

VIRTUAL LIBRARY MANAGEMENT SYSTEM

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This Report Presented in Partial Fulfillment of the Requirements
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Engineering

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APPROVAL

This Project titled “**Virtual Library Management System**”, submitted by Syed Irfan Hossain, ID No: 163-15-8517, Tamim Tanta, ID No: 171-15-9249, Md. Sadiqul Islam, ID No: 163-15-8514, to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 09-09-2021.

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We hereby declare that this project has been done by us under the supervision of **Ms. Subhenur Latif, Assistant Professor, and Department of CSE** in Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

This project is a web based development project titled “**Virtual Library Management System**”. We want all book lovers to connect with the library. The library management system is only for those who love to read books but can't afford to buy such expensive books or don't want to keep the book. Customers can read books directly online. This system will help the customer to buy and read many books by less money. In this method, every book lover will be able to easily find his book which he want.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Our developed project is related with an advanced system which can provide an online reading service to the book readers. Any person can be our member of our online library which can easily access via virtual through internet. This is very useful service for now a days. Because our world are facing many pandemic situation every time. So that all the students are face problem for their education system. So we need to upgrade our service system and which we can provide by our virtual library management system.

1.2 Motivation

In a pandemic situation a student are not able not get any book from any store for many reason. Or sometimes the reader cannot find their necessary book which he need for reading. He search everywhere but cannot find out. Also now we are in very advance stage of technology. So that most of the people read books in their smart devices. So no one want to keep hard copy books for carry. Also some time many readers need any book for short time and no extra budget for buy that book for long time. For all this problems solution we are interested to develop a website which are based on a virtual library system. When someone wants to buy a book from a website, they can only purchase hard copy. But this system allow customer not only hard copy but also allow soft copy (direct read online).

1.3 Objectives

Our main objective is to provide a successful online reading or buy service for soft copy books to the all readers. We want to take the full responsibilities for delivering all kinds of best services to our readers by providing a most collection of books and best buying price. There will be some packages via a reader can borrow books for reading with a cheap rate with a fix amount of time. This will be an easy project interface for the readers and admin which are not available before. We believe that our service can provide the best for the readers and which is our main objective.

1.4 Expected Outcome

We are developing our project not only focusing on our undergraduate final but also to make this project our future business startup. And we mainly select this for its huge market value and learning scope while developing this whole system fully. If we can give our best by the grace of God, we are expecting these outcomes will be gained before our projection submission date:

- The user interface will be very friendly.
- Some of the unique features will be very handy.
- Soft copy book reading system with easy access.
- The price and the package booking system will be maintained by the application through admin.
- Easy to make an account in this application to get the other services for the users.
- The web application should be worked smoothly and free of bug.
- A search feature for books are available which can be more fast and reliable for the reader to search their desire books.
- There are facility to open book directly from the website for reading.

1.5 Report Layout

Report layout describes a sort of brief of all the section. A sort of brief of all chapters is given down:

- **Chapter 1:** Describes an instruction of the “Virtual Library Management System”, Motivation, Objectives, Expected outcome and the Report arrangement.
- **Chapter 2:** This chapter we have described the background, related works which has similar works with this project and also provide challenges that I faced.
- **Chapter 3:** Contains basically discuss about BPM (Business process modeling) and use case Diagram. Use case is the main part of this chapter.

- **Chapter 4:** In this chapter all about the design of the website and implementation requirement and its related works.
- **Chapter 5:** This chapter contains the whole testing and implementation process of database, front-end and interactions and provided there test results.
- **Chapter 6:** Contains conclusion, limitations of this project and future scopes for the development of this project.

CHAPTER 2

BACKGROUND

2.1 Introduction

This chapter describes about background of virtual library management website and also discusses about few similar related work. The perfect outcome of the project has been discussed here effectively.

Our virtual library management system is a web application developed with python django framework which refers to library systems which are generally a very fast responsive advanced reading area for the readers over the internet. It is a system where a reader can be a member for getting the further services. An admin can manage all the system for the whole system. An admin can add books details, edit book details, delete book details, can add packages, modify packages, can approve the user's package system etc.

A user will need to visit our website and have to sign up with the details and login for buy or borrow or read the books. Also he need to use add cart service for borrow or buy a books by submitting the transaction code in the payment section.

This is an advanced library system which we have made by our hard work as we wants to develop as our plan.

2.2 Related Works

In this part we discussed the recent project and related works evaluation in this field.

Openlibrary.org: This is an online library where many categories' books are available for read or borrow. Also there are a search option can make a user for access any book very easily. A user have to sign up and login for do the payment for read or borrow the books. It's an open library which has an editable library catalog [1].

Scribd: It's an American eBook and audiobook providing service. Where a user have to get subscription for getting the actual service. They have over one million titles and over 60 million host documents and which has open publishing platform [2].

LibriVox: It's an online library which has a group of volunteers from worldwide for read and record public domain texts. Where they can create free public domain audio

books. Also they can download. Also there are more feature for download the audio books from other hosting site [3].

Amazon Books: This is an online library system we can say that for mainly business purpose. It's a chain of retail bookstores own by online retailer amazon. They have total 24 stores. Basically they publish books which are published by many authors. A user have to purchase them from the amazon which will be the hard copy of the book. So after the delivery of the book he can able to read those [4].

2.3 Comparative Studies

In "Related Works" section we discussed some very well-known projects which are very good and popular for online library system but in our system, we are providing the facility to not only buy and borrow also a reader can read the book instantly via internet. We have focused on those students who have a little budget and who wants to read book within a very fast service.

2.4 Scope of the problem

Already mentioned about scope of the problem in above. Mainly work for whose student who have a little amount of money for borrow books. Via using this website they can easily buy or borrow books within a package system of little budget. This is very user friendly website if the students use the service. This project have future development opportunity. It also have adding a more feature like card purchase, live chat with admin, one click to down etc. In future via development the website will get more user-friendly system.

2.5 Challenges

For developing the project many challenges and problem have been faced by me. The main challenges that is design and implementation for this system. I tried my best to create this project which would be more user-friendly for students and teachers. We know that getting internet connection still now more costly in purpose of our county. In Bangladesh still now many places haven't good internet connection. If any student need to use this system they must be need a good internet connection. Hope that one day problem will be solve by our govt. Another problem is popularization of this

website. This have successfully develop this project but students and teachers have must be knowing about this website. If the more student can use this website, this website get more popularity. Last problem is development and maintain this problem in future. I have financial limitation of this project. If this project don't get any fund or sponsor for this project, it is getting difficult to maintain future development of this project to me. Hope, it will get a fund or sponsorship for development, maintain and upgrading feature of this website.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

The business process model is a process for exhibiting the workflow of a specific system. Via business process model is able to show the data flow of this web application. At first, a user or reader have to register himself to our website to get the service by filling the sign up form. After signup he has to login with his user name and password. After successfully login a user can access the full service of our website. A user can search his desire book and select the book for the purchase. Also a user can purchase packages which are already made with some various features. The packages like this, if a user pay 1000tk then he can ready up to 20 books for 30 days. After selection a user have to complete the payment process by adding that book or package to the cart. If a user request for a package purchase then a request is sent to the admin then admin accept the request. After successful of payment a user are ready for access the book for reading. An admin has to login with username and password. After that an admin can do many things like manage users, manage book categories, manage books, manage read booklists, manage read packages, and manage orders. In this way, the whole process will end which has shown in Figure 3.1.

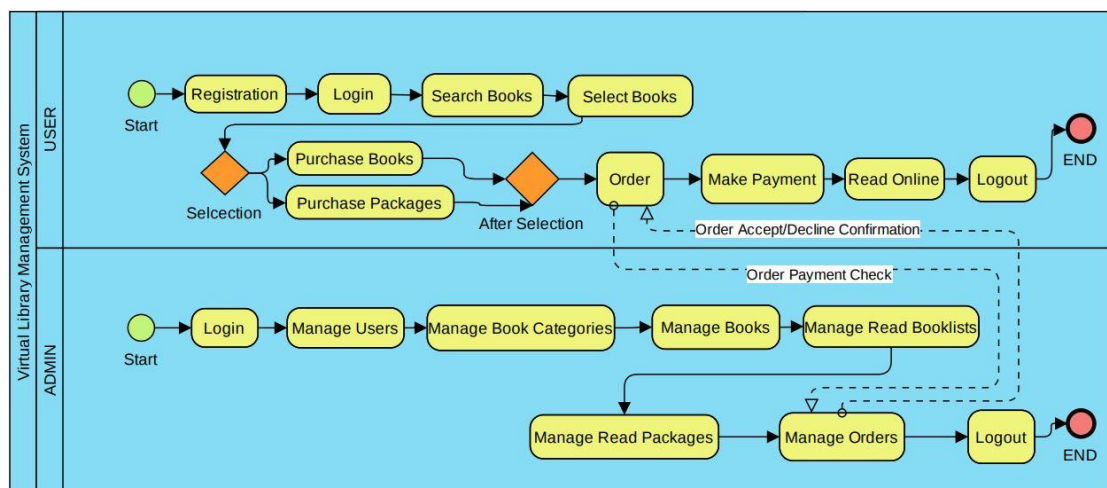


Figure 3.1: Business Process Model for Application

3.2 Flowchart Diagram of Application

In the flowchart diagram, we can see how our application is works step by step. Whole process is shown in Figure 3.2.

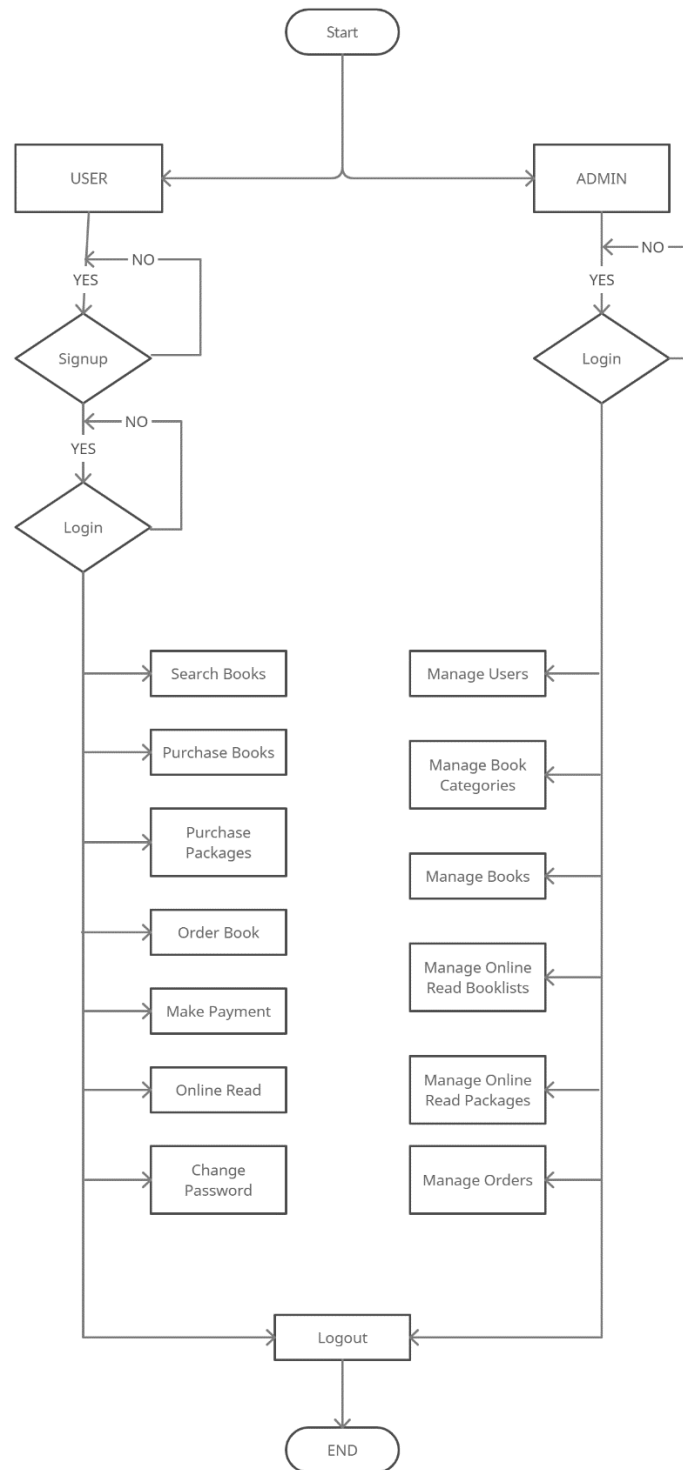


Figure 3.2: Flowchart Diagram of Application

In the flowchart there are most important two parts. One is for USER and second is for ADMIN. So the main application is work in two phase for two different actors. If the USER use the system then he has to register in the system and login with the valid details. If the details is not valid then the step will repeat. After login a user can access with the several steps of features. The features for the user is Search Books, Purchase Books, Purchase Packages, Order Book, Make Payment, Online Read and Change Password. If the user is an ADMIN then he has to login with his username and password with the valid details. If the details is invalid then the step will repeat. After successful of login an admin can access the following features, Manage Users, Manage Book Categories, Manage Books, Manage Read Booklists, Manage Read Packages, and Manage Orders.

3.3 Use Case Modeling and Description

All the procedure of the whole project is shown in the use case figure. We can figure out that we have two actors in the figure which is shown in Figure 3.2.

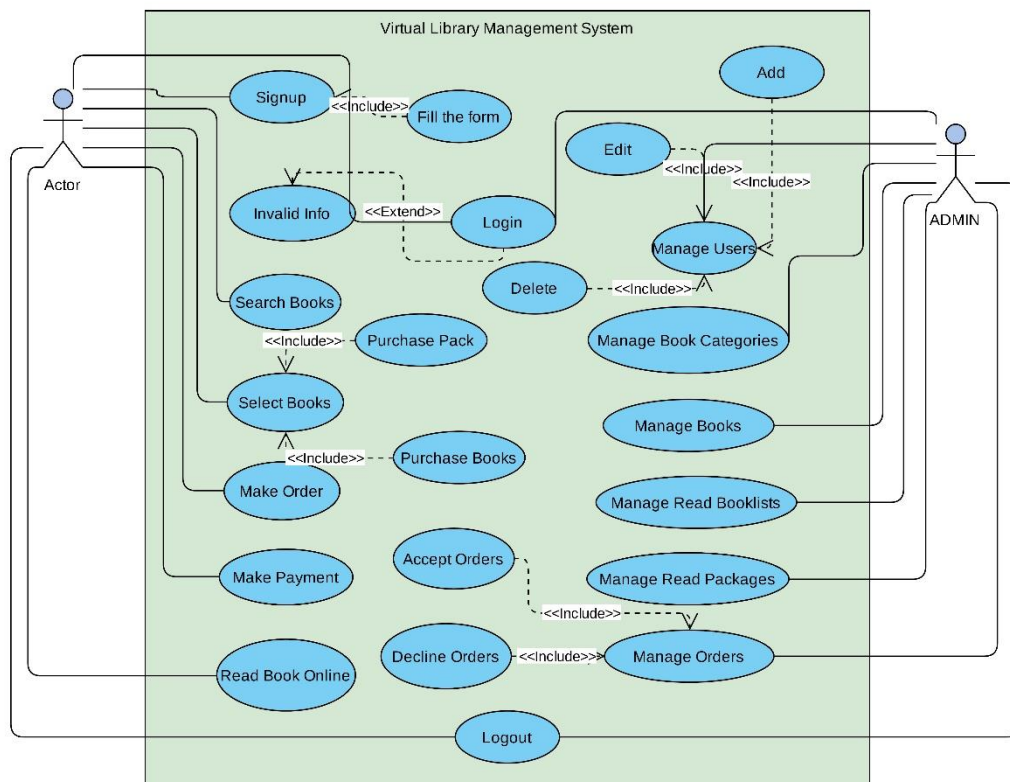


Figure 3.3: Use Case Model for Application

First one is user and second one is Admin. In our application a user has to visit our website and have to register himself to get the full access by fill up the form of sign up. User have to provide his valid info and a strong password. After complete the sign up user have to login himself to get the other features of our website. After login a user can search for his desire book which he want to buy or purchase packages for reading. To get this user has to make his order and complete the payment. After that he can read the book in online directly. An admin has an access from system itself. So he has to login with his details from the admin panel. In the panel there are some access for him to manage and control the whole system for run the whole application smoothly.

3.4 Use Case Narrative for Actors

Table 3.1: Use case of user registration and login

Use case Name	User registration or login
Actor	Teacher or student
Pre-condition	<ul style="list-style-type: none"> ❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	<ul style="list-style-type: none"> ❖ If user haven't any profile on this website they must be registration to this website. ❖ If any user want to get all the service of this website they must be login at fist.
Exceptional Paths	Check the username or password if any users having any issues.

Table 3.2: Use case of search books

Use case Name	Search Books
Actor	User or Reader
Pre-condition	<ul style="list-style-type: none"> ❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	<ul style="list-style-type: none"> ❖ Visit the website login at first then go to the search option then select the category and others information about the book and fill the box with desire book name and search.
Exceptional Paths	If any user couldn't find their book at first they need to check their internet connection.

Table 3.3: Use case of select books

Use case Name	Select Books
Actor	User or Reader
Pre-condition	❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	❖ After searching his desire book a user has to select that book for buy or borrow and need to make payment directly for buy or add to cart packages.
Exceptional Paths	A user can easily find his actual for buy or borrow.

Table 3.4: Use case of make order

Use case Name	Make Order
Actor	User or Reader
Pre-condition	❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	❖ After selection of buy or borrow he has to make an order. For doing this he has to add to cart.
Exceptional Paths	If user find his desire book for buy or borrow and do add to cart the admin will receive the request.

Table 3.5: Use case of make payment

Use case Name	Make Payment
Actor	User or Reader
Pre-condition	❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	❖ After receiving the notification from admin a user have to pay the payment of book or packages.
Exceptional Paths	Notification will confirm the successful payment.

Table 3.6: Use case of read book online

Use case Name	Read Book Online
Actor	User or Reader
Pre-condition	<ul style="list-style-type: none"> ❖ Need to login. ❖ Need to purchase the book or purchase any packages.
Internal Paths	<ul style="list-style-type: none"> ❖ A user have to purchase a book or purchase any packages buy doing a successful payment then user will be able to read the book from online directly.
Exceptional Paths	If anyone can not open the book he is not purchased it.

Table 3.7: Use case of manage users

Use case Name	Manage Users
Actor	Admin
Pre-condition	<ul style="list-style-type: none"> ❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	<ul style="list-style-type: none"> ❖ Visit the website login at first then go to the manage users option then he can add, edit or delete any user or users info.
Exceptional Paths	If any admin couldn't login to their panel at first they need to check their internet connection.

Table 3.8: Use case of manage book categories

Use case Name	Mange Book Categories
Actor	Admin
Pre-condition	<ul style="list-style-type: none"> ❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	<ul style="list-style-type: none"> ❖ Visit the website login at first then go to the manage book categories option then he can add, edit or delete any book categories.
Exceptional Paths	If any admin couldn't login to their panel at first they need to check their internet connection.

Table 3.9: Use case of manage books

Use case Name	Mange Books
Actor	Admin
Pre-condition	❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	❖ Visit the website login at first then go to the manage books option then he can add, edit or delete any book details.
Exceptional Paths	If any admin couldn't login to their panel at first they need to check their internet connection.

Table 3.10: Use case of read booklists

Use case Name	Read Booklists
Actor	Admin
Pre-condition	❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	❖ Visit the website login at first then go to the read booklists option then he can add, edit or delete any read booklists details.
Exceptional Paths	If any admin couldn't login to their panel at first they need to check their internet connection.

Table 3.11: Use case of read packages

Use case Name	Read Packages
Actor	Admin
Pre-condition	❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	❖ Visit the website login at first then go to the read packages option then he can add, edit or delete any read packages details.
Exceptional Paths	If any admin couldn't login to their panel at first they need to check their internet connection.

Table 3.12: Use case of manage orders

Use case Name	Manage Orders
Actor	Admin
Pre-condition	<ul style="list-style-type: none"> ❖ Need any internet browsers. ❖ Need an internet connection.
Internal Paths	<ul style="list-style-type: none"> ❖ Visit the website login at first then go to the mange orders option then he can add, edit or delete any order details.
Exceptional Paths	If any admin couldn't login to their panel at first they need to check their internet connection.

3.5 Logical Data Model

The Data Model is characterized as a theoretical model that puts together information depiction, information semantics, and consistency limitations of information. The information model underlines on what information is required and how it ought to be coordinated rather than what tasks will be performed on information. Information Model resembles a designer's structure plan, which assists with building theoretical models and set a connection between information things which is shown in Figure 3.4.

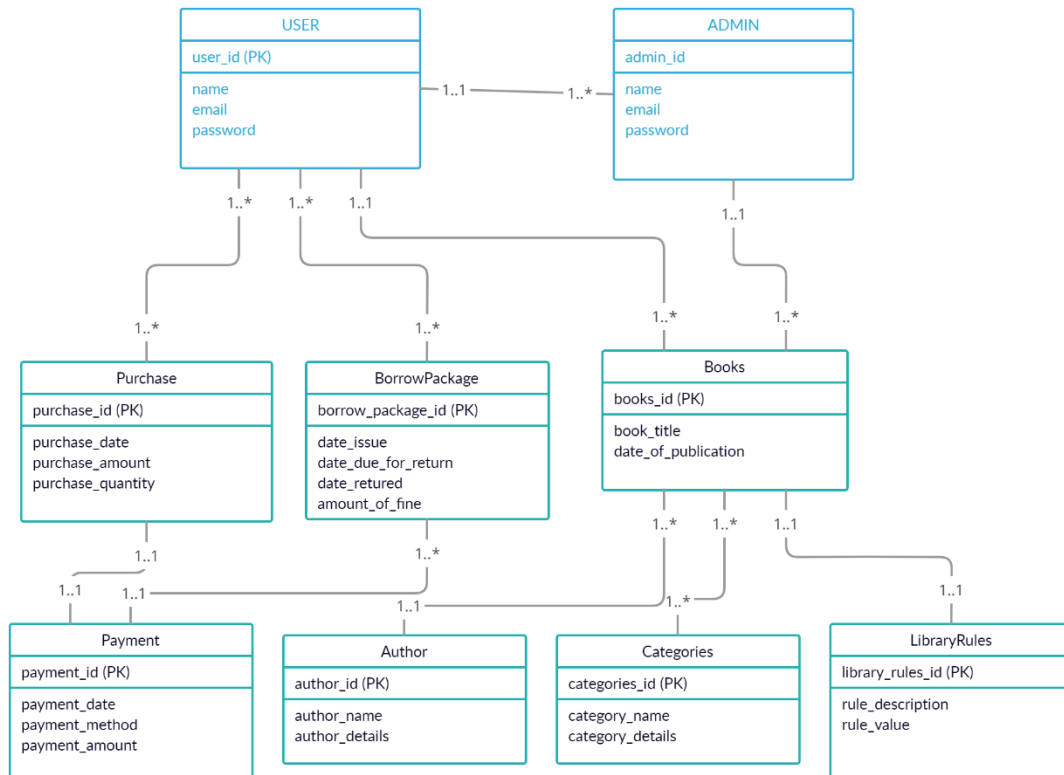


Figure 3.4: Logical Data Model for Application

3.6 Requirement Collection and Analysis

From the previous discussion already described about requirements. In here it deeply described about requirements. Requirements analysis is an important part of web based application. Requirement analysis also known as Requirement Engineering. Requirement analysis is an important for project management. We know that, there are two types of requirement such as functional and other one is nonfunctional. Functional requirement is process of the web application how can perform. And Nonfunctional requirement define is behaviors, performance, efficiency of a web application. In virtual library management system a user first of all need to registration to use this website. For registration process they must provide some information about them such as Name, Email, Password, Contact no, Gender, Password, Address and Photos. After successful completing of registration a user need to login with their username and password to access the features. The features for the user is Search Books, Purchase Books, Purchase Packages, Order Book, Make Payment, Online Read and Change Password. If the user is an ADMIN then he has to login with his username and password with the valid details. After successful of login an admin can access the following features,

Manage Users, Manage Book Categories, Manage Books, Manage Read Booklists, Manage Read Packages, and Manage Orders. For creating this type of panel we used HTML, CSS, JavaScript, and Bootstrap to design the front end. And for developing the back end we used the python django framework. And for database we used the sqlite3. Python is an interpreted high-level general-purpose programming language. And django is a framework of python for web application development. This framework help to us for develop this dynamic website. This framework also help to us for secure the website. For develop this website we needed a development methods. To develop this web based application we used agile development method. This method helped to us for making this web application properly. We followed some rules of agile development method such as requirement analysis, plan, design, development, test, and then release. After release we tracking and monitoring some of issues and solved it.

3.7 Design Requirements

In this part we will describe about design requirements of this system. Few things are describe in below. The main functionality of this web based application is, it will help to user for read the book online directly in short time with a huge collection of books. This is a big platform of collection of e-books and any Student can find their books according to their demand as many different category. In this system provided a searching feature. Student can search their desire book via using searching option. As they need they can buy books directly or can purchase their desire packages for reading the book online. He just need to select the book or package and do the payment successfully. We tried to build this system which can be fully customized as it needed. We know that customizing is big feature for website. We also know that any situation if we need any customization when it will need to customize. We know that technology are developing is on their own way. So that any time we will need customize that system. So we see that customizability is an important thing for any kind of website for added new feature in this system as customize as possible. We used several types of languages in this system which is Python, search SQL, JavaScript, jQuery, Json ajax. For designing purpose I use HTML and Css. We used a Framework based on python which mane is Django. This Framework helped us for managing a bigger codes.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-End Design

In previous discussion we describe that this website is an online based web application which basically focused on students who need to read book online. This website is a big platform for learning through online. In this website have a different webpages with different features. All features are explain in the below with figure and description.

In figure, this is a homepage of the web based application. At first when a user or reader visits our website for the first time then he will find the home like this. This home page contains some features like search option for book. Different category of books. About the website authors. There are sign up dropdown menu. When a user will need to buy a book he must need to register himself and login first to get the access. This home page is shown in Figure 4.1.

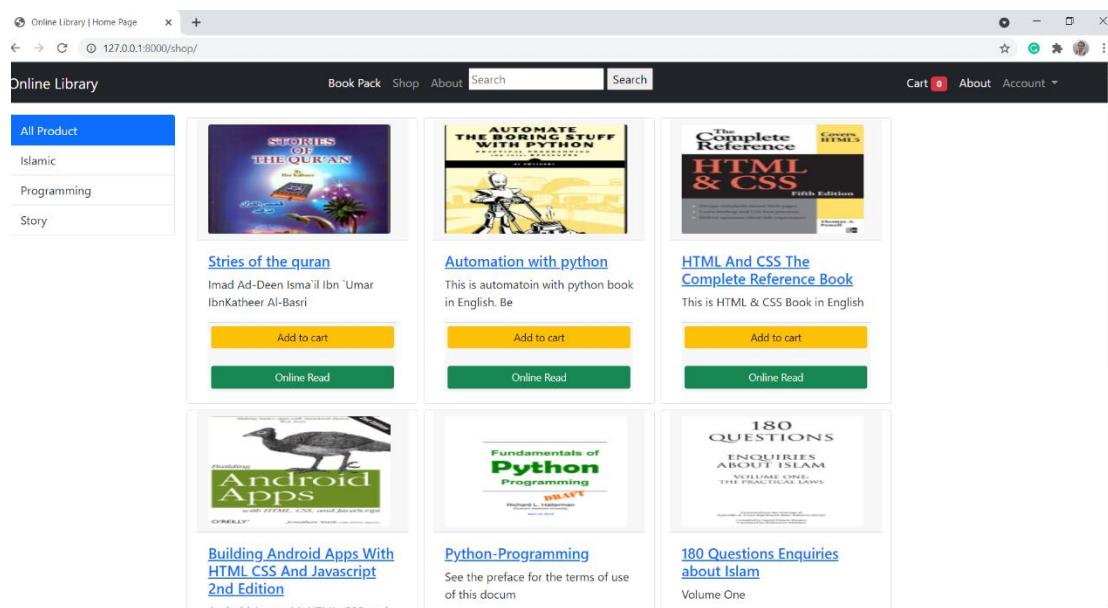


Figure 4.1: Home of the Virtual Library Management System

In the sign up page a user need to provide some information about him like First Name, Last Name, Username, a strong Password, Confirmation Password, Profile Photo, Gender and Address. A user need to use a unique username that is not used before in our system. After filling the sign up form a user need to submit that for successful completion of registration which is shown in Figure 4.2.

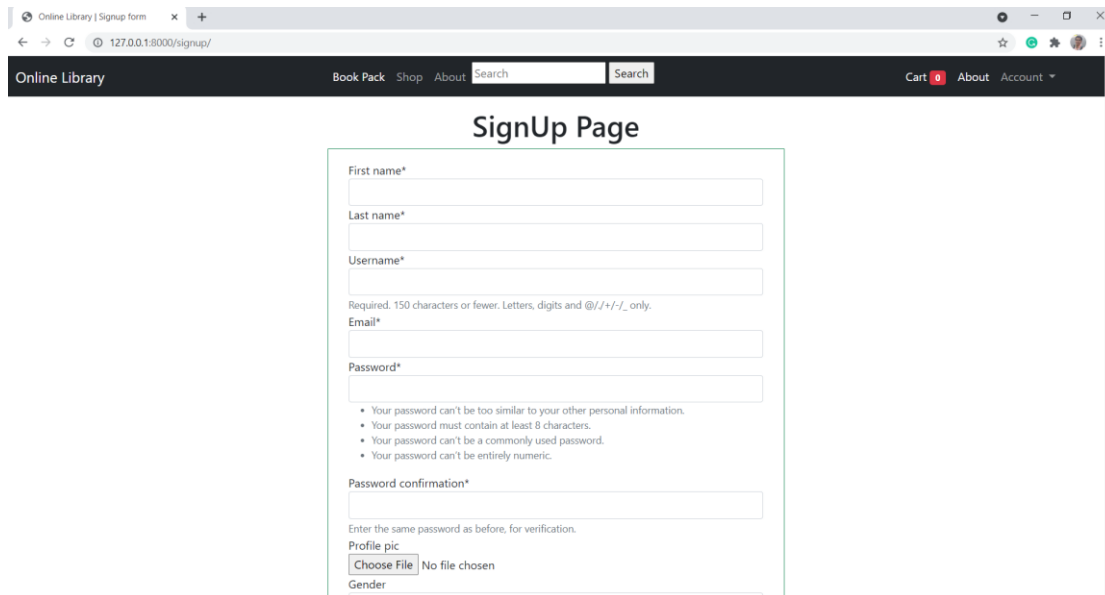


Figure 4.2: User or Reader Signup Form

After successful registration a user will find a login page. In that page user have to provide his username and password that he used for registration and need to login himself to then panel which is shown in Figure 4.3.

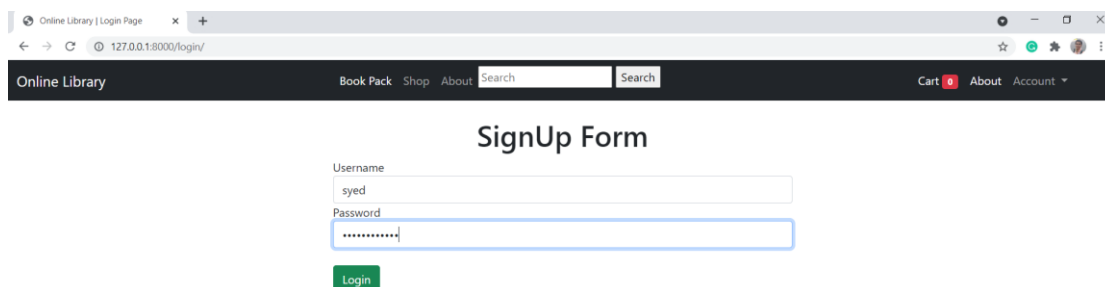


Figure 4.3: User or Reader Login

After login a user will find a homepage which contain some packages. That packages represent some different offers. Which is if a user pay 1000 tk then he will get 20 books for reading within 30 days of time. This is a basic package. Another is if a user pay 2000 tk then he will get 40 books for reading within 30 days of time. Also a user will

find search option, order option, his profile option and a logout option which is shown in Figure 4.4.

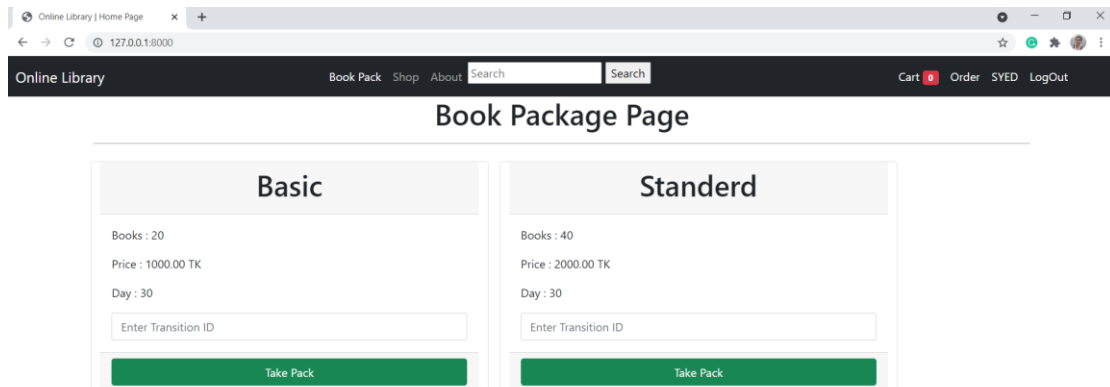


Figure 4.4: User or Reader Panel Homepage

In the profile page of a user he will find his own details which is used for registration and he can edit that details. Also he can change his profile password. Which is shown in the left corner of the figure. In the right side of the figure it's denote the details about the package which he has successfully purchased by doing the payment. In the figure a user purchased the standard package which contains 40 books and 2000 tk. And the package issue date and the end date also visible. All the details are shown in the Figure 4.5.

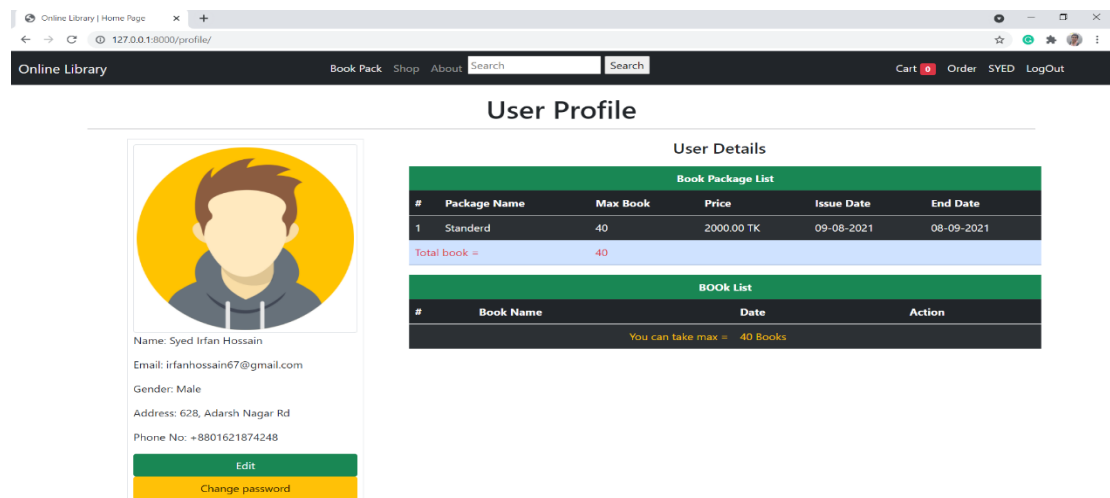


Figure 4.5: User or Reader Profile

A user can also purchase individual books for reading. He can search his desire book from the shop and can payment that individually to own that book permanently which is shown in Figure 4.6.

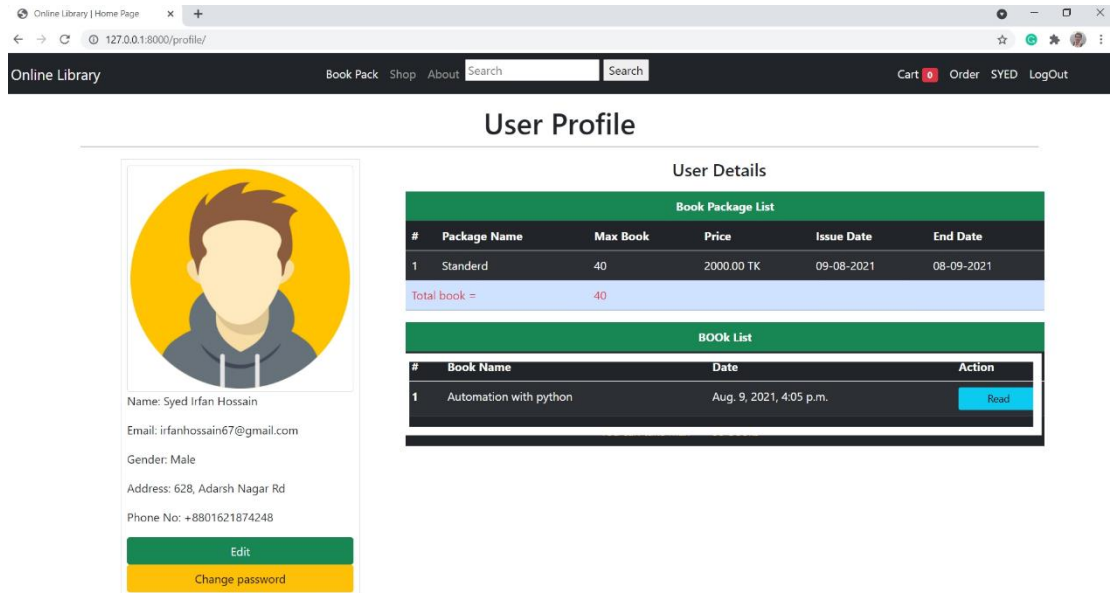


Figure 4.6: User or Reader Book Purchase Details

After purchasing a book a user can directly read that book from his account. The book softcopy pdf is stored in his account. User can access the book from anywhere and can read anytime which is shown in Figure 4.7.



Figure 4.7: User or Reader Book Reading

4.2 Back-End Development

Back-end part which is mainly for Admin. For Accessing Admin panel need a User name and password. Now deeply describe this part with figure. It's a UI of admin login panel. To accessing dashboard Admin need a username and password. Without user name and password it's not possible to access dashboard which is shown in Figure 4.8.

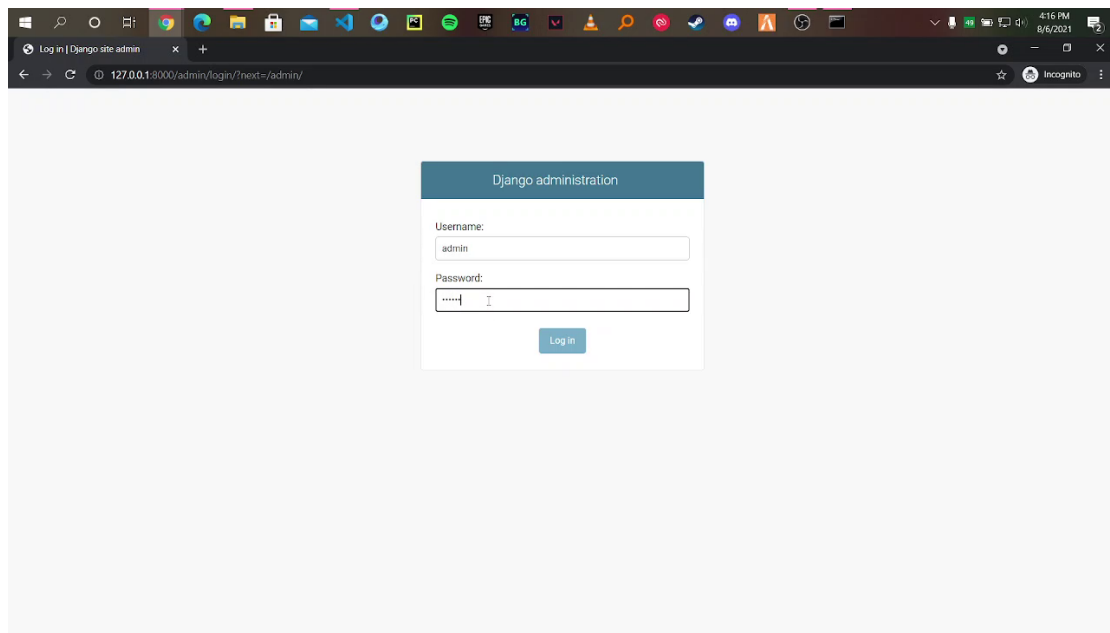


Figure 4.8: Admin Login Panel

After login an admin can find many features which he can manage by himself. The features like, Manage Users, Manage Book Categories, Manage Books, Manage Read Booklists, Manage Read Packages, and Manage Orders which is shown in Figure 4.9.

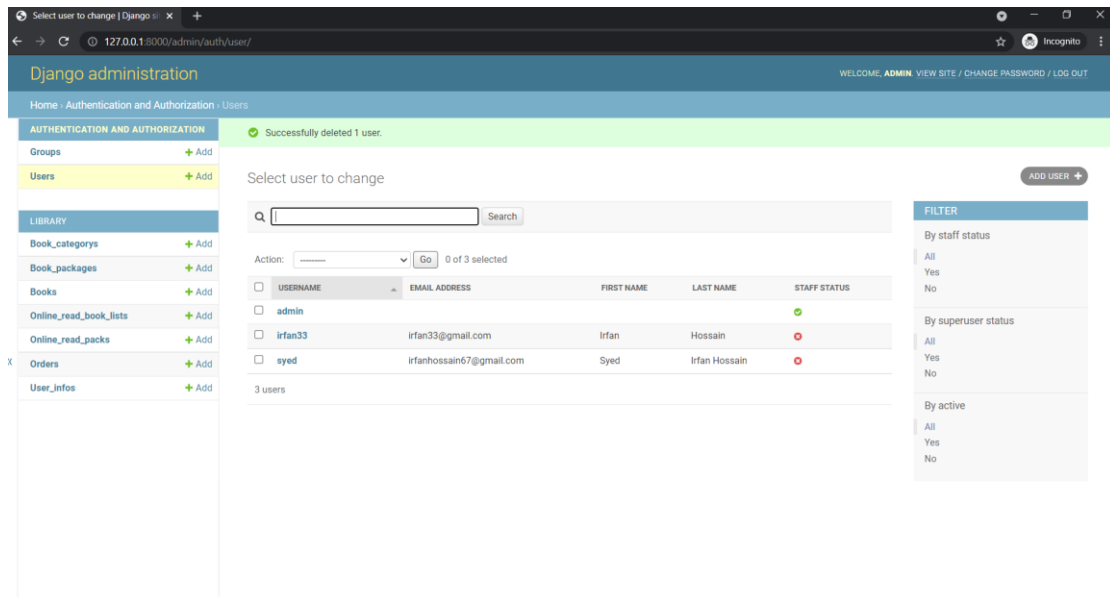


Figure 4.9: Admin Panel

In the book category admin can manage the all book categories. He can add, edit or delete the details of book category which is shown in Figure 4.10.

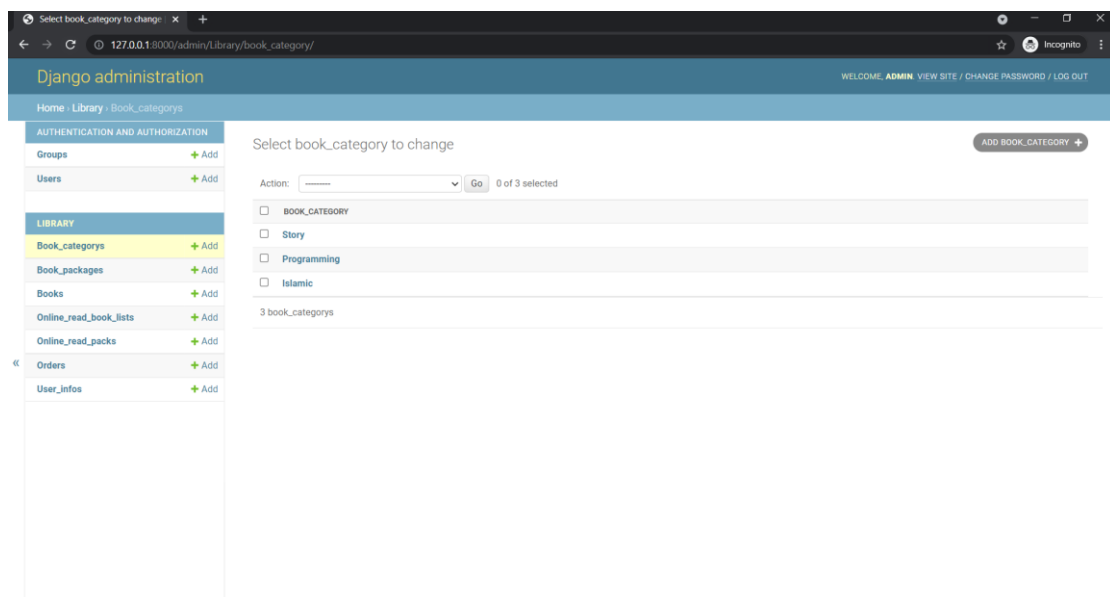


Figure 4.10: Manage Book Category

In the book package option admin can manage the all book packages. He can add, edit or delete the details of book packages which is shown in Figure 4.11.

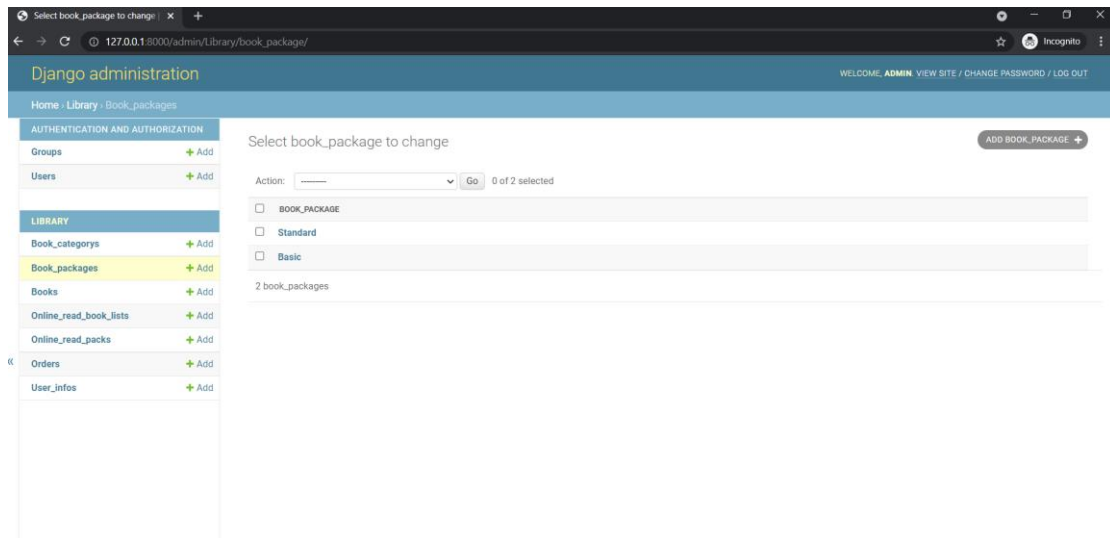


Figure 4.11: Manage Book Packages

In the books option admin can manage the all book details. He can add, edit or delete the details of books which is shown in Figure 4.12.

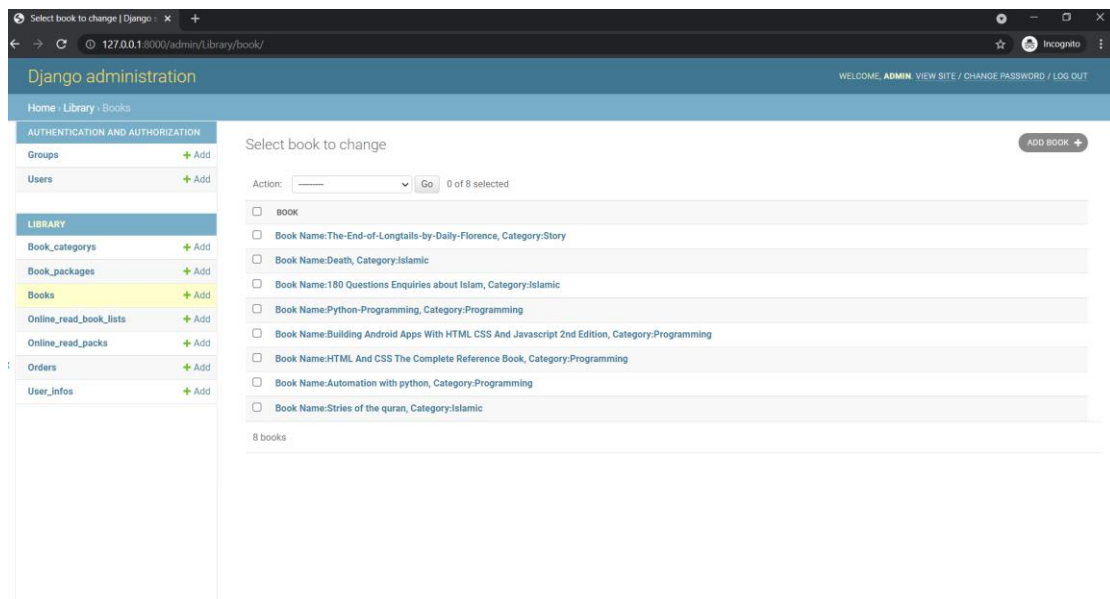


Figure 4.12: Manage Books Details

In the orders option admin can manage the all book orders. He can add, edit or delete the details of orders which is shown in Figure 4.13.

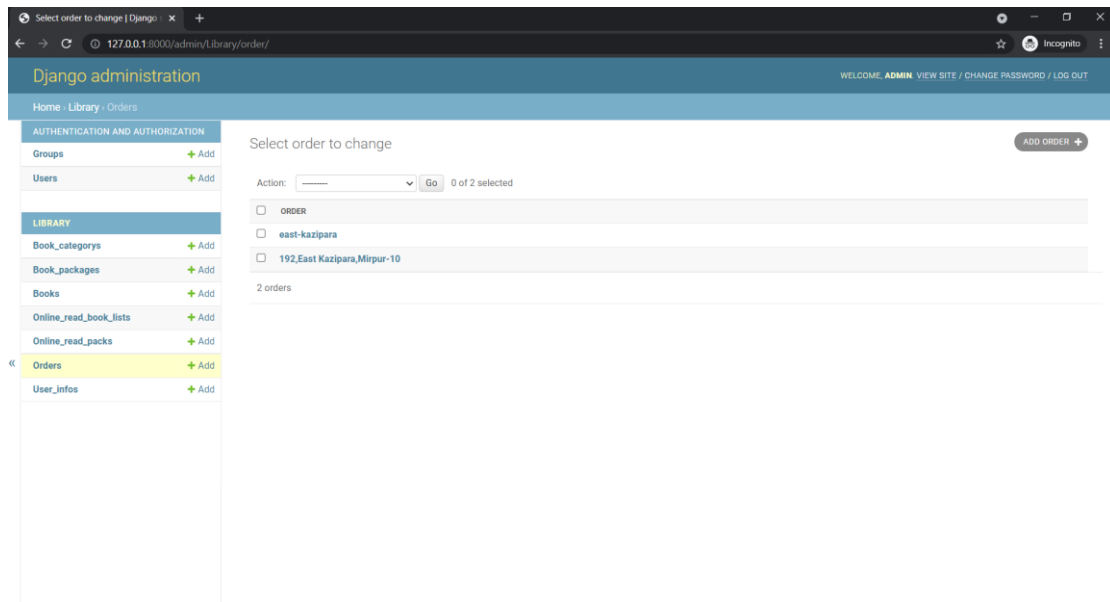


Figure 4.13: Manage Books Orders

In the users info option admin can manage the all users' information. He can add, edit or delete the details of user's info which is shown in Figure 4.14.

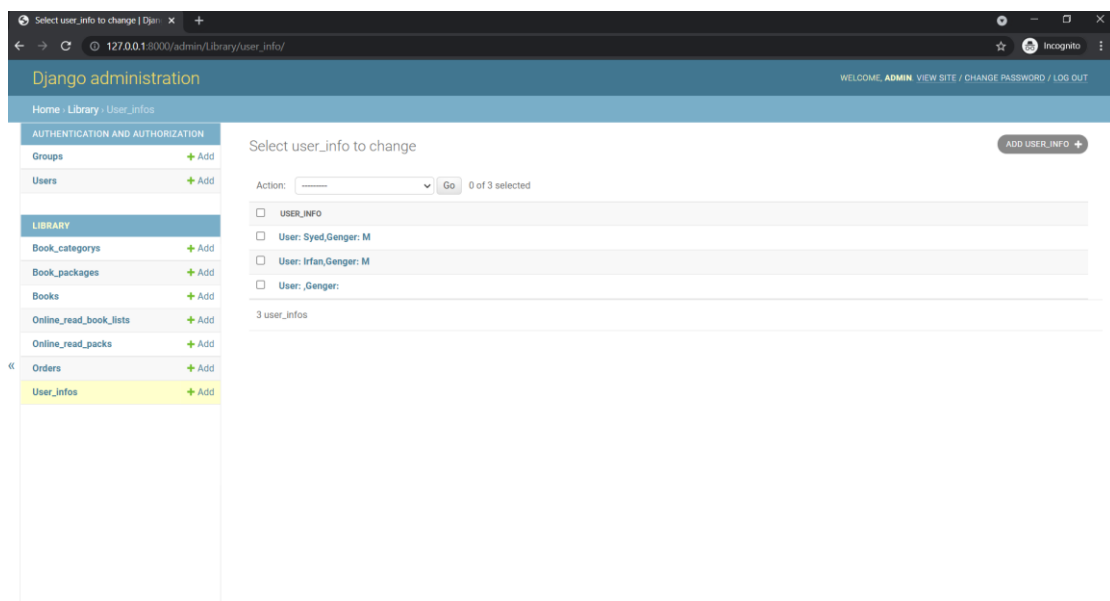


Figure 4.14: Manage Users Info

4.3 Interaction Design and UX

Interaction Design is technique via using that developers are design their website interface more user friendly. There are many various types of Interaction Design. Which is Visual representation, Words, Time and behavior. In this system we have tried

our best for build it with above Interaction. In below we described various types of Interaction. Visual representation is an important part of any website. We can make a website more user Friendly. In this system we used common symbol and button. It helpful for any user to use this system. We used very simple words in this system. Because Easy and common word make more easy way for understanding of this system. This common word people are commonly used in their daily life. If used hard and rarely used word user can't understood that types of word. So we tried our best for maintain this part. Time is big fact for using website. This system take less time for loading any pages. We have worked hard for made faster this system. Via using this system any user can get a better user experience. And get good behavior from system. UX or User experience is big part of any website. We ran some surveys in online and real life and get a feedback form them about their user experience. After that we ran some test on this website. We tested usability, we tested a remote user test for how better worked it. We also tested an accessibility. After finished all test the result is say that this system should be acceptable for any users.

4.4 Implementation Requirement

In previous discussion we mentioned this project is web based Application. So that we needed a different types of language for build this project. Like all others web project we used a HTML and Css for Front-End design. We used several types of languages in this system which is Python, search SQL, JavaScript, jQuery, Json ajax. We used a Framework based on python which mane is Django. This Framework helped us for managing a bigger codes. This framework works to encourages development of rapid clean with pragmatic design. By experienced developers of built a website it takes much of the development hassle. So we can easily do our development work without any problem. Django is free with open sources access. Mostly we are get very help by django because it's ridiculously fast, reassuringly secure, and exceedingly scalable. For the database work we used sqlite. It's a library of c language which can implement a fast small sql dbms engine. This is most used dbms engine ever. We can use this for mobile phones and computers. It's a cross platform. This is a public domain source code and free for everyone. So we used this for our database building and its response is so much great.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

In this part we explained about database of this project. In database have tables it was also explained in this part. We also explained about connection between tables. How and why we used tables for this project everything we cleared in this part. For the database we have used sqlite as our database. SQLite isn't straightforwardly equivalent to customer/worker SQL data set motors, for example, MySQL, Oracle, PostgreSQL, or SQL Server since SQLite is attempting to tackle an alternate issue.

Customer/worker SQL data set motors endeavor to carry out a common storehouse of big business information. They underline adaptability, simultaneousness, centralization, and control. SQLite endeavors to give nearby information stockpiling to singular applications and gadgets. SQLite underlines economy, productivity, dependability, freedom, and straightforwardness. SQLite stores information bases as documents and interfacing with the data set makes the record on the off chance that it doesn't as of now exist. In a web application we need to keep an open association with the information base so the overseer for any solicitation that comes in can utilize the data set to recover information to populate the page that is returned. Something significant to recall is that a web application is taking care of many solicitations for various clients and each solicitation controller may have to question and perhaps update the data set. This implies that we need to oversee associations with the information base cautiously. So we can see the admin login details which is shown in Figure 5.1.

id	action_time	object_id	object_repr	change_message	content_type_id	user_id	action_flag
1	2021-05-25 2...	2	mehedi	["added": {}]	4	1	1
2	2021-05-25 2...	1	admin	["changed": {}]	4	1	2
3	2021-05-30 1...	1	Islamic	["added": {}]	7	1	1
4	2021-05-30 1...	1	Book Name S...	["added": {}]	8	1	1
5	2021-06-02 0...	1	Book_packag...	["added": {}]	10	1	1
6	2021-06-02 0...	1	Online_read o...	["added": {}]	9	1	1
7	2021-06-06 2...	2	Programming	["added": {}]	7	1	1
8	2021-06-06 2...	2	Book Name A...	["added": {}]	8	1	1
9	2021-06-08 0...	1	User: Admin...	["added": {}]	11	1	1
10	2021-06-08 1...	2	Standerd	["added": {}]	10	1	1
11	2021-06-08 1...	1	User: admin ...	["added": {}]	9	1	3
12	2021-06-08 1...	1	User: admin ...	["added": {}]	13	1	1
13	2021-06-08 1...	1	Online_read...	["added": {}]	12	1	1
14	2021-06-08 1...	2	Online_read...	["added": {}]	12	1	1

Figure 5.1: Admin Login Info Table

In this table we can see all the content type of the tables which is used in database which is shown in Figure 5.2.

id	app_label	model
1	admin	logentry
2	auth	permission
3	auth	group
4	auth	user
5	contenttypes	contenttype
6	sessions	session
7	Library	book_category
8	Library	book
9	Library	online_read
10	Library	book_package
11	Library	user_info
12	Library	online_read_book_list
13	Library	online_read_pack
14	Library	order

Figure 5.2: Content Type Table

In this table we can see all the migration details of the tables which is used in database which is shown in Figure 5.3.

id	app	name	applied
1	contenttypes	0001_initial	2021-05-25 21:57:04.728970
2	auth	0001_initial	2021-05-25 21:57:05.105809
3	admin	0001_initial	2021-05-25 21:57:05.443166
4	admin	0002_logentry_remove_auto_add	2021-05-25 21:57:05.643620
5	admin	0003_logentry_add_action_flag...	2021-05-25 21:57:05.940484
6	contenttypes	0002_remove_content_type_name	2021-05-25 21:57:06.116504
7	auth	0002_alter_permission_name_m...	2021-05-25 21:57:06.272754
8	auth	0003_alter_user_email_max_length	2021-05-25 21:57:06.429000
9	auth	0004_alter_user_username_opts	2021-05-25 21:57:06.586518
10	auth	0005_alter_user_last_login_null	2021-05-25 21:57:06.742760
11	auth	0006_require_contenttypes_0002	2021-05-25 21:57:06.900268
12	auth	0007_alter_validators_add_error...	2021-05-25 21:57:07.072114
13	auth	0008_alter_user_username_max...	2021-05-25 21:57:07.259604
14	auth	0009_alter_user_last_name_max...	2021-05-25 21:57:07...

Figure 5.3: Migration Details Table

In this table we can see all the session details of the tables which is used in database which is shown in Figure 5.4.

session_key	session_data	expire_date
33axjvtrc810exu618kgicvxoif72	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-06-13 15:07:16.984377
s9tm15deghdk87ps4jfd5ebfv5o0w2	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-06-22 17:20:20.918551
uv85lfg06036c2pye2779ezrp0v4vb	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-07-05 05:47:14.373703
wxxms2nuux94kbr489g65ngk2ak50zs	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-07-05 06:24:00.779056
ppichgrj13zokhaaz8m6tm6rdp0w8	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-07-11 19:20:18.492834
dprnw4e367gjaeja73j62yp5klokncvj	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-07-21 16:41:38.696934
jbqp2gimb07y2nfnqzndzner7e0181cm	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-07-21 16:51:40.532601
diqxo110d8f4y7u32s97f45ydo7woe	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-07-21 17:02:55.611396
hu37cd2j2u57deomytzb6xub5e8m3tn	eJxVJEsOgzAMBe_idRWFpBPCsvueAdmDU...	2021-08-08 13:59:15.104154
m3we5i5oxgrjphscumdr2s71h40	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-08-08 18:13:45.545983
16gkbt0oe0nhp6k8g9f8hm5obnn3ra	eJxVJEsOgzAMBe_idRWFECIASnvOgzHKB...	2021-08-08 18:56:11.589334
xpft1334u25hz7q93unnll8z85nc	eJxVJEsOgzAMBe_idRWFECIASnvOgzHKB...	2021-08-14 07:34:56.480942
nim3a4g9hw9m5w9qdgjpcv22an0r7	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-08-19 15:06:41.117271
8bcy4yhgq308uohd794nl2abem6quyz	eJxVJMsOwAQRl-FISFAGaAu3fsNZGYybn...	2021-08-19 16:05:19.920533

Figure 5.4: Session Details Table

In this table we can see all the library book details of the tables which is contains book names, author, page no, price, uploads details, description etc. which is used in database which is shown in Figure 5.5.

id	book_n...	author	page_no	price	book_p...	book_pdf	descrip...	upload...	categor...	user_id
1	Stries of ...	Imam Ib...	111	150	booksp...	bookpdf/...	Imad Ad...	2021-05...	1	1
2	Automati...	Al Swigard	800	400	booksp...	bookpdf/...	This is a...	2021-06...	2	1
3	HTML A...	Thomas...	832	400	booksp...	bookpdf/...	This is H...	2021-06...	2	1
4	Building	Jonatha...	160	400	booksp...	bookpdf/...	Android	2021-06...	2	1
5	Python...	Richard...	658	700	booksp...	bookpdf/...	See the...	2021-06...	2	1
6	180 Que...	Ayatulla...	191	200	booksp...	bookpdf/...	Volume...	2021-06...	1	1
7	Death	Ahaz Iqbal	28	300	booksp...	bookpdf/...	We belo...	2021-08...	1	1
8	The-End	Madmin...	30	150	booksp...	bookpdf/...	The End...	2021-08...	3	1

Figure 5.5: Library Book Details Table

In this table we can see all the library book category details of the tables which is contains book names and date which is used in database which is shown in Figure 5.6.

id	name	date
1	Islamic	2021-05-30 15:42:08 578380
2	Programming	2021-06-06 23:21:44 583248
3	Story	2021-08-04 04:38:45 116687

Figure 5.6: Library Book Category Details Table

In this table we can see all the library book package details of the tables which is contains pack name, max book, price, create deal which is used in database which is shown in Figure 5.7.

The screenshot shows a database management interface with a table named 'Library Book Package Details Table'. The table has the following columns: 'id', 'pack_name', 'max_book', 'price', and 'create_date'. The data rows are as follows:

id	pack_name	max_book	price	create_date
1	Basic	20	1000	2021-06-02 06:08:56.195669
2	Standard	40	2000	2021-06-08 16:50:52.123390

Figure 5.7: Library Book Package Details Table

In this table we can see all the library online read book list details of the tables which is contains date, book list id and user id which is used in database which is shown in Figure 5.8.

The screenshot shows a database management interface with a table named 'Library Book Online Read Book List Details Table'. The table has the following columns: 'id', 'date', 'book_list_id', and 'user_id'. The data rows are as follows:

id	date	book_list_id	user_id
19	2021-07-31 07:08:17.936361	1	1
20	2021-08-09 16:05:25.552238	2	13

Figure 5.8: Library Book Online Read Book List Details Table

In this table we can see all the library online read pack list details of the tables which is contains payment trxid, issue date, user id and end date which is used in database which is shown in Figure 5.9.

The screenshot shows a database management interface with a table named 'Library Online Read Pack List Details Table'. The table has the following columns: id, payment_traxid, issu_date, book_pack_id, user_id, and end_date. A single row of data is visible.

id	payment_traxid	issu_date	book_pack_id	user_id	end_date
20	SASDAAEW2DAEDW	2021-08-09 16 04 4...	2	13	2021-09-08 22 04 47 184...

Figure 5.9: Library Online Read Pack List Details Table

In this table we can see all the library order details of the tables which is contains id, quantity, price, bkaash transaction, address, phone, date, status, customer id and product id which is used in database which is shown in Figure 5.10.

The screenshot shows a database management interface with a table named 'Library Order Details Table'. The table has the following columns: id, quantity, price, bkaashTr..., address, phone, date, status, custome..., and product_id. Two rows of data are visible.

id	quantity	price	bkaashTr...	address	phone	date	status	custome...	product_id
2	2	150	5dthk432l...	192 East ...	1565024545	2021-07-2...	1	1	1
3	8	400	5dlkhthj4...	east.kazip...	2384283498	2021-07-3...	0	1	2

Figure 5.10: Library Order Details Table

In this table we can see all the SQLite sequence details of the tables which is name and seq which is used in database which is shown in Figure 5.11.

name	seq
django_migrations	29
django_admin_log	80
django_content_type	14
auth_permission	56
auth_group	0
auth_user	13
Library_book_category	3
Library_book	8
Library_book_package	2
Library_online_read_book_list	20
Library_online_read_pack	20
Library_user_info	7
Library_order	3

Figure 5.11: SQLite Sequence Details Table

5.2 Implementation of Front-end Design

In this part we described about Front-End Design. We also discussed about different types of code. In Front-End Design basically we need a HTML and CSS language. Now we explain which type code and where I used that type code with figure. In this figure we can see the base of html page. There we can see we have linked the bootstrap linked file for css. There are title of the Online Library and the linked script file of javascript. All the things are showed in Figure 5.12.

```

1  {% load static %}
2  <!doctype html>
3  <html lang="en">
4  <head>
5  <!-- Required meta tags -->
6  <meta charset="utf-8">
7  <meta name="viewport" content="width=device-width, initial-scale=1">
8
9  <!-- Bootstrap CSS -->
10 <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/css/bootstrap.min.css" rel="stylesheet">
11 <!-- <link href="{% static './css/bootstrap.min.css' %}" rel="stylesheet" integrity="sha384
12
13 <title>Online Library | {% block title %}{% endblock title %}</title>
14 </head>
15 <body>
16     {% include 'navbar.html' %}
17
18     {% block content %}
19
20     {% endblock content %}
21
22 <!-- Optional JavaScript; choose one of the two! -->
23
24 <!-- Option 1: Bootstrap Bundle with Popper -->
25 <script src="https://cdn.jsdelivr.net/npm/bootstrap@5.0.1/dist/js/bootstrap.bundle.min.js" rel="stylesheet">
26 <!-- <script src="{% static './js/bootstrap.bundle.min.js' %}" integrity="sha384-gtEjrD/SeC
27

```

Figure 5.12: Some code of html and linked process of css and js file

In this code we see that part was used of order page html code. We declare div class for table option with some table header with some option such as Sno., Image, Name, Category, Date, Price, Quantity, Total and Status option. Also use a various types HTML tag for mentioning different types of social link. We used various types of Css code for designed this part which is shown in Figure 5.13.

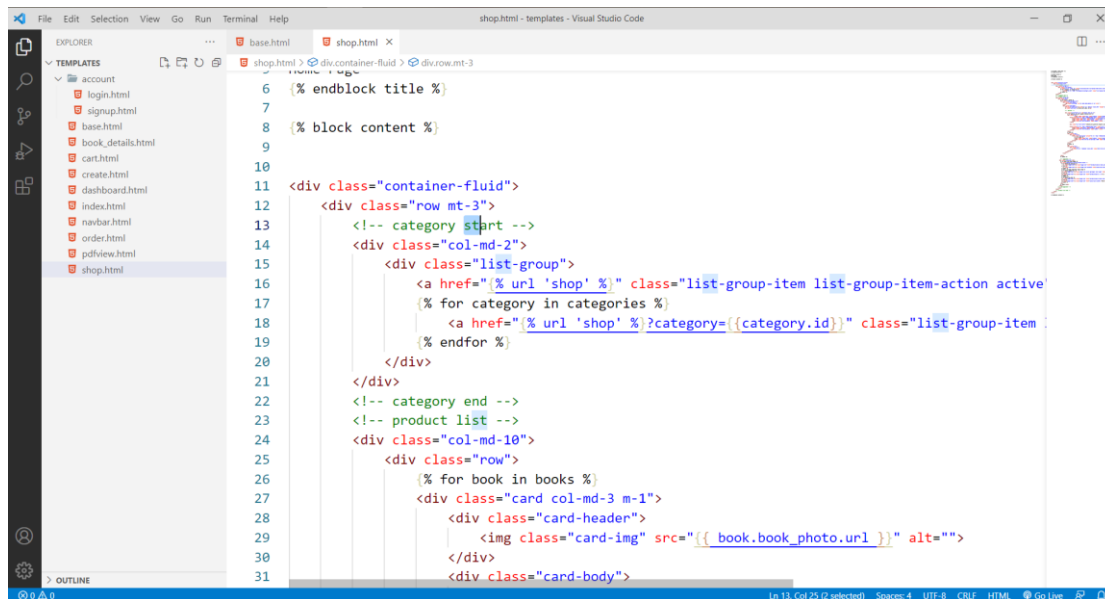
```

1  {% extends 'base.html' %}
2  {% load cart_in %}
3
4  {% block title %}
5  Order Page
6  {% endblock title %}
7
8  {% block content %}
9  <div class="container">
10
11     <div class="border rounded p-4 m-3">
12         <h1 class="text-center">Your Orders</h1>
13         <table class="table">
14             <thead>
15                 <tr>
16                     <th>Sno.</th>
17                     <th>Image</th>
18                     <th>Name</th>
19                     <th>Category</th>
20                     <th>Date</th>
21                     <th>Price</th>
22                     <th>Quantity</th>
23                     <th>Total Price</th>
24                     <th>Status</th>
25                 </tr>
26             </thead>
27         </table>

```

Figure 5.13: Some code of html and use of div and table class

In this part we see that this code was used for shop page. In this page we have used some div class with the help of bootstrap. Also we used some class which is container, row, list group, href, card img etc. So this is the feature of html by the help of this we are able to make a good design of website which is shown in Figure 5.14.



```
6 {% endblock title %}
7
8 {% block content %}
9
10
11 <div class="container-fluid">
12   <div class="row mt-3">
13     <!-- category start -->
14     <div class="col-md-2">
15       <div class="list-group">
16         <a href="{% url 'shop' %}" class="list-group-item list-group-item-action active">
17           {% for category in categories %}
18             <a href="{% url 'shop' %}?category={{ category.id }}" class="list-group-item">
19               {% endfor %}
20         </div>
21       </div>
22     <!-- category end -->
23     <!-- product list -->
24     <div class="col-md-10">
25       <div class="row">
26         {% for book in books %}
27         <div class="card col-md-3 m-1">
28           <div class="card-header">
29             
30           </div>
31         <div class="card-body">
```

Figure 5.13: Some code of html and bootstrap classes

5.3 Implementation of Interactions

We used HTML and HTML5 for designing purpose of this system layout. We also used Css and Css3 for customizing purpose. We used bootstrap for supported this website on any kind of platform and cross browser support. And bootstrap also make more responsive to this website. Now described how to work all types of language which was used on this web based application. When user or visit on this website one request go to the server side server are start queries to database. Then the home page are load on the browser. Now HTML defines what think is this, Css are defines that how look like that, JavaScript define any special Interactions. We used Ajax for increase less time consuming of browsing experience. Ajax are allowed a load data from database without refreshing any pages. Ajax are helpful for form fill-up and others purpose.

5.4 Testing Implementation

We tested this web based application with various test tools. Because we know that without test implementation it can't be possible to launch this website. In the below we showed the test report and result with table.

Table 5.1: Testing Objective of our application

01	To check if the website runs or not
02	To check registration signup works or not
03	To check login works or not
04	To check users search option works or not
05	To check users selected books works or not
06	To check users selected category works or not
07	To check users selected book add to cart works or not
08	To check users payment transaction submit works or not
09	To check package purchase added to profile or not
10	To check the users purchase status working or not

5.5 Test Results and Reports

Table 5.2 shows the test results depending on the test cases given in the previous section of this chapter.

Table 5.2: Result of Test Objectives

01	To check if the website runs or not	Success
02	To check registration signup works or not	Success
03	To check login works or not	Success

04	To check users search option works or not	Success
05	To check users selected books works or not	Success
06	To check users selected category works or not	Success
07	To check users selected book add to cart works or not	Success
08	To check users payment transaction submit works or not	Success
09	To check package purchase added to profile or not	Success
10	To check the users purchase status working or not	Success

After finished all types of tests we see that all the result was accurate. So that we say that this web based application are error less and acceptable to user.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

The reason of build this system for reading book online easily via using this web based application. This a big platform to get a user's desire book in a faster way and can read this anytime from anywhere. It provided that opportunity to gather all teacher and student on online platform. Student could more curious for reading more books and get more skilled by this amazing platform because this will help a reader to get all the book sources in one collection center. During the development of this web based application. we have learned about principle of web application. We had to learn HTML, CSS, JavaScript, JQuery, Json, Ajax and SQLite. We have also learned about framework of Python which is called the Django.

6.2 Scope for Future Developments

In this project have a big scope for further development. Android apps will build based on this project. In future added more new option such as chat with AI bot for getting or ordering the book which is not available in our collection. We can build the chatting or posting like forum section for sharing every readers opinion for some specific books. This project also helpful for researched based work. Because this project have big data based to store all information of many books. So we have a great opportunity if we can work further with it we can built a big advance library management system for all level of students for our country.

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