

**ONLINE LIBRARY MANAGEMENT SYSTEM & ANDROID
APPS**

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APPROVAL

This Project/internship titled “**Online Library Management System and Android Apps**”, submitted by Tarun Kumar Roy, Tamzida Fatema and Md. Lukullahil Mamunto 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 Bachelor of Science in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 7th May 2018.

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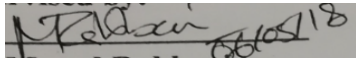
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DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Md. Masud Rabbani, Lecturer, Department of CSE** 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.

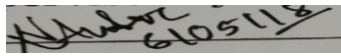
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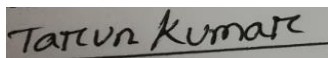
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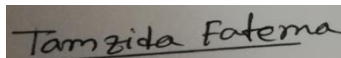
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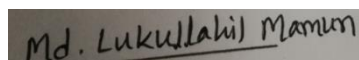
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ABSTRACT

This report is all about library management system. This system is a web base application. Library is a place where all kind of knowledge available. This system contains list of the books, tutorial links, video links etc. All this can be accessed by the users. All users must be register users for accessed this management. There are many layer masonry of this system. Mainly this system or website can use register member or users. Users can search books .if the books are available in our website users can see this and read or download books. Users also write positive or negative comment on the books. They can also borrow and can see the last date for renew of borrower book. Our website suggest all kind of new books and user can see this. Admin can give accesses read the book edit can delete the book. When admin book added the-homepage news tab will be shown and a mail will be send user. So, this system can minimize the gap of user or student and library. And the users are also an important part of this system.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

The world is ingathering in rapid transaction. Mass assumption of new tools and technologies made the achievement process data rich and workflow friendly. We are the part of the generation, who cannot imagine their life without computers and smartphones. This project is web based library management system which is a platform that's provide an interaction between students or peoples and a librarian. In this system we provide the list of books, lists of popular books and update of books to the students or peoples according of their preference. We also provide tutorials for the students. In this system we also try to notify the register user of new books.

1.2 Motivation

Now-a-days people love online buy rather than spending lot of time at physical markets. It became more popular that's why top of the business market move towards to e-marketing management and implement their existing system. It will be a good opportunity for the developers. That's why we became motivated for designing this application and also motivated for

- We will try to create an extra ordinary library management system.
- We will gather all the information exactly.
- We are confident about our dream.

1.3 Objectives

The management system objectives that will be achieved after completion of the website were carried out in this sub chapter in this project objectives are

- User can reserve book via online.
- Register user borrow book searching-online.
- Email-technologies-implement-via-the-website.
- User friendly graphical design and user-interface which suit to the user.
- User suit to easy search important videos and tutorial.

1.4 Expected Outcome

- Specific search through specific department.
- May contain several tutorials for registered user.
- More accuracy.
- Speed improvement.
- Reminder for new collection.
- Notification for books return and renew purpose.
- Book recommendations by e-mail and SMS.
- Will have the opportunity for reading the books online and download the e books
- Improved books collection.
- Increased user satisfaction.

1.5 Report Layout

A report layout is a document that acts as a template that defines the outlook of a report. A report layout will typically use tables to arrange content, where the report contain data fields, text or picture.

Chapter 1: Introduction

In this chapter we have discussed about the motivation, objectives and the expected outcome of the project. Later followed by the report layout.

Chapter 2: Background

We discuss about the background circumstances of our project. We also talk about the related work, comparison to other candidate systems, the scope of the problem and challenges of the project.

Chapter 3: Requirement Specification

This chapter is all about the requirements like business process modeling, the requirement collection and analysis, the use case model of the project and their description, the logical relational database model and the design requirements.

Chapter 4: Design Specification

In this chapter all the designs of the project. Front-end design, back-end design, interaction design and UX and the implementation requirements.

Chapter 5: Implementation and Testing

This chapter contains the implementation of database, front-end designs, interactions and the test results of the project.

Chapter 6: Conclusion and Future Scope

We discussed about the conclusion and the scope for further developments which pretty much derive about the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

This project is an online base project. In this document will only mention about online library system. This website use by librarian and also normal users. These website develop to help convince the user to allow the library facility. As example to know this book have in library or not. For admin user they can update new books see all comments and update this website.

2.2 Related Works

This online web base system have many other related work they are

- Ability to dynamically restructure data for browsing.
- Collaboration features enabled by all kind of book collection
- Access to a variety of data processing tools.
- This system unified modeling language.
- Database connection of this system.

2.3 Comparative Studies

This system is discussed about a comparative study of library Web base software. The Online Public Access Catalogue is an online database of materials held by a library. This system is accessed through a web browser over Internet. It focused on their Web attributes and properties. This study describes the software to find out suitable Web attributes by visiting the Web of institutions or organizations where using those software. There is a table of comparative statement by putting the attributes and properties on those software. As result, it found the major attributes which should be integrated in an efficient web base system.

2.4 Scope of the Problem

The precise nature of the problem is scoped and defined and presented to the team ready for presentation to the executive reference group.

2.4.1 Deleting Procedure

When the book has been lost or totally damaged by the user any other link or book record delete from the library.

2.4.2 Problem with library system

- Difficult to obtain book status rapidly.
- Data analysis and access to database is very difficult because of huge data we have.
- Hard to maintain backup because of huge and duplication of data.
- When need to add some of extra files or books.

2.5 Challenges

- Make a large database.
- Make a run able tutorial book softcopy or any other database.
- Working with many different languages.
- Specific code of different kind of table label language etc.
- UML design all this system.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Business process modeling (BPM) in system engineering is the action of representing procedure of an, so that the current process may be analyzed or improved. BPM is typically performed by business analysts, who supply attempt in the modeling discipline by subject matter experts, who have specific knowledge of the processes being modeled or more commonly by a team comprising both. In the other way, the process model can be derived directly from event's logs using process mining tools. Redesigning a process and implementing it is not a speedy attempt. It can take months and occasionally years, depending on the spread of the process and sub-processes, how many people and systems are involved and how much of it needs to be redesigned. We used a UML Use Case Model as a business process model.

3.2 Requirement Collection and Analysis

There are some basic requirements collected during implementation of the software and also in the data collection. Here are some given below

- Needed to create user and admin profile.
- Needed to create book or product list.
- Needed to create read book option.
- Important tutorial for the student.
- User can be buy book and add the book list for wish list.

3.3 Use Case Modeling and Description

A use-case diagram is the simplified and graphical representation of how system works. It has been said before that "Use case diagrams are the blueprints for your system.

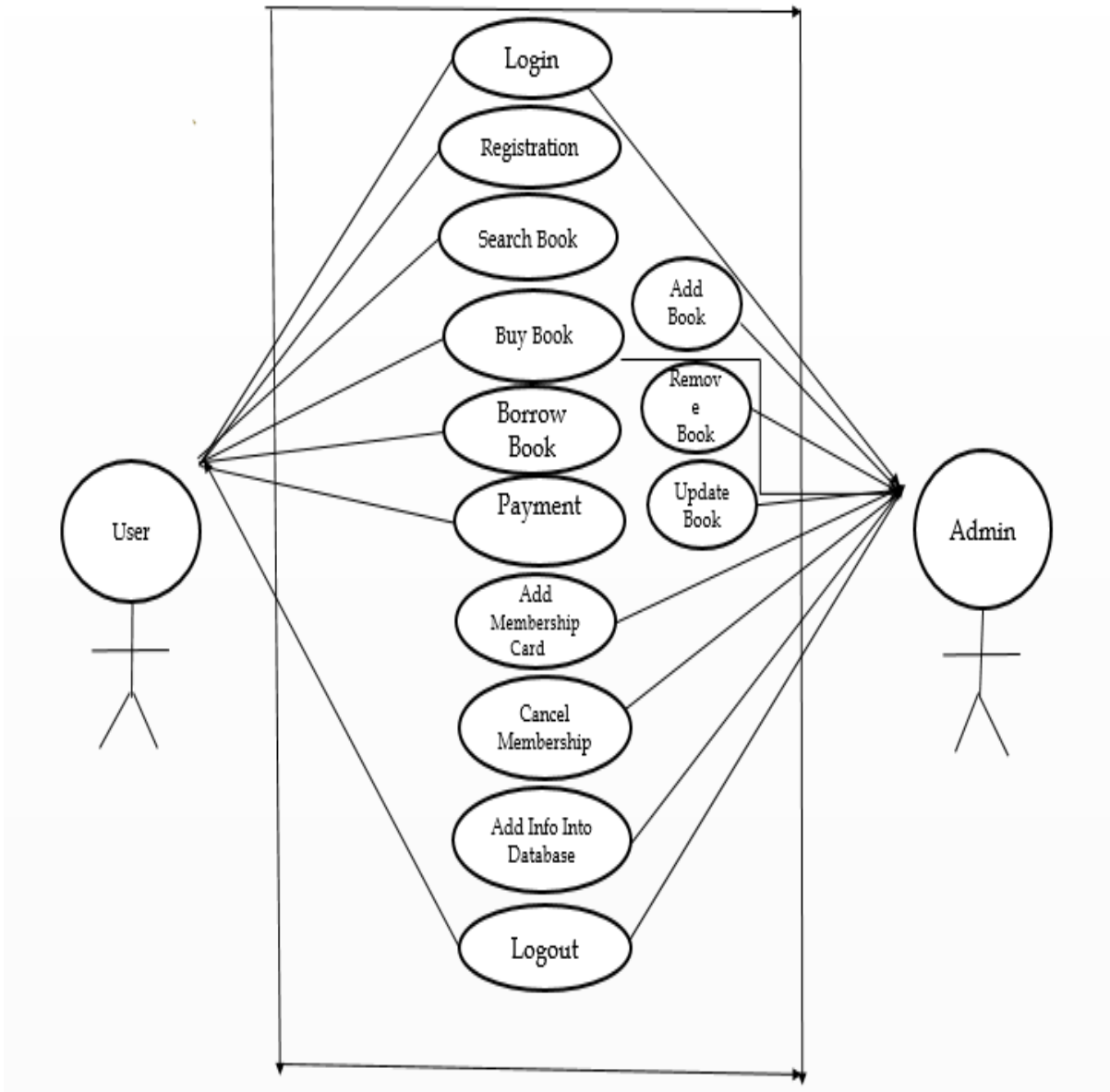


Figure 3.1: Use Case Model Diagram

3.3.1 Use Case Modeling and Description

Registration:

This table is a use case description for new member of this system. In this page new register or new user can submit their e-mail user name and password.

TABLE 3.1 USE CASE DESCRIPTION OF REGISTRATION

| Use Case | Registration |
|-----------------|--|
| Primary Actor | User |
| Secondary Actor | Null |
| Pre-condition | Null |
| Scenario | <ul style="list-style-type: none">• Enter user name• Enter email• Enter password |
| Post-condition | Registration successfully or failed |

Login:

This table is a use case description for user login. In this page user can use their e-mail and password.

TABLE 3.2 USE CASE DESCRIPTION OF LOGIN

| Use Case | Login |
|-----------------|--|
| Primary Actor | User |
| Secondary Actor | Null |
| Pre-condition | Null |
| Scenario | <ul style="list-style-type: none">• Enter email• Enter password |
| Post-condition | Login successfully or wrong email or password |

Search Book:

This table for search book option if the book is available user can find this book.

TABLE 3.3 USE CASE DESCRIPTION OF SEARCH BOOK

| | |
|-----------------|-------------------------------------|
| Use Case | Search book |
| Primary Actor | User |
| Secondary Actor | Null |
| Pre-condition | Search with book name or book code |
| Scenario | Null |
| Post-condition | Find book or can't find any product |

Buy Book:

This table is a use case for if any user buy any book. User can request for buy. For this every user must be register user.

TABLE 3.4 USE CASE DESCRIPTION OF CART BOOK

| | |
|-----------------|--|
| Use Case | Buy book |
| Primary Actor | User |
| Secondary Actor | Admin |
| Pre-condition | Register now |
| Scenario | <ul style="list-style-type: none">• Enter user name• Enter email• Enter password |
| Post-condition | Admin can accept the pending request checking the information that the user given. |

Borrow Book:

This table is a use case for if any user borrow any book. User can request for borrow. For this every user must be register user.

TABLE 3.5: USE CASE DESCRIPTION OF BORROW BOOK

| | |
|-----------------|--|
| Use Case | Borrow book |
| Primary Actor | User |
| Secondary Actor | Admin |
| Pre-condition | Register now |
| Scenario | <ul style="list-style-type: none">• Enter user name• Enter email• Enter password |
| Post-condition | Admin can accept the pending request or decline the request. |

Add Book:

This table is a use case description for add new book of this system. Only admin can add new book

TABLE 3.6: USE CASE DESCRIPTION OF ADD BOOK

| | |
|-----------------|---|
| Use Case | Add book |
| Primary Actor | Admin |
| Secondary Actor | Null |
| Pre-condition | Login Admin |
| Scenario | <ul style="list-style-type: none">• Enter email• Enter password• Product list• Add product |
| Post-condition | Admin can add books. |

Remove Book

This table is a use case description for remove book of this system. Only admin can remove book.

TABLE 3.7: USE CASE DESCRIPTION OF REMOVE BOOK

| | |
|-----------------|--|
| Use Case | Remove book |
| Primary Actor | Admin |
| Secondary Actor | Null |
| Pre-condition | Login Admin |
| Scenario | <ul style="list-style-type: none">• Enter email• Enter password• Product list• Remove product |
| Post-condition | Admin can delete or remove book. |

Add Tutorial:

This table is a use case description for add new tutorial of this system. Only admin can add new tutorial.

TABLE 3.8: USE CASE DESCRIPTION OF ADD TUTORIAL

| | |
|-----------------|--|
| Use Case | Add tutorial |
| Primary Actor | Admin |
| Secondary Actor | Null |
| Pre-condition | Login Admin |
| Scenario | <ul style="list-style-type: none">• Enter email• Enter password• Tutorial• Add tutorial |
| Post-condition | Admin can add the tutorial or remove the tutorial. |

Add Pdf:

This table is a use case description for add new pdf of this system. Admin can add new pdf and the user can also add new pdf.

TABLE 3.9: USE CASE DESCRIPTION OF ADD PDF

| | |
|-----------------|---|
| Use Case | Add pdf |
| Primary Actor | User , Admin |
| Secondary Actor | Null |
| Pre-condition | Login Admin ,User |
| Scenario | <ul style="list-style-type: none">• Enter email• Enter password• Read book• Add pdf book |
| Post-condition | Admin and user can add the pdf book. And admin can only remove the pdf book. |

Remove User:

This table is a use case description for remove register member of this system. Only admin can remove a register member or user.

TABLE 3.10: USE CASE DESCRIPTION REMOVE USER

| | |
|-----------------|--|
| Use Case | Remove User |
| Primary Actor | Admin |
| Secondary Actor | Null |
| Pre-condition | Login Admin |
| Scenario | <ul style="list-style-type: none">• Enter email• Enter password |
| Post-condition | Admin can remove user. |

3.4 Logical Data Model

Logical data model (Figure 3.2) mainly consisted of few elements like, data entities, attributes and keys and relationship between the entities. By which the organization data and business rules is defined and govern the relationship between them. Implementation of the conceptual data model is considered by logical data model.

3.4.1 E-R Diagram

An Entity Relationship Diagram is a type of flowchart that illustrates how “entities” such as people, objects or concepts relate to each other within a system. ER Diagrams are most often used to design or debug relational databases in the fields of software engineering, business information systems.

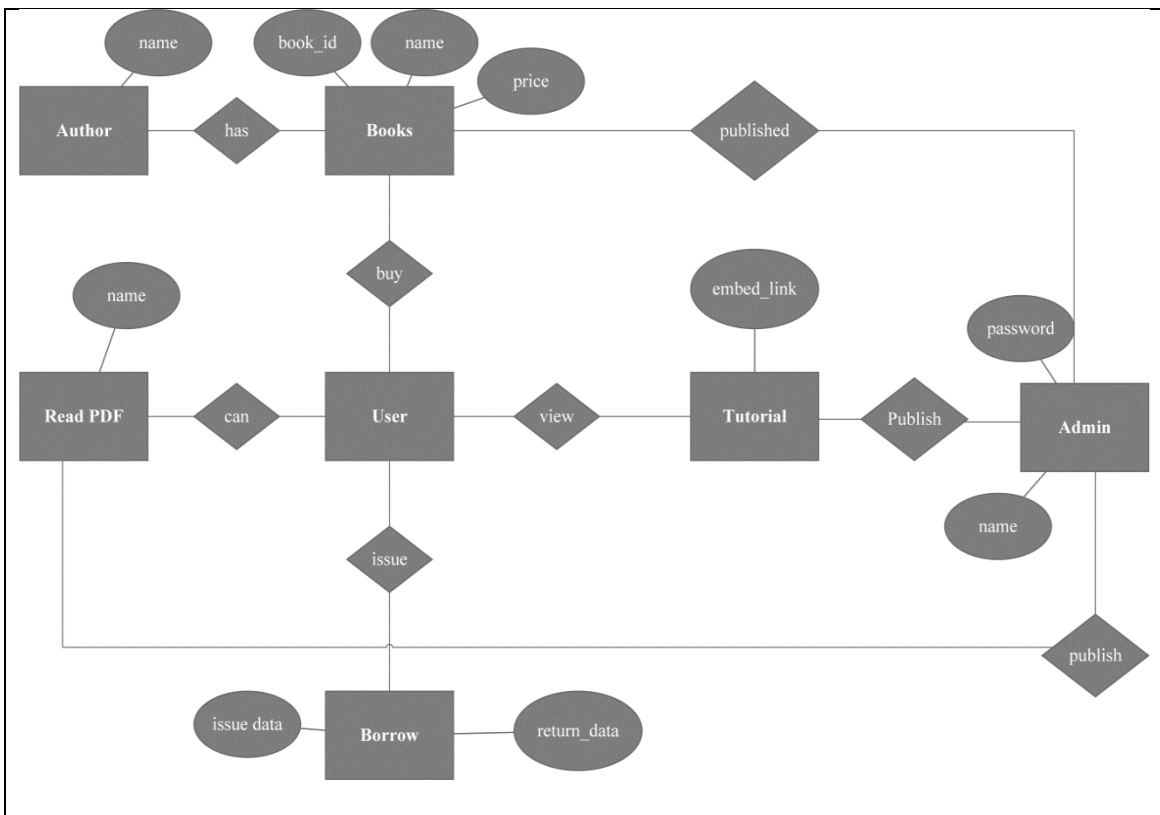


Figure 3.2: E-R Diagram of the System

3.4.2 Class Diagram

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application.

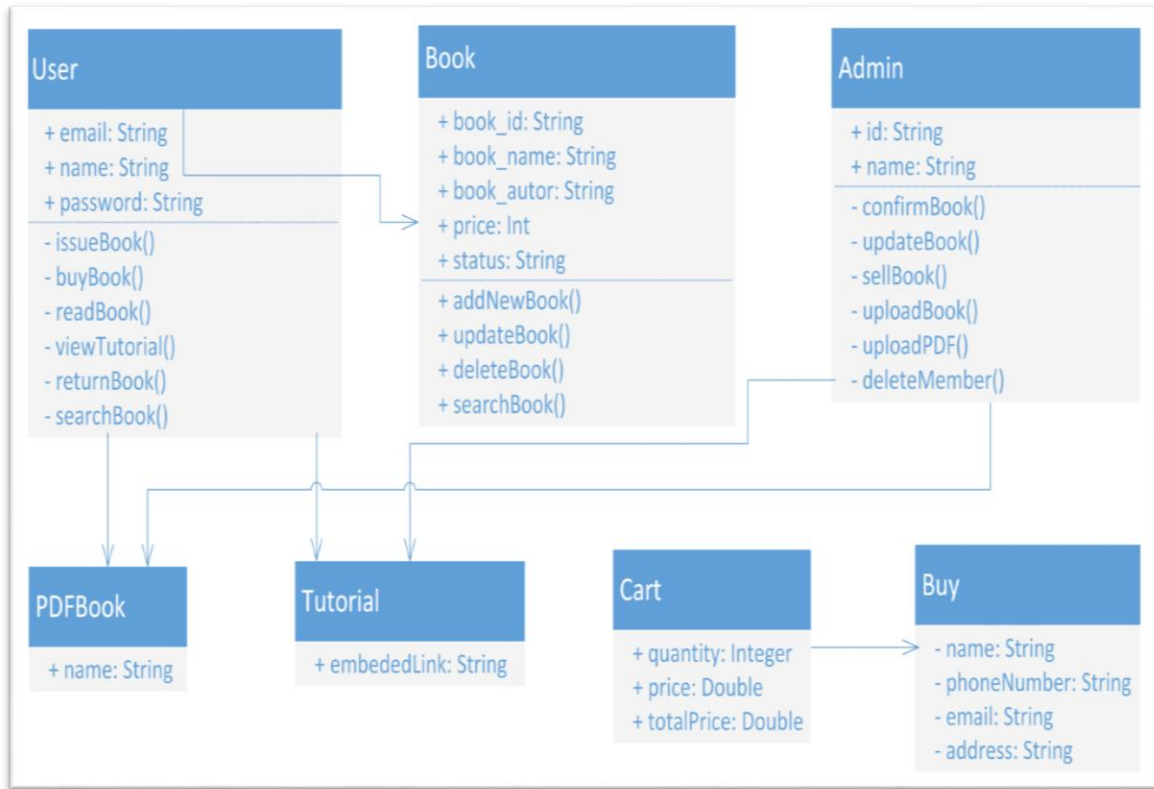


Figure 3.3: Class Diagram of the System

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front End Design

Front-end design is the representation of a software. This is the way of interaction way between the users and the servers. Front-end design is known as a client-side development. In the most aspect of a software development the most important part is to design the front-end. We created a simple front-end design for the users to co-operate with the software easily.

Here are some front-end designs of our software given below

4.1.1 Home Page

In the home page there are menu bars, search option, tutorials, book categories and footer exists shown in (Figure4.1). The whole website is trying to responsive that mean this can be viewed in many devices.

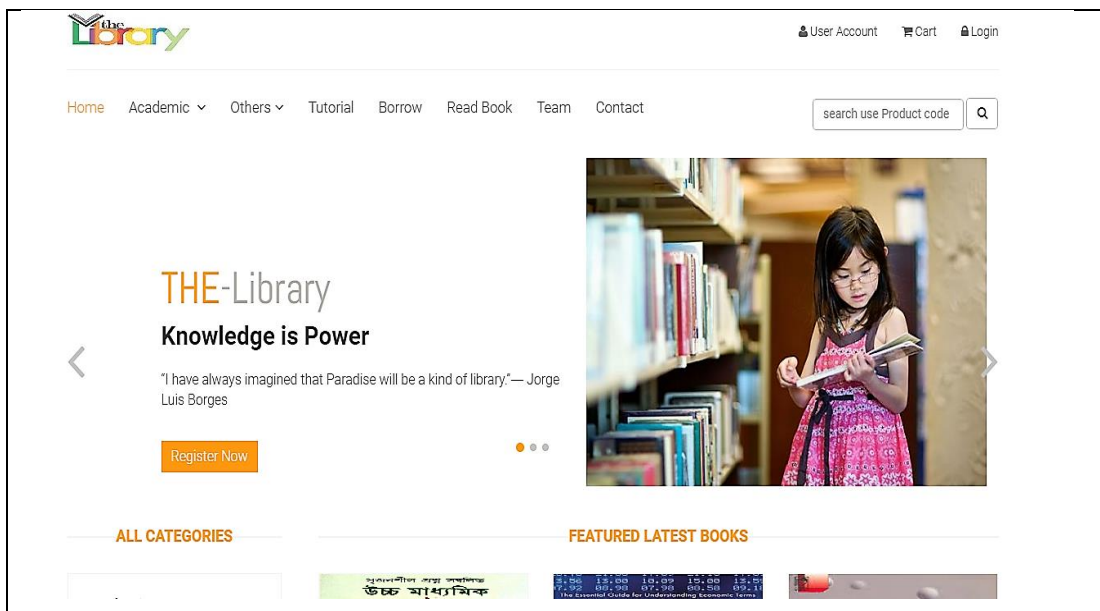
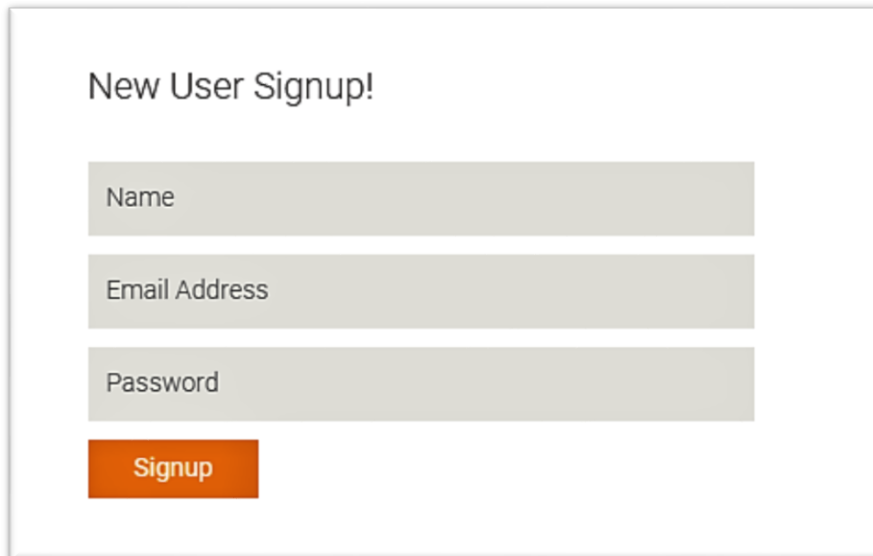


Figure 4.1 Home page for User

4.1.2 Registration

This is the registration page where the users can be registered shown in **(Figure 4.2)**. This page contains some informative mandatory data which are needed in the future to identify the respective user.

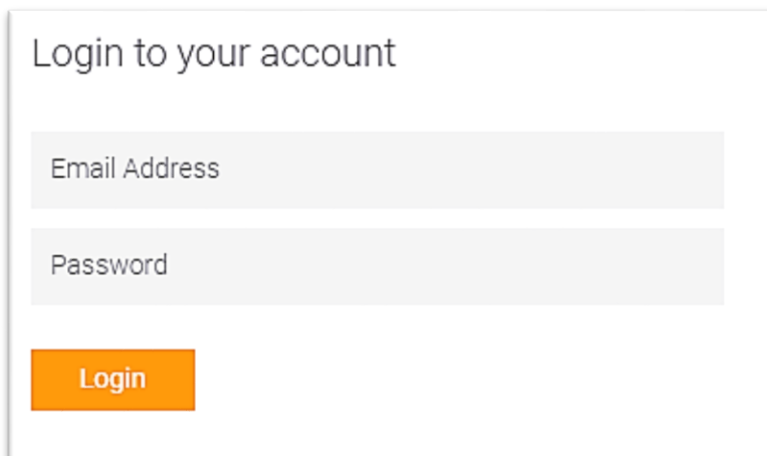


The image shows a registration form titled "New User Signup!". It contains three input fields: "Name", "Email Address", and "Password". Below the fields is an orange button labeled "Signup".

Figure 4.2 Registration for User

4.1.3 Login

This is a simple login page which contains all the basic format of a login page. E-mail address and password. The user can access their account fill up their accurate information shown in **(Figure 4.3)**.



The image shows a login form titled "Login to your account". It contains two input fields: "Email Address" and "Password". Below the fields is an orange button labeled "Login".

Figure 4.3 Login Page for User

4.1.4 Team Profile

The team profile is given (Figure 4.4). Those members are working hard for this project.

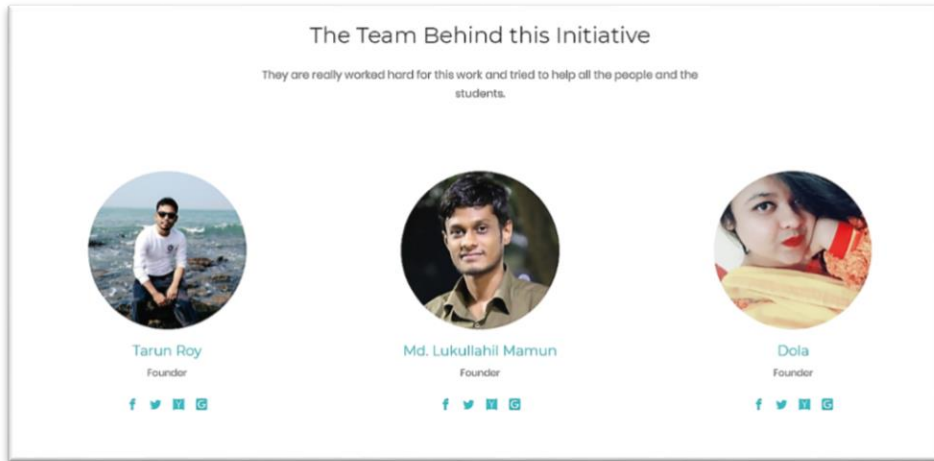


Figure 4.4 Team Profile of the System

4.1.5 Contact Info

There is our library information and the contact info shown in (Figure 4.5)

Figure 4.5 Contact Info for user

4.1.6 Read Book

To read book, the user can read Pdf book from our system. We try to implement a new idea which may useful to the user shown in (Figure 4.6)

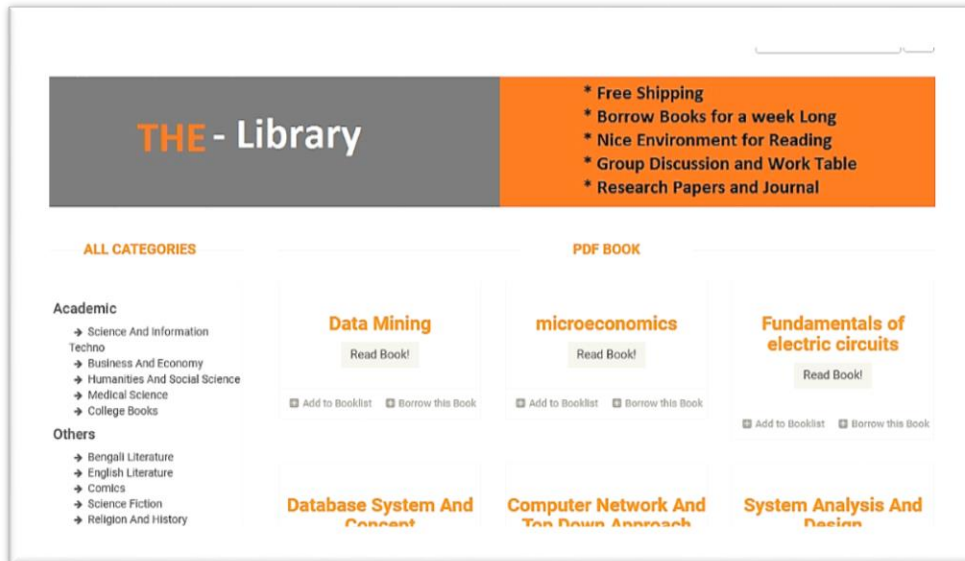


Figure 4.6 Read Book Option for User

4.1.7 View Tutorial

The user can view important tutorial which (Figure 4.7) help the user to improve their knowledge, motivated them to work hard and to watch the successful people lecture.

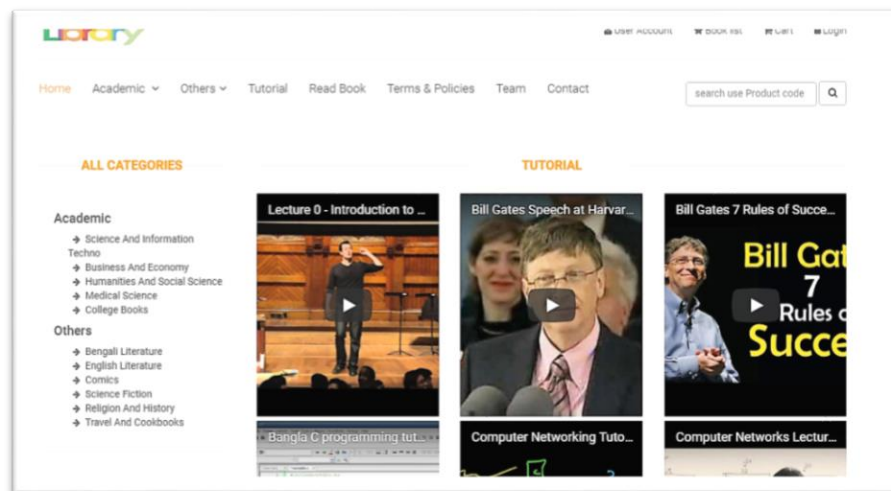


Figure 4.7 View Tutorial for User

4.2 Back-End Design

The logical part of a system is the back-end. It is the most important and precarious part of the system. The whole system depend on it. Usually it work on the server side. In the back-end there are many factor consists like the server side language, database management, security, authentication, authorization, data parsing, data validating, data backups and so on. We developed “Online Library management system” using PHP which is a server side language; in here all the logical thing and the hosting site provide us the MySQL database for saving the data information and the work flow of the system. The database shown in (Figure 5.1)

4.3 Interaction Design and UX

We designed this web software using bootstrap, jQuery and font awesome. Those two helps us to design a better visual for the users and it is also responsive in many formats. The process of attractive user pleasure with a product by improving the usability, user-friendliness, and pleasure provided in the communication with the product. Designers focus on creating engaging web interfaces with logical and thought out behaviors and actions. Prosperous interactive design uses technology and principles of good communication to create chosen user involvements.

4.4 Implementation of Requirements

- The design needed to instrument in web programming language PHP
- Preferred Database is MySQL.
- Hosting platform should be Linux based server.
- Schedule wise backup from server.
- Form validation needed using java-script before server site validation.
- Unauthorized attach needed to prevent with maximum attach limit.
- Invalid data input should display error message.
- For specific design jQuery needed to be implemented.
- In front end design bootstrap, jQuery are needed
- For visual aspect different types of fonts and icons are collected from google font

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

Because of using PHP we made different types of table which describes about the contents attribute and the data types. In this process SQL query needed to perform actions. In the model the data can be checked whether user has the permission to input the data directly in the database. There are fifteen tables in our DBMS which

Admin: Admin manage table.

User: All user record with details information are saved.

Author: The author name of the book are saved here.

Borrow: Books borrow information are saved.

Borrow confirmation: In this table Borrow confirmation information are saved.

Cart: Job category are shown in this table.

Category: Category of books are add, remove or edit here and also add category.

Pdf book: Pdf books are save in the table.

Product: Books are save in the product table.

Sale: Those books are sale they save in this table.

Sale cash: Those books sale in cash on delivery are save in the table.

Sub category: Books are save in different sub-category.

Tutorial: Important tutorial save here.

Sale product: Sale product are save here.

Booklist: User book list saved here.

5.2 Implementation of Front End Design

It's very difficult to make a simple UI design for the users, we try make as simple as possible. Nowadays, there are many devices like smart mobile, tablets, desktop, 4k desktop etc. We are trying our website responsive so that user can visit from different devices with marginable scale of the website and easily interact. We make interface relative and standard with the help of bootstrap, JavaScript and JQuery technologies. There are some factors of implementing the front-end design is given below.

- There will be two types of users like Admin and User.
- Every types of user must be registered by filling up the required information fields.
- User can login using their registered email and password.

5.3 Implementation of Interaction

Here to make our system (Online Library Management System) we have implemented responsive UI for better user experience. In the cases make things easy we use icon, text link and button. The system design of our web site is user friendly.

5.4 Testing Implementation

Testing implementation is process of testing upcoming implementation of a system, where tester or system architect will see cases and specification, is it implementable or have limitation.

Table 5.1: Test case for Online Library Management System

| Test Case | Test Input | Expected outcome | Obtained outcome | Pass /fail |
|------------------|---|---|-------------------------------|-------------------|
| 1. Login | Login via various devices such as tablet, pc, cell phones | Successfully login | Successfully login | Pass |
| 2.Registration | Username, Password | Show restriction to Fill all the fields | Fields must be filled by data | Pass |

| | | | | |
|------------------|---|---|-------------------|------|
| 3. Password | Incorrect password | Warn the incorrect password or field is empty | Show warning | Pass |
| 4. Search book | Search book by name or book id | Show the book or can't find any book | Show the book | Pass |
| 5. Read pdf book | Register user login or new user must register | Read the pdf book or can't access | Read the pdf book | Pass |
| 6. Borrow book | Register user login or new user must register | Borrow the book or can't access | Borrow the book | Pass |
| 7. Buy book | Register user login or new user must register | Buy the book or can't access | Buy the book | Pass |

5.5 Test Result and Reports

Test report is wanted to reflect testing results in a formal way, which gives a scope to estimate testing results speedily. It is a paper that records data obtained from an evaluation experiment in an organized manner, describes the environmental or operating conditions, and shows the compare of test results with test objectives.

There are many types of testing

- Functionality
- Regression
- Security
- Performance
- Scalability

- Usability
- System interoperability
- Localization
- Disaster recovery
- Installation/ upgrade

If the system passes through all these types of testing it is finally ready to launch so at the end we can carry out the results as the benefits of usability testing.

- Good Quality of Website.
- System is easier to use.
- Website is more readily accepted by users.
- Easy to use for the new users.
- Better UI for interaction.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Library management system that's a friendly graphical user interface .This system will help students and other users. Every users can be gather more knowledge from this system. It will save user valuable time. Day by day the system will become update and join new feature. It will give update information for communication between users and admin. This system has suitable scope for alternation in future if it is necessary.

6.2 Future Development

There are some limitations in our web application. We will try to overcome this limitation as soon as possible.

- User can upload file and tutorial.
- Implement new interface design for good look.
- Security will be strong.
- Include Bangla and English version.
- System will be keep rating on the book.
- User will be give their feedback review books.

APPENDIX

We have worked more than 1 year for this project. We have tried our level best to touch our goal. Finally, we have developed a platform where user and librarian can collaborate each other. It will help both user and to find each other and help each other in different areas. User can think ahead of time by the help of librarian. We develop Buy and Borrow Category. User can benefited from this system. Some books user can borrow for free. We also try to add option read online pdf book which is helpful for the user. Tutorial to improve their knowledge and user can get successful or world popular person to motivate themselves. We want to build up a unique system where user can get books free and also get books for money. So we believe that our “Online Library Management System” will be a positive and effective thing for both the User and the Librarian.

The Database is shown in the (Figure 5.1)

| Table | Action | Rows | Type | Collation | Size | Overhead |
|--------------------|---|-----------|---------------|--------------------------|----------------|------------|
| admin | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | utf8_general_ci | 16 K1B | - |
| author | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | utf8_general_ci | 16 K1B | - |
| booklist | Browse Structure Search Insert Empty Drop | ~2 | InnoDB | latin1_swedish_ci | 16 K1B | - |
| borrow | Browse Structure Search Insert Empty Drop | ~6 | InnoDB | latin1_swedish_ci | 16 K1B | - |
| borrowconfirmation | Browse Structure Search Insert Empty Drop | ~3 | InnoDB | latin1_swedish_ci | 16 K1B | - |
| cart | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | utf8_general_ci | 16 K1B | - |
| catagory | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | latin1_swedish_ci | 16 K1B | - |
| pdfbook | Browse Structure Search Insert Empty Drop | ~1 | InnoDB | utf8_general_ci | 16 K1B | - |
| product | Browse Structure Search Insert Empty Drop | ~28 | InnoDB | latin1_swedish_ci | 16 K1B | - |
| sale | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | utf8_general_ci | 16 K1B | - |
| salecash | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | utf8_general_ci | 16 K1B | - |
| saleproduct | Browse Structure Search Insert Empty Drop | ~6 | InnoDB | utf8_general_ci | 16 K1B | - |
| subcatagory | Browse Structure Search Insert Empty Drop | ~10 | InnoDB | latin1_swedish_ci | 16 K1B | - |
| tutorial | Browse Structure Search Insert Empty Drop | ~0 | InnoDB | utf8_general_ci | 16 K1B | - |
| user | Browse Structure Search Insert Empty Drop | ~3 | InnoDB | utf8_general_ci | 16 K1B | - |
| 15 tables | Sum | 59 | MyISAM | latin1_swedish_ci | 240 K1B | 0 B |

Figure 5.1 Database of the System

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PLAGIARISM REPORT

Plagiarism is a common problem that is often the result of a lack of knowledge and skills. Our mission is to support the education community with a comprehensive set of resources to help students write with integrity.

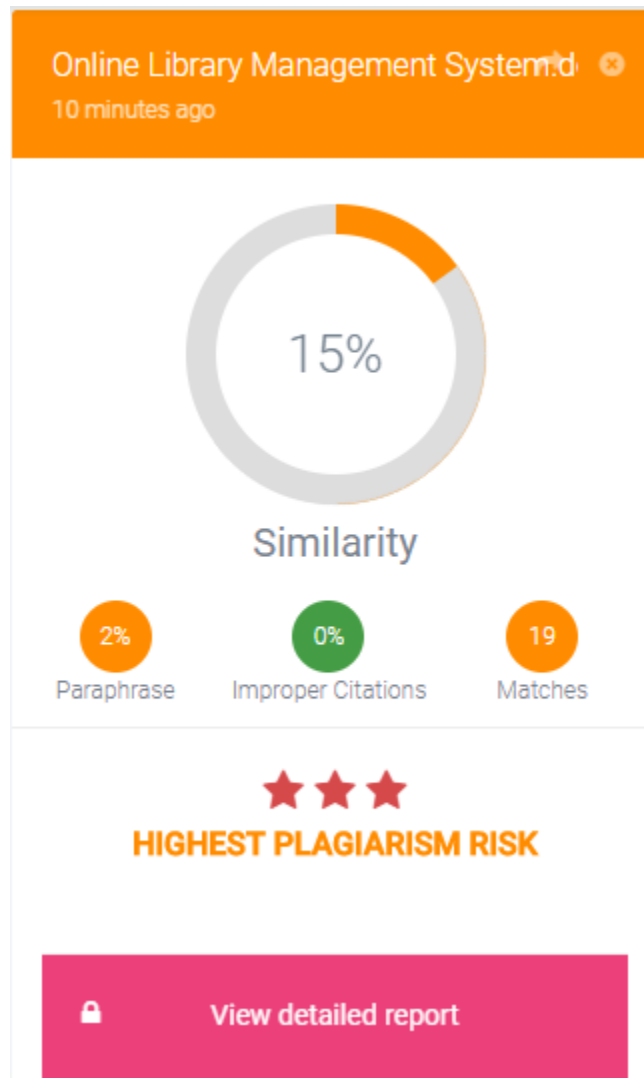


Figure: Plagiarism Test Report of Library Management System