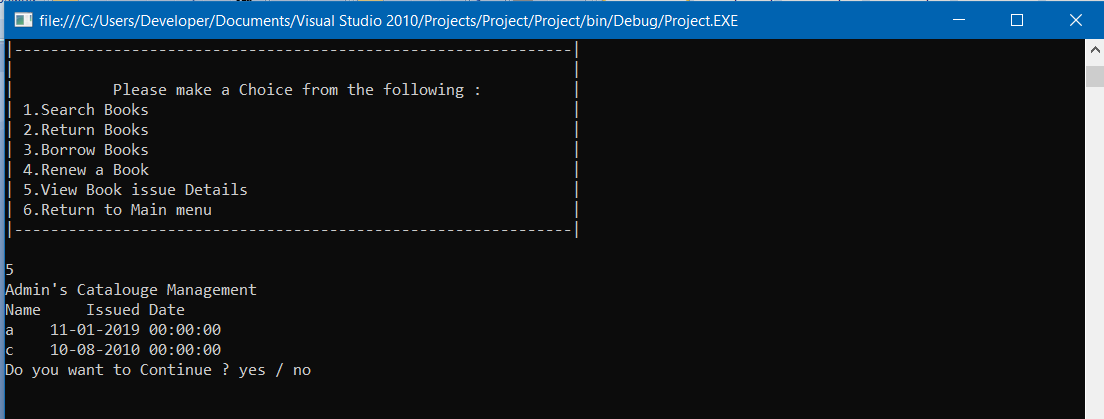
****

****

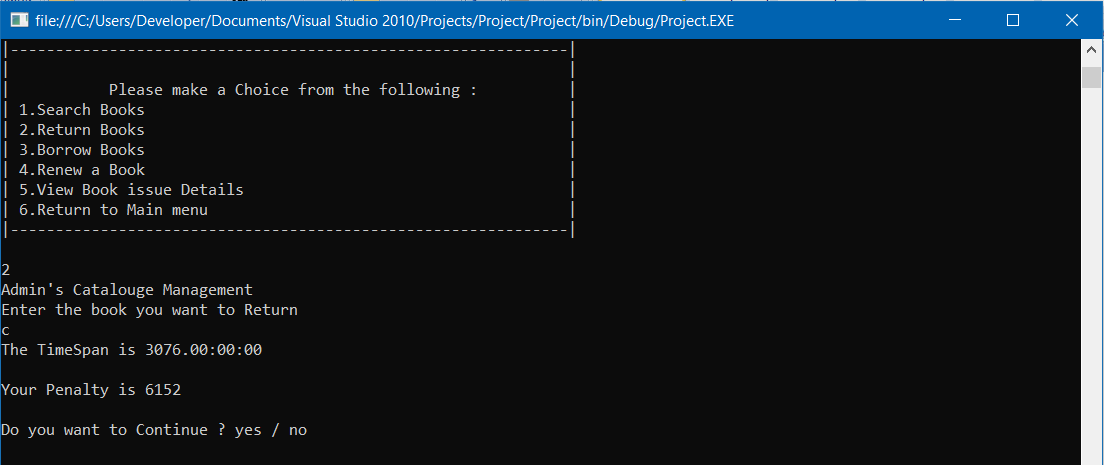
**1.4 Renew a Book**

****

**1.5 View Book Issue Details**

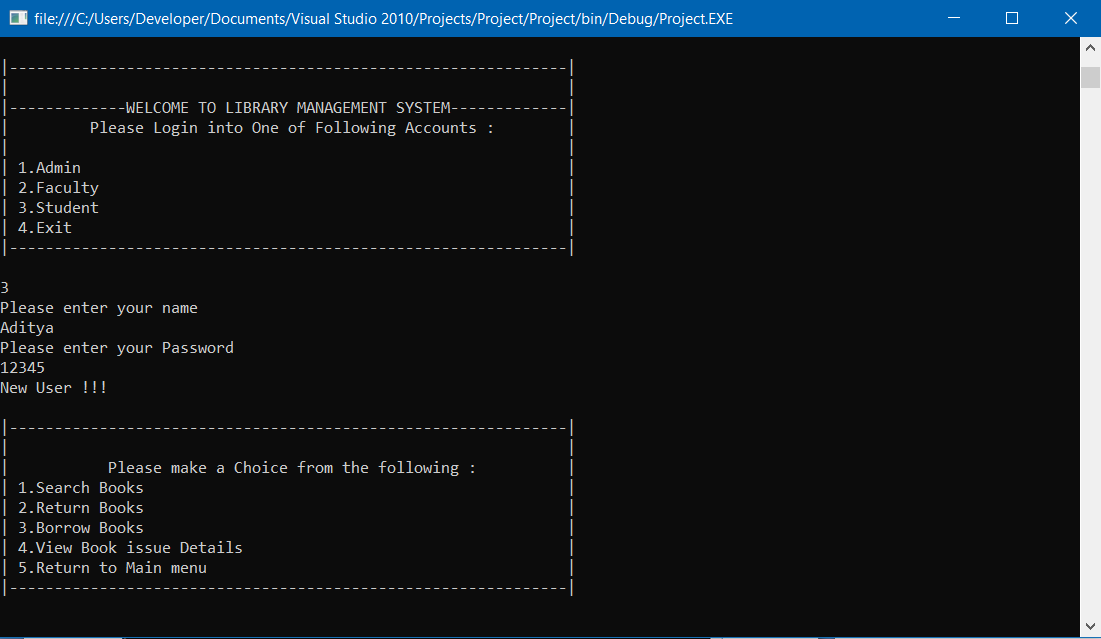
****

**1.6 Return a Book**

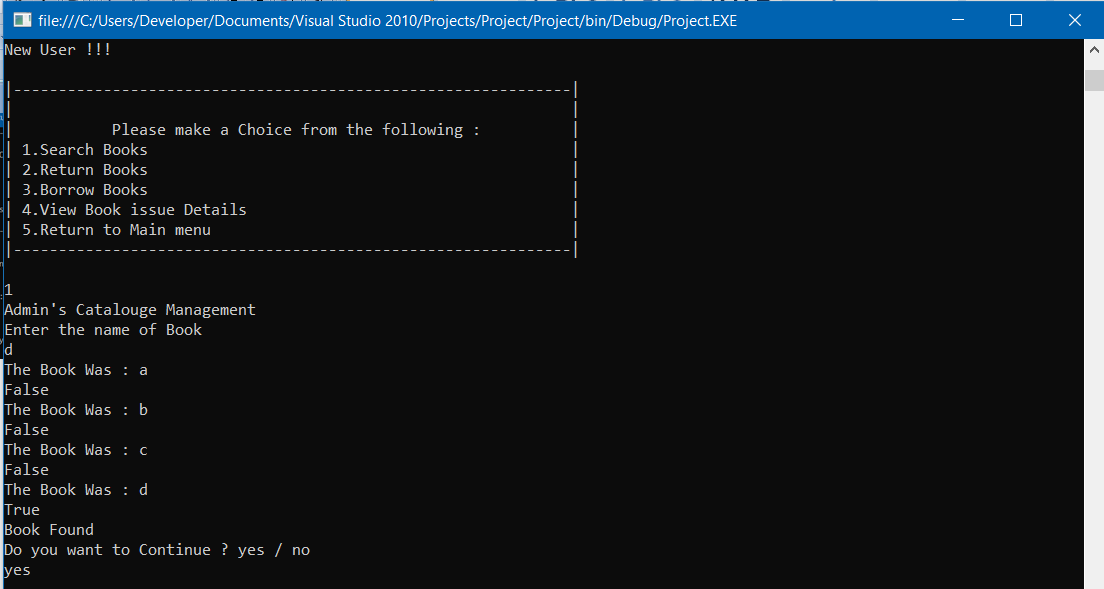
****

**2. Student**

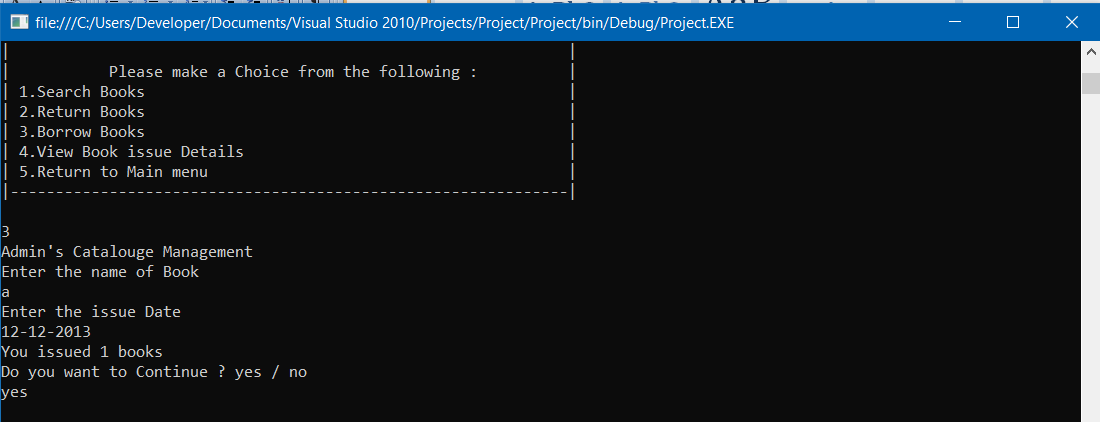
**2.1 Student Login**

****

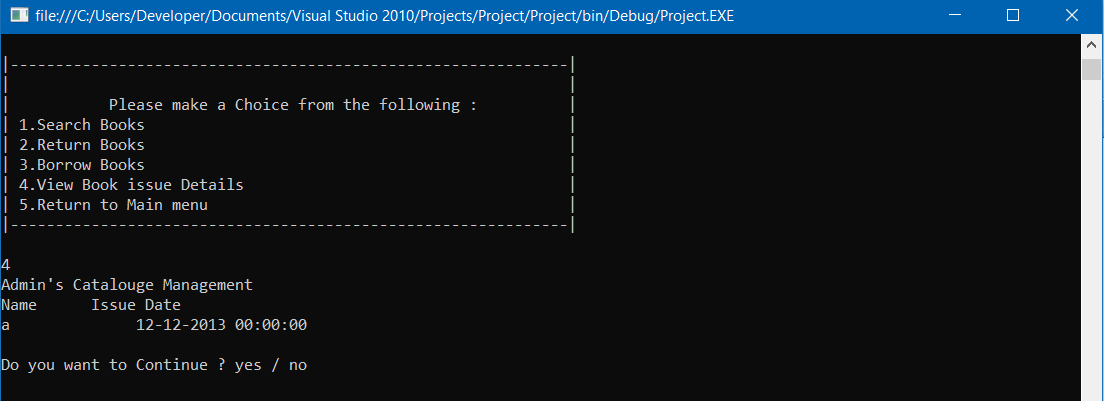
**2.2 Search Books**

****

**2.3 Borrow Books**

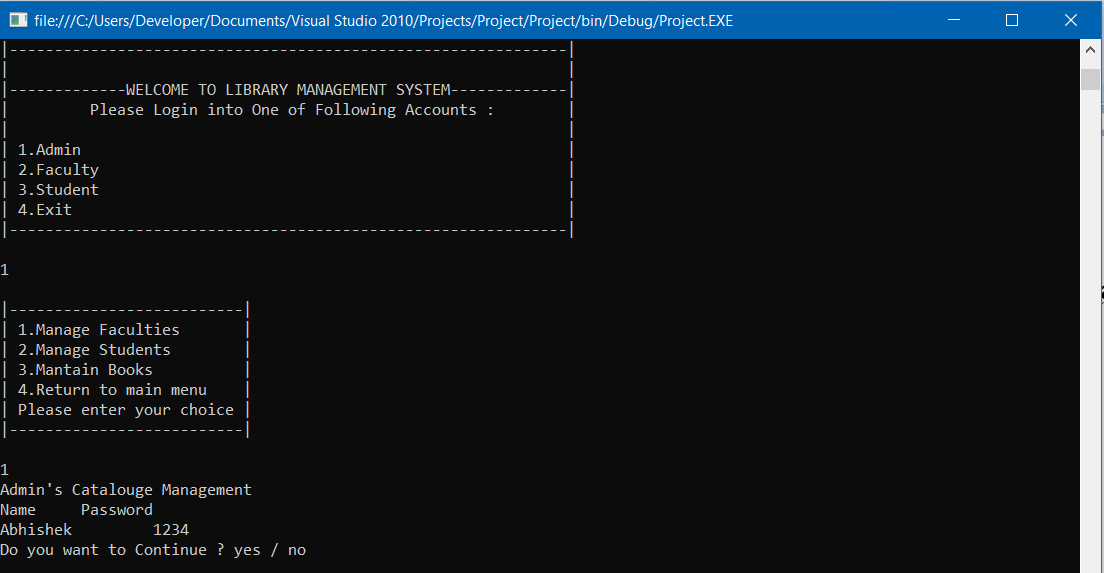
****

**2.4 View Book Issue Details**

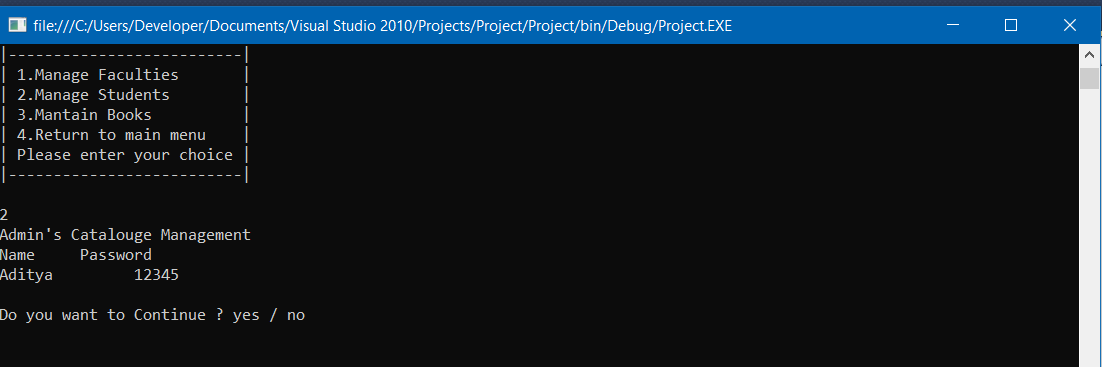
****

**3. Admin**

**3.1 Manage Faculties**

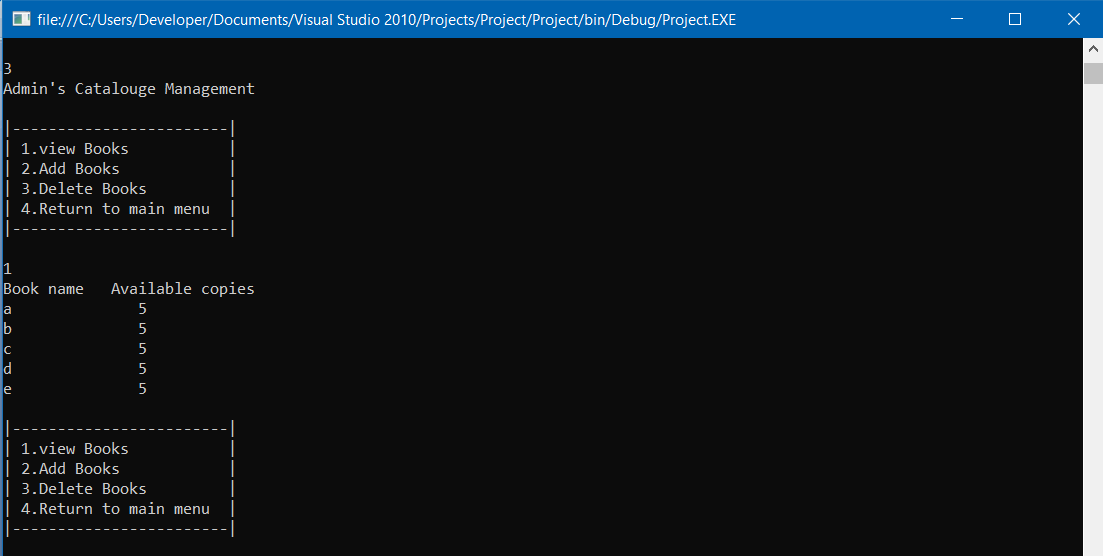
****

**3.2 Manage Students**

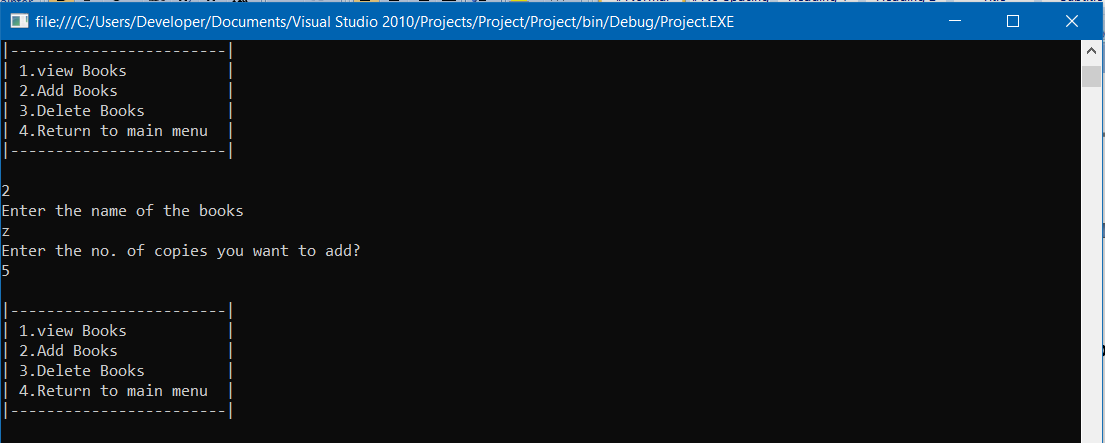
****

**3.3 Maintain Books**

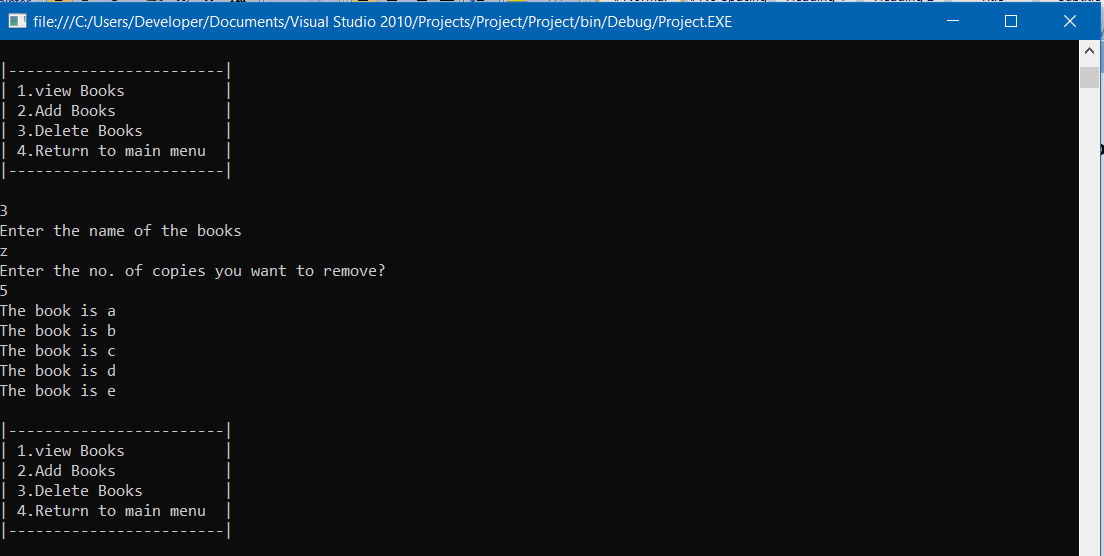
**3.3.1 View Books**

****

**3.3.2 Add Books**

****

**3.3.3 Delete Books**

****

**SOFTWARE MODEL**

We have use the waterfall Model to develop our software .

**The waterfall Model**

In waterfall Model each phase well defined starting and ending points with identifiable deliveries to the next phase. This model suggests a Systematic ,sequential approach to software development that begins at system level and progress though analysis,coding,testing and support

**Analysis and**

**System Specific**

**Design**

**Coding and Unit Testing**

**Integration and System**

**Testing**

**Operation Maintenance**

This model consists of five distinct phases:-

* **Requirement Analysis and Specification: -** The goal of this phase is to understand the exact requirement of the customer and to document them properly. The resultant document is known as Software Requirement Specification (SRS) document. This document should clearly define the product function.
* **Design:**- In this phase system specification are translated in to a software representation. The software engineers at this stage concerned with:
* Data Structure
* Software architecture
* Algorithmic detail and
* Interface representation

The hardware requirement is also determine at this phase. By the end of this phase software engineers should be able to identify the relationship between the hardware, software and interfaces.

**3) Coding and Unit testing:-**In the coding and testing phase the designers are translated in software domain. Detailed documentation from the design phase can significantly reduce the coding effort. Testing at this phase focuses on making sure that any errors are identified and that the software meets its required specification.

**4) Integration and System Testing**: - In the integration and system testing phase at the program unit are integration and tested to ensure that the complete system meet software requirement. After this stage the software is delivered to the customer.

**5) Operation and Maintenance**: - Software will undoubtedly undergo changes after it is delivered to the customer. Software support/maintenance reapplies each of the preceding phases to existing software than a new one.

SPIRAL MODEL

The spiral model is similar to the [**incremental model**](http://istqbexamcertification.com/what-is-incremental-model-advantages-disadvantages-and-when-to-use-it/), with more emphasis placed on risk analysis. The spiral model has four phases: Planning, Risk Analysis, Engineering and Evaluation. A software project repeatedly passes through these phases in iterations (called Spirals in this model). The baseline spiral, starting in the planning phase, requirements are gathered and risk is assessed. Each subsequent spirals builds on the baseline spiral. Its one of the[**software development models**](http://istqbexamcertification.com/what-are-the-software-development-models/) like [**Waterfall**](http://istqbexamcertification.com/what-is-waterfall-model-advantages-disadvantages-and-when-to-use-it/),[**Agile**](http://istqbexamcertification.com/what-is-agile-model-advantages-disadvantages-and-when-to-use-it/), [**V-Model**](http://istqbexamcertification.com/what-is-v-model-advantages-disadvantages-and-when-to-use-it/).

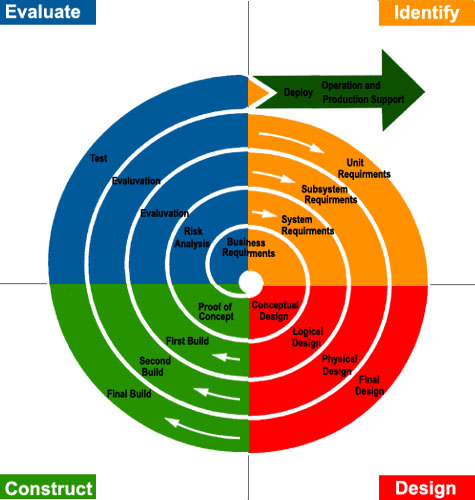
**Planning Phase:**Requirements are gathered during the planning phase. Requirements like ‘BRS’ that is ‘Bussiness Requirement Specifications’ and ‘SRS’ that is ‘System Requirement specifications’.

**Risk Analysis:** In the**risk analysis phase**, a process is undertaken to identify risk and alternate solutions.  A prototype is produced at the end of the risk analysis phase. If any risk is found during the risk analysis then alternate solutions are suggested and implemented.

**Engineering Phase:** In this phase software is **developed**, along with [**testing**](http://istqbexamcertification.com/what-is-a-software-testing/) at the end of the phase. Hence in this phase the development and testing is done.

E**valuation phase:**This phase allows the customer to evaluate the output of the project to date before the project continues to the next spiral.

**Diagram of Spiral model:**



**Advantages of Spiral model:**

* High amount of risk analysis hence, avoidance of Risk is enhanced.
* Good for large and mission-critical projects.
* Strong approval and documentation control.
* Additional Functionality can be added at a later date.
* Software is produced early in the [**software life cycle**](http://istqbexamcertification.com/what-are-the-software-development-life-cycle-phases/).

**Disadvantages of Spiral model:**

* Can be a costly model to use.
* Risk analysis requires highly specific expertise.
* Project’s success is highly dependent on the risk analysis phase.
* Doesn’t work well for smaller projects.

**When to use Spiral model:**

* When costs and risk evaluation is important
* For medium to high-risk projects
* Long-term project commitment unwise because of potential changes to economic priorities
* Users are unsure of their needs
* Requirements are complex
* New product line
* Significant changes are expected (research and exploration)

**4. SOFTWARE REQUIREMENT SPECIFICATION**

**4.1 Introduction**

**4.1.1 Purpose**

SRS provides feedback to the customer. An SRS is the customer’s assurance that the development organization understands the issues of problems to be solved and the software behavior necessary to address those problems. The SRS should be written in natural language.

The simple act of writing down software requirement in a well designed formal organizes information, places, and borders around the problem, solidifies ideas and helps break down the problem into its components parts in an orderly as a product validation check.

**4.1.2 Scope**

Small –scales Offices

Definitions Acronyms and Abbreviations

**4.1.3 Short name**

International standard BarcodeNumber (provided by the Publisher and it is unique)

**Sr** Registration no.

**Fc** Students faculty

**FN** Form no.

**DOB** Date of birth

**Pwd** Password

**4.1.4 References**

**4.1.5 Technologies to be used**

We will use visual basic 6.0 and MS Access to develop our project

**4.1.6 Overview**

The rest of the SRS contain the description of survey, database document for designing database, detail of software requirement (which is sufficient to enable designer to design a system satisfy to those requirement, and testers to test that the system satisfies those requirements, supporting information, any specific project related queries will be answered.

**4.2 Overall Description**

**4.2.1. Use case model survey**

**4.2.2. Database document**

**5 SYSTEM REQUIREMENT SPECIFICATIONS**

* Minimum Software Requirement

MS window 98 or Higher

Visual Studio 2010 or Higher

64MB Ram (128MB recommended)

* Minimum Hardware Requirement

Pentium II or Higher

A Hard Drive

A MS compatible Mouse

A CD Rom Drive

**PROJECT TESTING**

* COMPILATION TEST:
* It was a good idea to do our stress testing early on, because it gave us time to fix some of the unexpected deadlocks and stability problems that only occurred when components were exposed to very high transaction volumes.
* EXECUTION TEST:
* This program was successfully loaded and executed. Because of good programming there were no execution error.
* OUTPUT TEST:
* The successful output screens are placed in the output screens section

**DATA FLOW DIAGRAM**

Search Books

Return Books

Borrow Books

Renew Books

View Book issue Details

Admin

Student

View Book issue Details

Return Books

Borrow Books

Search Books

Manage Students

Faculty

Manage Faculties

Maintain Books

**CONCLUSION**

* The project has been appreciated by all the users in the organization.
* It is easy to use, since it uses the CUI provided in the user dialog.
* User friendly screens are provided.
* The usage of software increases the efficiency, decreases the efforts.
* It has been efficiently employed as a Site management mechanism.
* It has been thoroughly tested and implemented.

**BIBLIOGRAPHY**

SOFTWARE ENGINEERING

By Roger.S. Pressman

PROGRAMMING WITH ASP.NET

By Wrox Editions

SAD

By M. AWAD