IBM CAREER EDUCATION

MAIN PROJECT

DOMAIN NAME: JAVA

E - LEARNING

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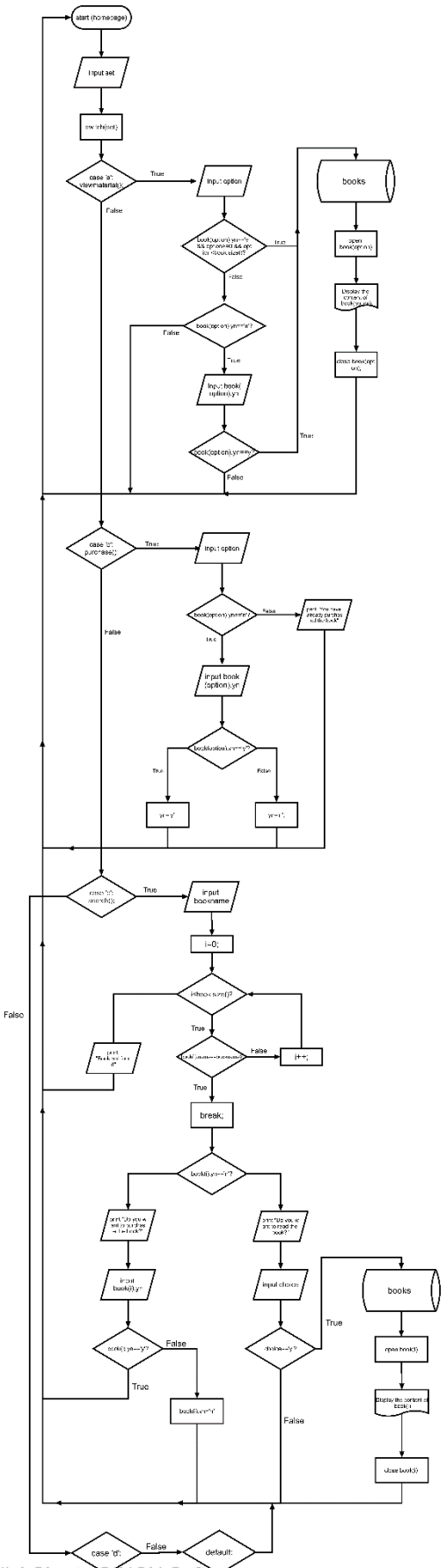
Software Specifications

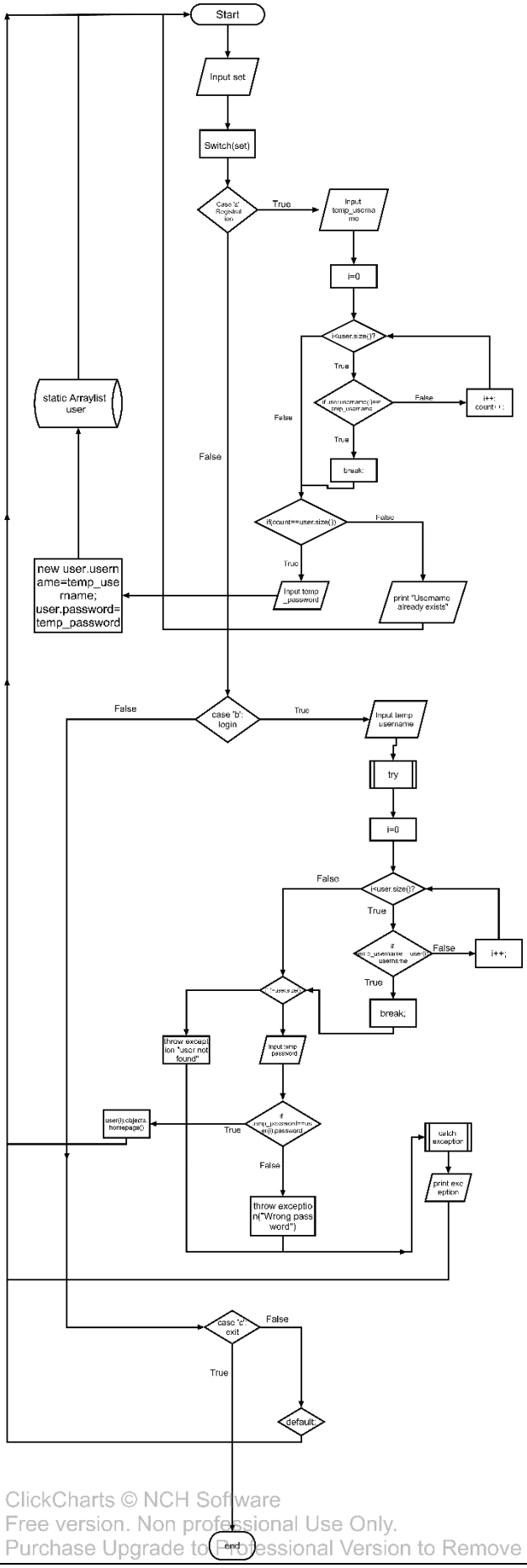
- OPERATING SYSTEM : Windows
- ENVIRONMENT : Notepad++

Flow-charts :-

For class books:


start (homepage)
input set
switch(set)
case 'a': viewmaterials();
True
input option
books
False
open book(option).txt
display the content of book(option).txt
close book(option).txt
input book(option).txt
case 'b': purchase();
input book(option).txt
case 'c': search();
input bookname
i=0;
i<books.size()?
True
False
break;
input choice:
books
open book(i)
display the content of book(i)
close book(i)
case 'd':
default:
ClickCharts © NCH Software
Free version. Non professional Use Only.
Purchase Upgrade to Professional Version to Ren

For class user:



HARDWARE SPECIFICATIONS

- PROCESSOR : Intel core i3 7th gen
- RAM : 8 GB
- MONITOR : 15” COLOR
- HARD DISK : 1 TB
- FLOPPY DRIVE : 1.44 MB

DESCRIPTION

INTRODUCTION:

E-Learning is a kind of digital platform where you can actually store and read the book without the book occupying physical space.

DESCRIPTION:

It is a kind of system/website where you can purchase, read different types of digital books (also

called E-Books). It makes your user account and stores your purchases into the database where you have the access to your purchased books for you to read any of the book.

ADVANTAGES:

1. It reduces the physical space where you have to keep all the books in a bookshelf and also the conditions of the physically stored books will tend to degrade as time passes. But in case of E-book, it will remain without bothering about the condition.
2. You have the access of any E-book anywhere weightlessly. (Because some books are too heavy because of length). Because you are only bothered about the weight of the mobile device you are holding.

DISADVANTAGES:

- You need to have constant working internet connection in case of some websites/platforms.

- It will only work when the author of the book you are searching for has uploaded digital copy of that book.

E-Learning Websites

PICTURES

AIM:

To create a computerised E-Learning system which consists of :-

- **Home Page**
- **Registration Page**
- **Search book**
- **Show the purchased books**
- **View the material**

PROGRAM:

There are 2 modules in the program, 1 is users and 2nd is books.

1. user.java

```
import java.io.BufferedReader;
import java.io.BufferedWriter;
import java.io.FileReader;
import java.io.FileWriter;
import java.io.FileNotFoundException;
import java.io.IOException;
import java.util.ArrayList;
import java.util.Scanner;
import Product_classes.books;
class user
{
        books objects=new books();
        static ArrayList<user> users=new ArrayList<>();
        static Scanner sc=new Scanner(System.in);
        private String username,password;
```

```
	static String cat="";
	static int push=0;
	static boolean iterate=false;
	static void getlist()
	{
		try
		{
			int i=0;
			BufferedReader read_name=new
BufferedReader(new FileReader("Database/name.txt"));
			BufferedReader read_password=new
BufferedReader(new FileReader("Database/password.txt"));
			BufferedReader read_yn=new BufferedReader(new
FileReader("Database/yn.txt"));
			String
line,line1,line2,temp_name="admin",temp_password="admin";
			char temp_yn='n';
			while((line=read_name.readLine())!=null &&
(line1=read_password.readLine())!=null &&
(line2=read_yn.readLine())!=null)
			{

				temp_name=line;
				temp_password=line1;
				try
				{
					users.add(new
user(temp_name,temp_password));
					for(i=0;i<(line2.length());i++)
					{

	users.get(push).objects.book.get(i).yn=line2.charAt(i);
					}
					push++;
```

```
                        }
                        catch(Exception fm)
                        {
                                System.out.println("Some users cannot be
added because "+fm.getMessage());
                        }
                }
                read_name.close();
                read_password.close();
        }
        catch(Exception e)
        {
                System.out.println(e.getMessage());
        }
}
static void setlist(int select)
{
        try
        {
                BufferedWriter write_name=new
BufferedWriter(new FileWriter("Database/name.txt",true));
                BufferedWriter write_password=new
BufferedWriter(new FileWriter("Database/password.txt",true));
                write_name.write(users.get(select).getusername());
                write_name.append('\n');

        write_password.write(users.get(select).getpassword());
                write_password.append('\n');
                write_name.close();
                write_password.close();
        }
        catch(Exception e)
        {
                System.out.println(e.getMessage());
```

```
            }
        }
        static void writeyn()
        {
            int i=0,j=0;
            try
            {
                BufferedWriter write_yn=new BufferedWriter(new
FileWriter("Database/yn.txt",false));
                for(i=0;i<users.size();i++)
                {
                    for(j=0;j<users.get(i).objects.book.size();j++)
                    {

        cat=cat.concat(Character.toString(users.get(i).objects.book.get(j)
.getyn()));
                    }
                    write_yn.write(cat);
                    write_yn.write('\n');
                    cat="";
                }
                write_yn.close();
            }
            catch(Exception e)
            {
                System.out.println(e.getMessage());
            }
        }
        public user(String username,String password)
        {
            setusername(username);
            setpassword(password);
        }
        private void setusername(String username)
```

```
{
	this.username=username;
}
private String getusername()
{
	return username;
}
private void setpassword(String password)
{
	this.password=password;
}
private String getpassword()
{
	return password;
}
public static void main(String args[])
{
	int i=0,count=0,use=-1;
	char set;
	String temp_username,temp_password;
	if(iterate==false)
	{
		getlist();
		iterate=true;
	}
	System.out.println("+----------------------+\n|Welcome to
E-Learning   |\n+--------------------+---+\n|Register          | a |\n|Login
| b |\n|Exit the program    | c |\n+--------------------+---+\n");
	System.out.print("Enter your choice :- ");
	set=sc.next().charAt(0);
	switch(set)
	{
		case 'a':
		System.out.print("Enter username :- ");
```

```
                temp_username=sc.next();
                if(users.size()==0)
                {
                        System.out.print("Enter password :- ");
                        temp_password=sc.next();
                        try
                        {
                                users.add(new
user(temp_username,temp_password));
                        }
                        catch(Exception fm)
                        {
                                System.out.println("User cannnot be
created because "+fm.getMessage());
                        }
                }
                else
                {
                        for(user obj:users)
                        {

        if(obj.getusername().equalsIgnoreCase(temp_username))
                                {
                                        System.out.println("Username
already exists");
                                        break;
                                }
                                count++;
                        }
                        if(count==users.size())
                        {
                                System.out.print("Enter password :- ");
                                temp_password=sc.next();
                                try
```

```
                                {
                                        users.add(new
user(temp_username,temp_password));
                                }
                                catch(Exception fm)
                                {
                                        System.out.println("User cannot be
created because "+fm.getMessage());
                                }
                        }
                }
                main(args);
                break;
                case 'b':
                System.out.print("Enter username :- ");
                temp_username=sc.next();
                for(i=0;i<users.size();i++)
                {

        if(users.get(i).getusername().equalsIgnoreCase(temp_username)
)
                        {
                                use=i;
                                break;
                        }
                }
                try
                {
                        if(use!=-1)
                        {
                                System.out.print("Enter password :- ");
                                temp_password=sc.next();

        if(temp_password.equals(users.get(use).getpassword()))
```

```
                        {
                                System.out.println("Welcome
"+users.get(use).getusername());
                                users.get(use).objects.homepage();
                        }
                        else
                        {
                                throw new Exception("Wrong
Password");
                        }
                }
                else
                {
                        throw new Exception("User not found");
                }
        }
        catch(Exception e)
        {
                System.out.println(e.getMessage());
        }
        main(args);
        break;
        case 'c':
        for(i=push;i<users.size();i++)
        {
                setlist(i);
        }
        writeyn();
        break;
        default:
        System.out.println("Please enter from given choices
only");
        main(args);
        break;
```

```
            }
        }
}
```

2. books.java

```
package Product_classes;
import java.util.Scanner;
import java.util.ArrayList;
import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.io.IOException;
import java.io.File;
import java.awt.Desktop;
public class books
{
        static Scanner sc=new Scanner(System.in);
        private String name,import_name;
        private int cost;
        public char yn='n';
        static int maximum_size=0;
        public ArrayList<books> book=new ArrayList<>();
        public books()
        {
                try
                {
                        book.add(new books("Ansi C by
Balaguruswamy",650));
                        book.add(new books("Basic Electrical Engineering
by UA Bakshi",540));
                        book.add(new books("Data structures using C by
rema thareja",510));
```

```
                book.add(new books("Digital electronics by morris
manno (2nd edition)",635));
            }
            catch(Exception fm)
            {
                System.out.println("We are unable to add a book
because "+fm.getMessage());
            }
            for(books ob:book)
            {

        maximum_size=ob.name.length()>maximum_size?ob.getname()
.length():maximum_size;
            }
        }
        public books(String name,int cost)
        {
            setname(name);
            setcost(cost);
            setimport_name(name.concat(".pdf"));
        }
        private void setname(String name)
        {
            this.name=name;
        }
        public String getname()
        {
            return name;
        }
        private void setimport_name(String import_name)
        {
            this.import_name="books/";
            this.import_name=this.import_name.concat(import_name);
        }
```

```
public String getimport_name()
{
	return import_name;
}
private void setcost(int cost)
{
	this.cost=cost;
}
public int getcost()
{
	return cost;
}
private void setyn()
{
	yn='y';
}
public char getyn()
{
	return yn;
}
private void view()
{
	int set,count=0,j=0;
	char purchase;
	System.out.print("\n+");
	for(j=0;j<maximum_size;j++)
	{
		System.out.print("-");
	}
	System.out.print("+---+");
	for(books i:book)
	{
		if(i.yn=='y')
		{
```

```
                        System.out.print("\n|"+i.getname());
                        for(j=0;j<maximum_size-
i.getname().length();j++)
                        {
                                System.out.print(" ");
                        }
                        System.out.print("| "+count+" |");
                }
                else
                {
                        System.out.print("\n|Not Purchased");
                        for(j=0;j<maximum_size-9;j++)
                        {
                                System.out.print(" ");
                        }
                        System.out.print("|");
                }
                count++;
        }
        System.out.print("\n+");
        for(j=0;j<maximum_size;j++)
        {
                System.out.print("-");
        }
        System.out.print("+---+");
        System.out.print("\nEnter your choice :- ");
        set=sc.nextInt();
        if(set>=0 && set<book.size())
        {
                if(book.get(set).getyn()=='n')
                {
                        System.out.print("Do you want to purchase this
book named "'+book.get(set).getname()+"' worth INR
"+book.get(set).getcost()+"? [y/n] :- ");
```

```
                        purchase=sc.next().charAt(0);
                        if(purchase==('y'))
                        {
                                book.get(set).setyn();
                                read(book.get(set).getimport_name());
                        }
                }
                else
                {
                        read(book.get(set).getimport_name());
                }
        }
}
private void read(String import_name)
{
        try
        {
                File read=new File(import_name);
                if(read.exists())
                {
                        if(Desktop.isDesktopSupported())
                        {
                                Desktop.getDesktop().open(read);
                        }
                        else
                        {
                                throw new IOException("Awt Desktop is
not supported");
                        }
                }
                else
                {
                        throw new IOException("System cannot load
the required file");
```

```
                }
            }
            catch(Exception ex)
            {
                System.out.println(ex.getMessage());
            }
        }
        private void purchase()
        {
            int set,count=0,j=0;
            char purchase;
            System.out.print("\n+");
            for(j=0;j<maximum_size;j++)
            {
                System.out.print("-");
            }
            System.out.print("+---+");
            for(books i:book)
            {
                if(i.yn=='n')
                {
                    System.out.print("\n|"+i.getname());
                    for(j=0;j<maximum_size-
i.getname().length();j++)
                    {
                        System.out.print(" ");
                    }
                    System.out.print("| "+count+" |");
                }
                else
                {
                    System.out.print("\n|Purchased");
                    for(j=0;j<maximum_size-5;j++)
                    {
```

```
                        System.out.print(" ");
                    }
                    System.out.print("|");
                }
                count++;
            }
            System.out.print("\n+");
            for(j=0;j<maximum_size;j++)
            {
                System.out.print("-");
            }
            System.out.print("+---+");
            System.out.print("\nEnter your choice :- ");
            set=sc.nextInt();
            if(set>=0 && set<book.size())
            {
                if(book.get(set).yn=='n')
                {
                    System.out.print("Do you really want to
purchase this book worth INR "+book.get(set).cost+"? [y/n] :- ");
                    purchase=sc.next().charAt(0);
                    if(purchase==('y'))
                    {
                        book.get(set).setyn();
                    }
                }
                else
                {
                    System.out.println("You already have the
book");
                }
            }
        }
        private void search()
```

```
	{
		char set;
		String bookname;
		int count=0;
		int i=0;
		try
		{
			BufferedReader reader=new BufferedReader(new
InputStreamReader(System.in));
			System.out.print("Enter bookname to search :- ");
			bookname=reader.readLine();
			for(books ob:book)
			{
				if(bookname.equalsIgnoreCase(ob.getname()))
				{
					break;
				}
				count++;
			}
			if(count!=book.size())
			{
				if(book.get(count).getyn()=='n')
				{
					System.out.print("Do you want to
purchase the book? [y/n] :- ");
					set=sc.next().charAt(0);
					if(set=='y')
					{
						book.get(count).setyn();
					}
				}
				else
				{
```

```
                                System.out.print("Do you want to view
the material? [y/n]? :- ");
                                set=sc.next().charAt(0);
                                if(set=='y')
                                {

        read(book.get(count).getimport_name());
                                }
                        }
                }
                else
                {
                        throw new IOException("Book Not
found.....");
                }
        }
        catch(IOException e)
        {
                System.out.println(e.getMessage());
        }
}
public void homepage()
{
        char set;
        System.out.println("+--------------------------------+\n|
Homepage            |\n+----------------------------+---+\n|View the
material          | a |\n|Purchase a book              | b |\n|Search book
| c |\n|Logout                    | d |\n+----------------------------+---+\n");
        System.out.print("Enter choice :- ");
        set=sc.next().charAt(0);
        switch(set)
        {
                case 'a':
                view();
```

```
                    break;
                    case 'b':
                    purchase();
                    break;
                    case 'c':
                    search();
                    break;
                    case 'd':
                    break;
                }
                if(set!='d')
                {
                    homepage();
                }
        }
}
```

Please use the commands to successfully execute the program :-
javac –d . books.java
javac user.java
java user

EXPLANATION ABOUT PROJECT:

This project basically has 2 entities involved:

1. Book
2. User

The 6 functionalities involved are:

1. Login
2. Register
3. Home
4. Purchase the book
5. View material
6. Search the book

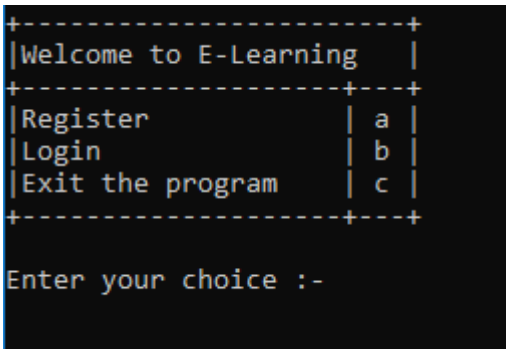
Here, we will use aggregation because in general terms, we say user ‘has a’ book.

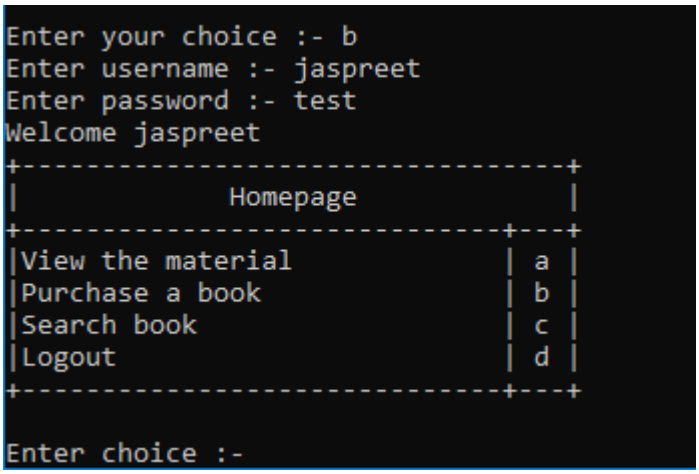
Also, we will use java bean convention for setter and getter methods.

We will also use the concept of arraylist to dynamically add users.

To read a book, we will use the concept of file handling.

OUTPUT SCREENSHOTS:


+------------------------+
|Welcome to E-Learning |
+--------------------+---+
Register	a
Login	b
Exit the program	c
+--------------------+---+
Enter your choice :-

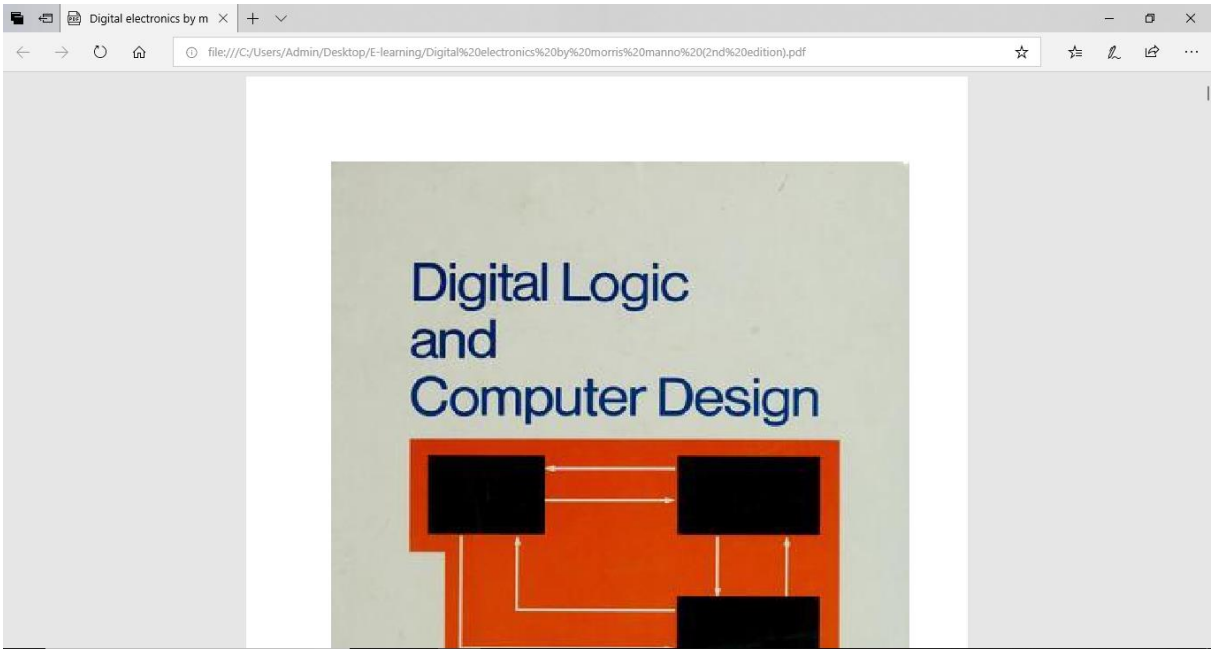

Enter your choice :- b
Enter username :- jaspreet
Enter password :- test
Welcome jaspreet
+---------------------------------+
| Homepage |
+-----------------------------+---+
View the material	a
Purchase a book	b
Search book	c
Logout	d
+-----------------------------+---+
Enter choice :-

```
Enter choice :-
b

+-------------------------------------------------+---+
|Ansi C by Balaguruswamy                          | 0 |
|Basic Electrical Engineering by UA Bakshi        | 1 |
|Data structures using C by rema thareja          | 2 |
|Digital electronics by morris manno (2nd edition)| 3 |
+-------------------------------------------------+---+
Enter your choice :- 1
Do you really want to purchase this book worth INR 540? [y/n] :- y
+---------------------------------+
|             Homepage            |
+-----------------------------+---+
|View the material            | a |
|Purchase a book              | b |
|Search book                  | c |
|Logout                       | d |
+-----------------------------+---+

Enter choice :- a

+-------------------------------------------------+---+
|Not Purchased                                    |   |
|Basic Electrical Engineering by UA Bakshi        | 1 |
|Not Purchased                                    |   |
|Not Purchased                                    |   |
+-------------------------------------------------+---+
Enter your choice :- 1
```



REFERENCES:

1. Wikipedia reference:

- E-learning(theory): https://en.wikipedia.org/wiki/E-learning_(theory)
- Online learning in higher education: https://en.wikipedia.org/wiki/Online_learning_in_higher_education
- Massive open online courses: https://en.wikipedia.org/wiki/Massive_open_online_course

2. Some E-learning websites:

- W3Schools (for computer-science students): https://www.w3schools.com
- DotSquares: https://www.dotsquares.com/solutions/web-application-development/e-learning/

CONCLUSION:

1. **E-Learning is a better alternative to regular learning as it has more scope in storing more than one book in a single device or database.**
2. **This project provides an illustration upon how the digital books are handled by the system.**