**A**

# MAJOR PROJECT REPORT

**on**

# LIBRARY SOFTWARE FOR ANDAMAN COLLEGE

**BACHELOR OF TECHNOLOGY**

**in**

**INFORMATION TECHNOLOGY**

**Submitted by**

**(MPIT01)**

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**(Affiliated to JNTU-H, Approved by AICTE New Delhi and Accredited by NBA & NAAC with 'A' Grade)**

**JUNE 2021**

MARRI LAXMAN REDDY
INSTITUTE OF TECHNOLOGY AND MANAGEMENT
(AN AUTONOMOUS INSTITUTION)
(Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad)
Accredited by NBA and NAAC with 'A' Grade & Recognized Under Section2(f) & 12(B)of the UGC act,1956

# CERTIFICATE

This is to certify that the project report titled "**Library Software for Andaman College"** is being submitted by **Pinnapureddy Dileep(177Y1A1209)** and **L Madhumathi (177Y1A1221)** in IV B. Tech II Semester **Information Technology** is a record bonafide work carried out by them. The results embodied in this report have not been submitted to any other University for the award of any degree.

**Internal Guide** **HOD**

**Principal** **External Examiner**

# DECLARATION

We hereby declare that the Major Project Report entitled, "**Library Software for Andaman College"** submitted for the B. Tech degree is entirely our work and all ideas and references have been duly acknowledged. It does not contain any work for the award of any other degree.

**Date:**

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# CONTENTS

# ABSTRACT

Library software for Andaman College system is a project which aims in developing a computerized system to maintain all the daily work of library. This project has many features which are generally not available in normal library management systems like voice-based search of books and automatic categorization of books. It also has a facility of admin login through which the admin can monitor the whole system. It also has facility of searching from the internet and get information about the book and put them into appropriate category based on title, authors and information which is collected from online. It has also a facility where student after logging in their accounts can see list of books issued and its issue date and return date and also the students can request the librarian to add new books by filling the book request form. The librarian after logging into his account i.e. admin account can generate various reports such as student report, issue report, teacher report and book report.

Overall, this project of ours is being developed to help the students as well as staff of library to maintain the library in the best way possible and also reduce the human efforts.

# LIST OF FIGURES

# SYMBOLS & ABBREVIATIONS

| | | |
|---|---|---|
| **PHP** | **:** | Hypertext Preprocessor |
| **CSS** | **:** | Cascading Style Sheets |
| **SQL** | **:** | Structured Query Language |
| **HTML** | **:** | Hyper Text Markup Language |
| **DFD** | **:** | Data Flow Diagram |
| **UML** | **:** | Unified Modeling Language |

# 1.INTRODUCTION

The aim of this project is to develop Library software for Andaman college specifies the use of computerized library which facilitates the search of book based on title, author. Library software is one of the most important factors in educational institution. It is necessary for students to check the books and useful content from the computerized software. Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non-computerized system is used.

## 1.1 MOTIVATION

Library software enables librarian, staff and students to access the library. Library software is one of the most important factors in educational institution. It is necessary for students to check the books and useful content from the computerized software. With this computerized system there will be no loss of book record or member record which generally happens when a non-computerized system is used.

## 1.2 PROBLEM

In Andaman college understanding the demands of library management can be a complex task for the college librarian with numerous books and records to monitor. But, our application, provide ideal solutions for the library management, which will make this whole process efficient and cheaper with less human interaction.

## 1.3SOLUTION

A Computerized Andaman College Library management system can be integrated into a virtual support system, helping the speed and efficient way of accessing books and the records. Furthermore, a feature selection process can help to analyze the impact of the analytical retrieval. We design a system for library management system for Andaman college that has voice-based search of books and automatic categorization of books in genres based on title. The developed system is used to search from the internet and get information about the book and put them into appropriate category based on title, authors and information collected online.

## 1.4 SCOPE

The outcomes in this project are based on results that involve in computerized library software. It is necessary that a college consists of computerized library system to enable students and staff to take books and return the books. Recent field of technology is growing and data are by nature dynamic. Hence, further classification of the entire system needs to be implemented right from the scratch since the results from the old process have become obsolete. The scope of future work can deal with Incremental learning, which stores the existing model and processes the new incoming data more efficiently.

## 1.5 PROBLEM DEFINITION

The Library software for Andaman college sets up n Computerized library system based on book maintenance and record keeping and tracing of each and every book. The library mainly consists of the librarian, staff and students in the college they choose books and return books back to library. Using web application for Andaman College the library is maintained.

## 1.6 OBJECTIVE

- The aim of this project is to develop a system which maintains Library software for Andaman college students.
- We developed a computerization of Library Activities and Book Transactions.
- We design a system for library management system for Andaman college that has voice-based search of books and automatic categorization of books in genres based on title.
- The developed system is used to search from the internet and get information about the book and put them into appropriate category based on title, authors and information collected online.
- The developed system also manages the financial information like fines for damaged book, lost book and late returns.

## 1.7 LIMITATIONS

A Computerized library requires the internet access to access the portal for Andaman college. This leads to the accessing from certain place where there is no internet connectivity. The librarian is the only one who controls the library activities in the Andaman College system it affects the system while maintaining the records. Depends on the functionalities, there are different types of library management software. The software is intended to reduce the manual work to manage library functions which have various features. Based on your requirements, you can also customize the software. The commonly used library management software is customized software-based functionality, opensource, cloud-based system, database creation software, and many more.

## 1.8 ORGANIZATION OF DOCUMENT

1 describes motivation, scope, objective and problem definition are discussed. 2 explains literature survey and basic concepts and terms. 3 discusses about user requirements, software and hardware requirements. 4 discuss about module design. In 5 we discuss about system implementation like method of implementation and experimental results. In 6 we discuss about testing and validation. In 7 we discuss about conclusion and future enhancements of the project and then references.

# 2. LITERATURE SURVEY

## 2.1 OVERVIEW

My Andaman college library system provides computerized library management system to ensure all the activities like requesting books, returning books, fines management and books management is carried out.

## 2.2 EXISTING SYSTEM

Existing system does not have any facility of teacher's login or student login whereas proposed system will have a facility of student login as well as teacher's login. Existing system does not have a facility of online reservation of books whereas proposed system has a facility of online reservation of books. Existing system does not have any facility of online notice board where description of workshops happening in our college as well as nearby colleges is being provided.

## 2.3 DISADVANTAGES OF EXISTING SYSTEM

- Existing system provides only librarian to access the system.
- The management of books is not efficient.
- The use of existing system doesn't affect the students and staff.
- The separation of book categories is not well formed.
- Existing system does not have any facility for book request and suggestions where as in proposed system after logging in to their accounts student can request books as well as provide suggestions to improve library.

## 2.4 PROPOSED SYSTEM

To overcome the limitations of existing system, the proposed system contains the following features: The students will register them through Online. Individually each member will have his account through which he can access the information he needs. Book details like authors, number of copies totally maintained by library, present available number of books, reference books, non-reference books etc. all this information can be made handy. Regarding the members designation, number of books was issued. Issue dates and returns of each member is maintained separately and fine charged if there is any delay in returning the book. Administrator can add, update the books. Time consuming is low, gives accurate results, reliability can be improved with the help of security.

## 2.5 ADVANTAGES OF PROPOSED SYSTEM

- The students will register them through Online
- Individually each member will have his account through which he can access the information he needs.

- Book details like authors, number of copies totally maintained by library, present available number of books, reference books, non-reference books etc. all this information can be made handy.
- Regarding the members designation, number of books was issued.
- Issue dates and returns of each member is maintained separately and fine charged if there is any delay in returning the book.
- librarian can add, update the books.
- Time consuming is low, gives accurate results, reliability can be improved with the help of security.

## 2.6 CONCLUSION

The Library software for Andaman college sets up n Computerized library system based on book maintenance and record keeping and tracing of each and every book. The library mainly consists of the librarian, staff and students in the college they choose books and return books back to library. Using web application for Andaman College the library is maintained. Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains. With this computerized system there will be no loss of book record or member record which generally happens when a non-computerized system is used.

# 3. ANALYSIS

Analysis is the process of breaking a complex topic or substance into smaller parts in order to gain a better understanding of it. The technique has been applied in the study of mathematics and logic since before Aristotle, though analysis as a formal concept is a relatively recent development.

## 3.1 INTRODUCTION

Analysis is the process of breaking a complex topic or substance into smaller parts in order to gain a better understanding of it. The technique has been applied in the study of mathematics and logic since before Aristotle, though analysis as a formal concept is a relatively recent development.

## 3.2 SOFTWARE REQUIREMENT SPECIFICATION

## 3.2.1 FUNCTIONAL REQUIREMENTS

**NORMAL USER**

**3.2.1.1 USER LOGIN**

**Description of feature**
This feature used by the user to login into system. They are required to enter user id and password before they are allowed to enter the system. The user id and password will be verified and if invalid id is there user is allowed to not enter the system.
**Functional requirements**
-user id is provided when they register
-The system must only allow user with valid id and password to enter the system
-The system performs authorization process which decides what user level can access to.
-The user must be able to logout after they finished using system.

**3.2.1.2 REGISTER NEW USER**
**Description of feature**
This feature can be performed by all users to register new user to create account.
**Functional requirements**
-System must be able to verify information
-System must be able to delete information if information is wrong.

**3.2.1.3 REGISTER NEW BOOK**
**Description of feature**
This feature allows to add new books to the library.
**Functional requirements**
-System must be able to verify information
-System must be able to enter number of copies into table.
- System must be able to not allow two books having same book id.

**3.2.1.4 SEARCH BOOK**
**Description of feature**

This feature is found in book maintenance part. we can search book based on book id, book name, publication or by author name.

**Functional requirements**

- System must be able to search the database based on select search type
- System must be able to filter book based on keyword entered
- System must be able to show the filtered book in table view

**Functional requirements**

-System should be able to add detailed information about events.

-System should be able to display information on notice board available in the homepage of site.

## 3.2.2 NON-FUNCTIONAL REQUIREMENTS

• Product Requirements

**Efficiency Requirement**

When a library management system will be implemented librarian and user will easily access library as searching and book transaction will be very faster.

**Reliability Requirement**

The system should accurately perform member registration, member validation, report generation, book transaction and search

**Usability Requirement**

The system is designed for a user-friendly environment so that student and staff of library can perform the various tasks easily and in an effective way.

•Organisational Requirements

**Implementation Requirement**

In implementing whole system, it uses html in front end with php as server side scripting language which will be used for database connectivity and the backend ie the database part is developed using MySQL.

**Delivery Requirement**

The whole system is expected to be delivered in six months of time with a weekly evaluation by the project guide.

## 3.3 CONTENT DIAGRAM

During the initial phases of modelling requirements, developers must first understand the context where the system operates in a specific environment. The context model captures this perspective to allow decisions on project scope to be made by the stakeholders. The context model also shows system dependencies to its interacting environment. The external dependencies could be another automated system, manual processes, and functional peripheral or actors. They might produce data for system usage or consume the output of the system.

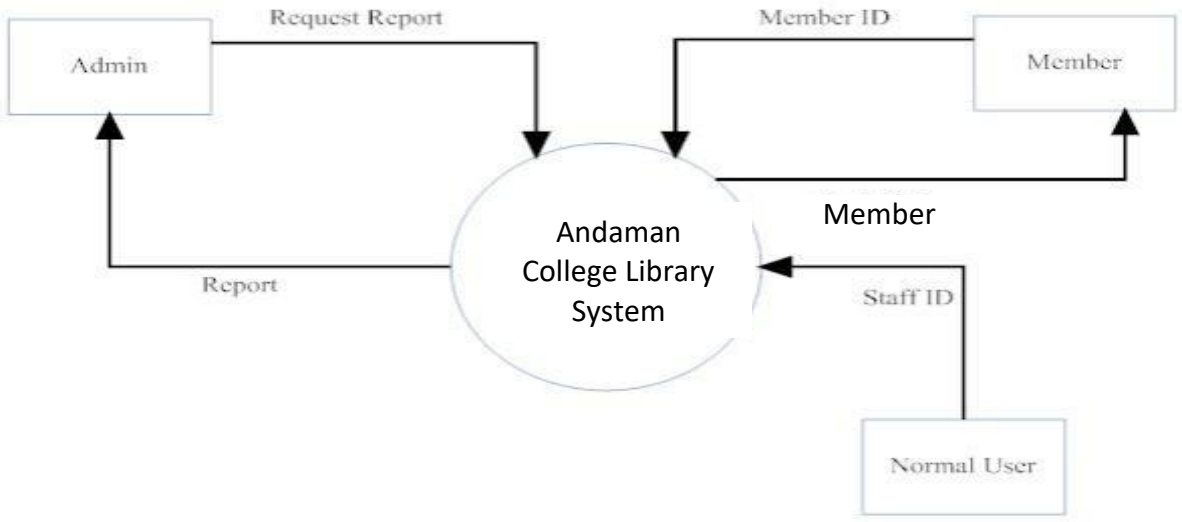



**Figure:** Context Diagram for Andaman College Library Management System

### 3.3.1 Level 1DFD (Lower – Level Diagram)

1. Staff Login

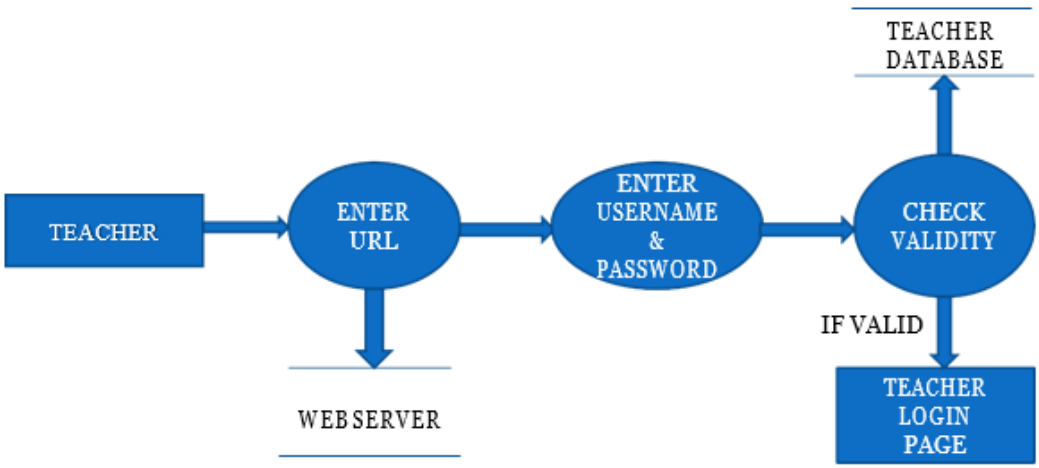



**Figure:** Level 1 DFD for Staff Login

After entering to the home page of the website, teacher can choose the TEACHER LOGIN option where they are asked to enter username & password, and if he/she is a valid user then a teacher login page will be displayed.

2. Student Login

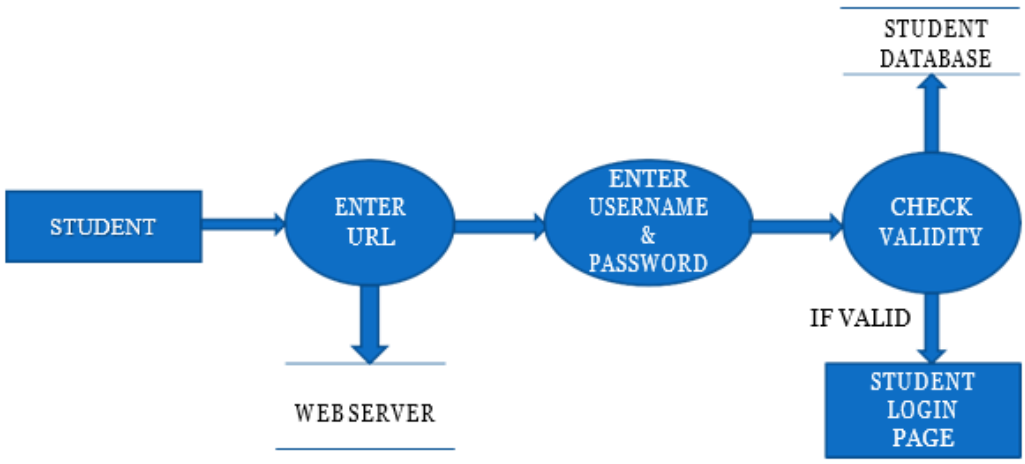



**Figure:** Level 1 DFD for Student Module

After entering to the home page of the website, student can choose the STUDENT LOGIN option where they are asked to enter username & password, and if he/she is a valid user then a student login page will be displayed.

3.Book Issue

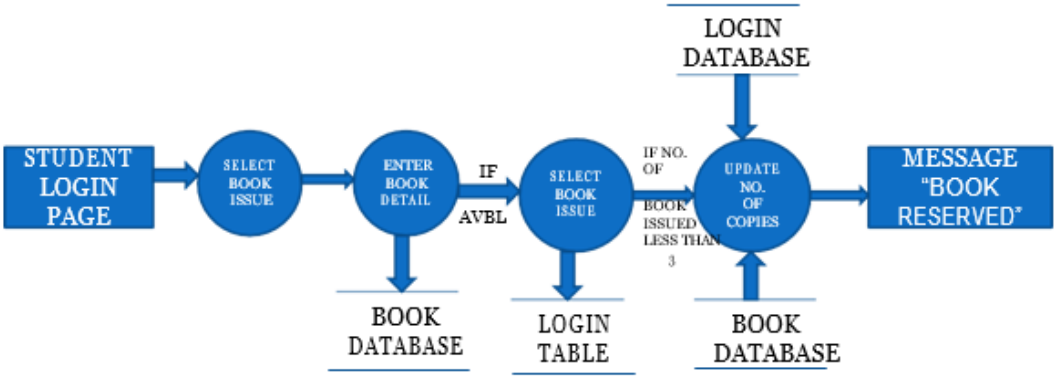



**Figure:** Level 1 DFD for Book Issue Module

It is a 2nd level Data Flow Diagram where after entering STUDENT LOGIN page he/she can select a book issue option where after entering the book detail, he/she can select the book issue option and if the maximum no of books issued limit is not crossed then a request will be sent to the librarian who will approve the book issue.

3. Book Search

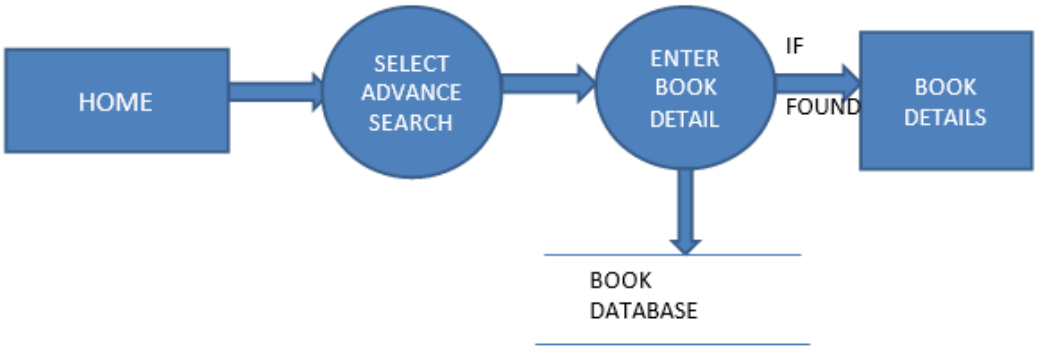
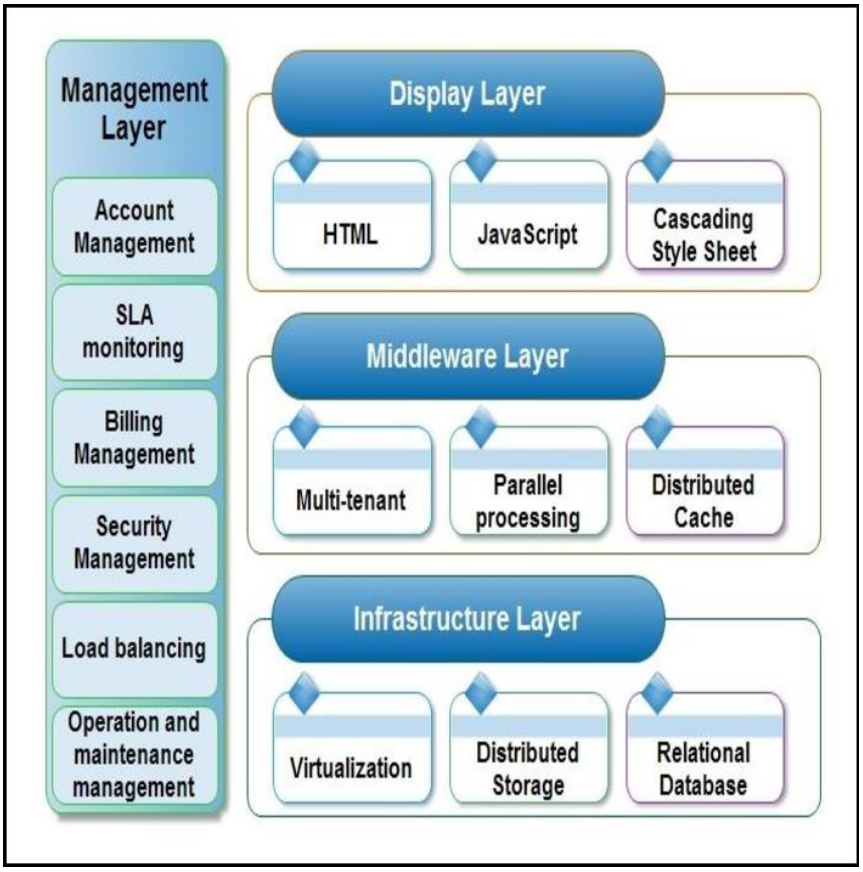



**Figure:** Level 1 DFD for Book search Module

After the home page login there will be an option of the book search where after entering book detail like author name, publication, book name etc book details will be displayed.

## 3.4 SYSTEM ARCHITECTURE




The Andaman College library system that's being considered here is a college library. The users are the students and the faculty of the college. The library management system is a MAS comprising of various independent, reactive and autonomous agents. A library has a large number of books related to different fields and topics. The user can search for the books as per his choice. Depending upon his search, a list of books is displayed. The list will have the attributes like, title of the book, author/authors,

publishing house and the number of available copies. When the user wants to have a particular book, the system will check the number of books already issued to the user, as there is a limit on the number of books that can be issued to a user. If the user has the sufficient balance, then the book will be issued to him, and the number of copies of that particular book will be reduced by one. If the user asks for a book which is present in the library, but is currently unavailable, then the user can see the names of the people to whom the copies have been issued.

The system will give an option, whether the user wants to send an email to them, to return the book. Depending upon the choice of the user, an email can be sent to some/all of the people having the copies of the desired book.

This Andaman College Library software can be considered as an intelligent system, due to its one unique feature. If suppose, the user searched for a topic and that topic are not available in any of the books present in the library, then the user will be given a choice by the system for the web search. The web search is done by a topical web crawler. A web crawler is a program or an automated script which browses the World Wide Web in a methodical automated manner. A focused crawler or topical crawler is a web crawler that attempts to download only web pages that are relevant to a topic or set of topics. Topical crawling generally assumes that only the topic is given, while focused crawling also assumes that some labeled examples of relevant and not relevant pages are available.

## 3.5 CONCLUSION

In this chapter, I do research about system objectives and system requirements. Besides that, I need to construct the Level 0 Data Flow Diagram (DFD) as well as Level 1 DFD.

The Library software for Andaman college sets up n Computerized library system based on book maintenance and record keeping and tracing of each and every book. The library mainly consists of the librarian, staff and students in the college they choose books and return books back to library. Using web application for Andaman College the library is maintained. Books and student maintenance modules are also included in this system which would keep track of the students using the library and also a detailed description about the books a library contains.

# 4. DESIGN

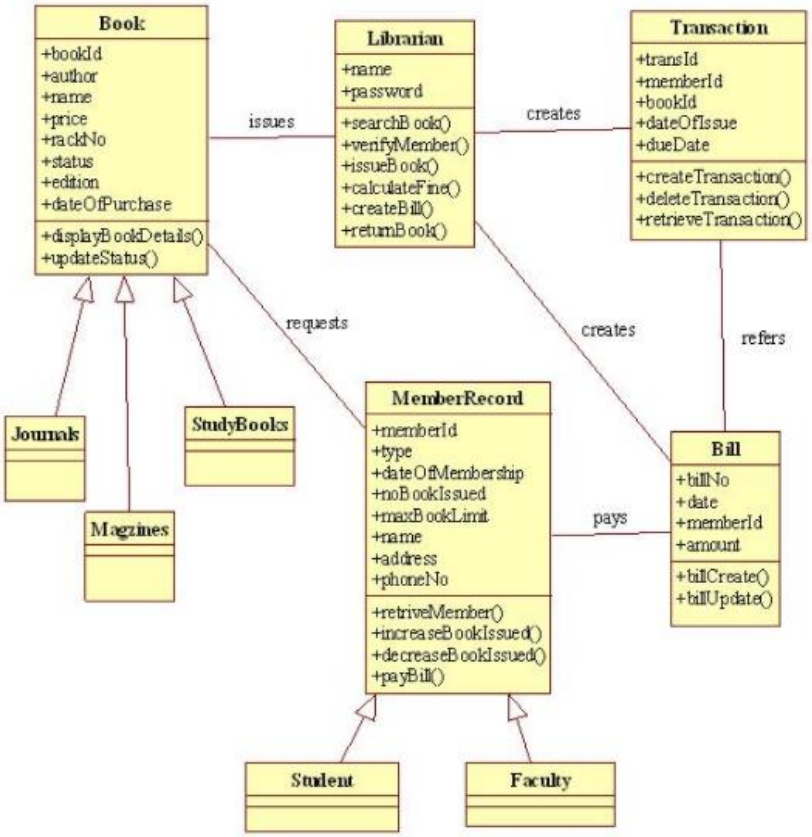
## 4.1 INTRODUCTION

This chapter will discuss about System Design phase which is one of the SDLC phase. The GUI design, database design will be carried out in this chapter. The system design of Andaman College library will provide the design phase for the library management system. The main aim of the design phase is to provide the solution for the specified requirements.

## 4.2 SYSTEM MODELS

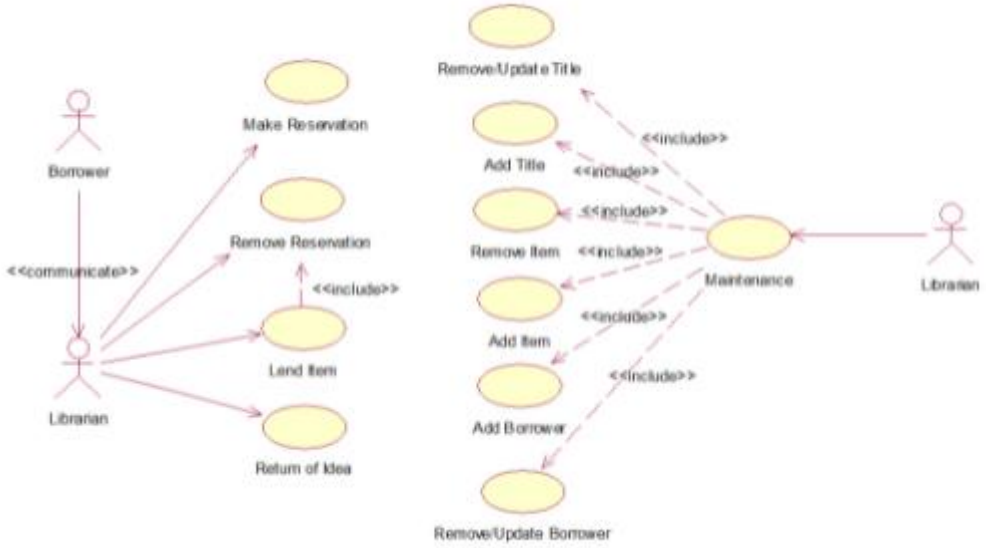
### 4.2.1 Class diagram

A class diagram in the unified modeling language is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations and the relationships among objects. The library management system makes use of the following classes user, librarian, system and DBA



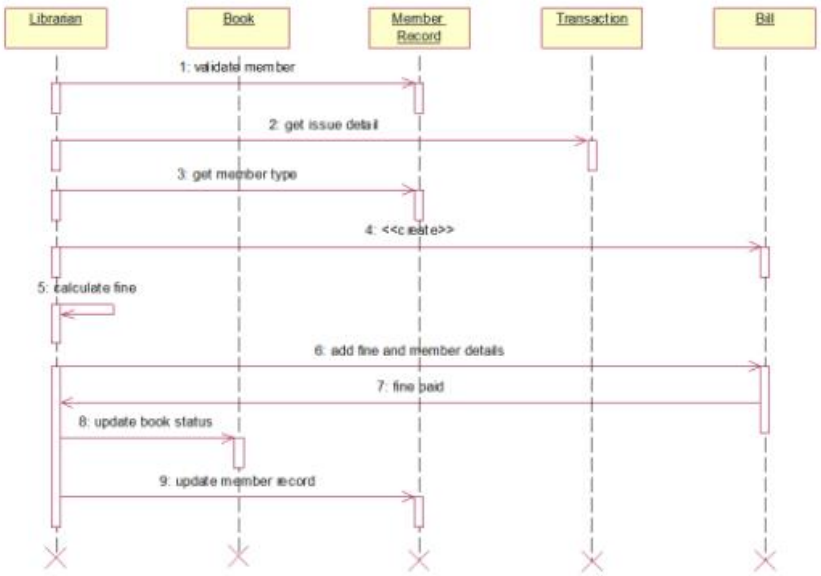
## 4.2.2 Use-Case diagram

Use case is a list of actions or events. Steps typically defining the interactions between a role and a system to achieve a goal. The use case diagram consists of various functionality performed by actors like user, librarian, system and DBA.



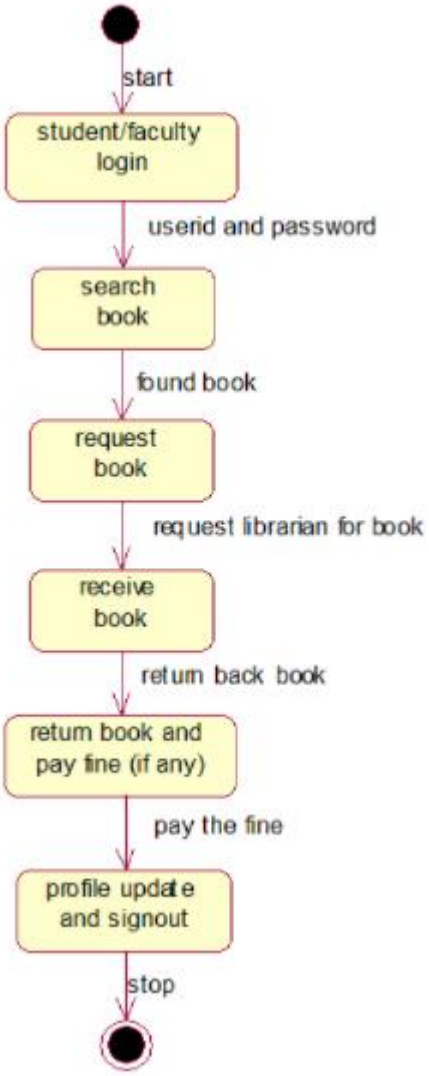

## 4.2.3 Sequence diagram

A sequence diagram represents the sequence and interactions of a given use case or scenario. Sequence diagram capture most of the information about the system. It is also represented in order by which they occur and have the object in the system send message to one another. Here the sequence starts with interaction between user and the system followed by database. Once the book has been selected the next half of sequence starts between librarian and user followed by database



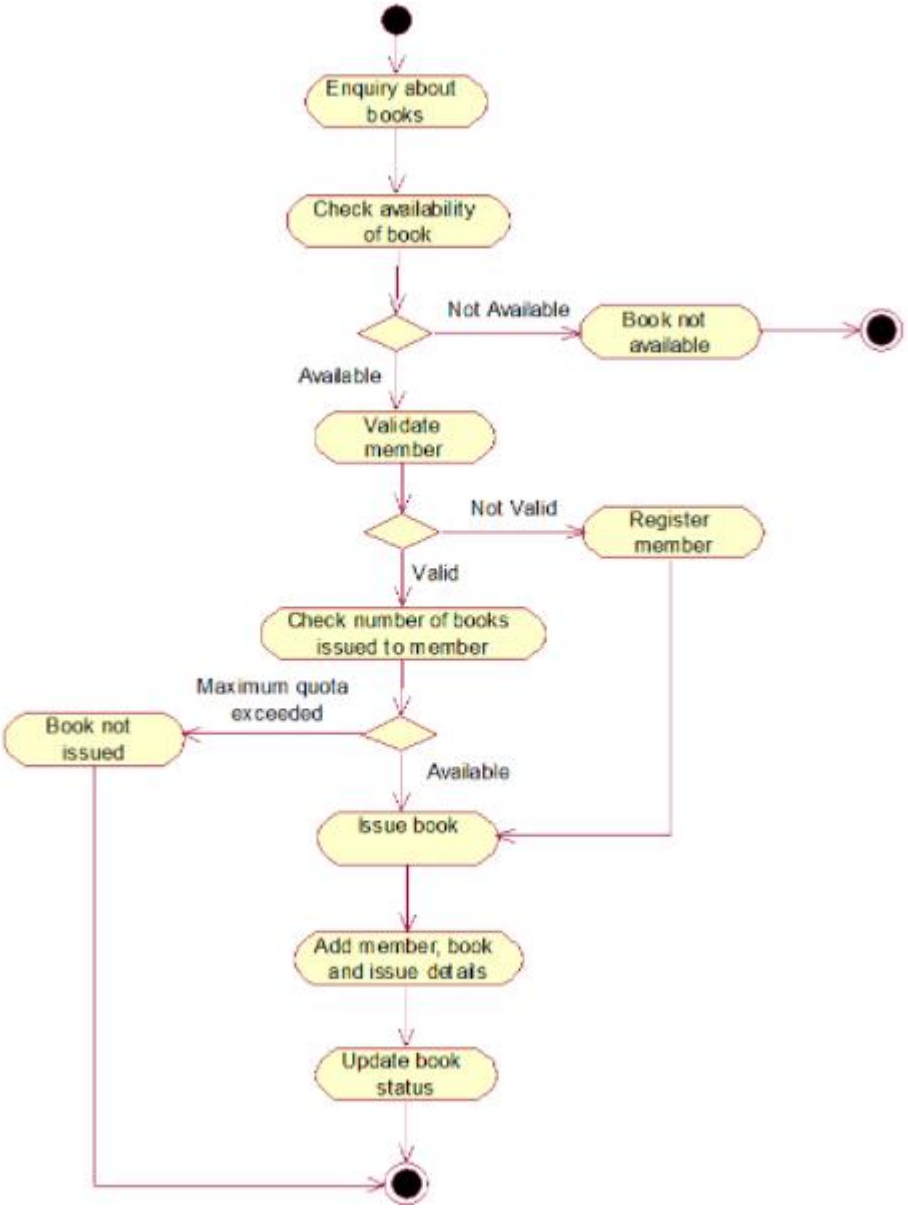
### 4.2.4 State chart diagram

State chart diagram is also called as state machine diagram. The state chart diagram contains the states in the rectangular boxes and the states are indicated by the dot enclosed. The state chart diagram describes the behavior of the system. The state chart diagram involves eight stages such as login, enter details, requesting for book, display book details, search book, issue book, return book and logout.




### 4.2.5 Activity diagram

Activity diagram are graphical representation of workflows of stepwise activities and actions with support for choice, iteration and concurrency. Here in the activity diagram the user login to the system and perform some main activity which is the main key element to the system.




## 4.3 MODULE DESIGN AND ORGANISATION

For Andaman College Library Management System, it is divided into the following Modules:

### 4.3.1 Admin module

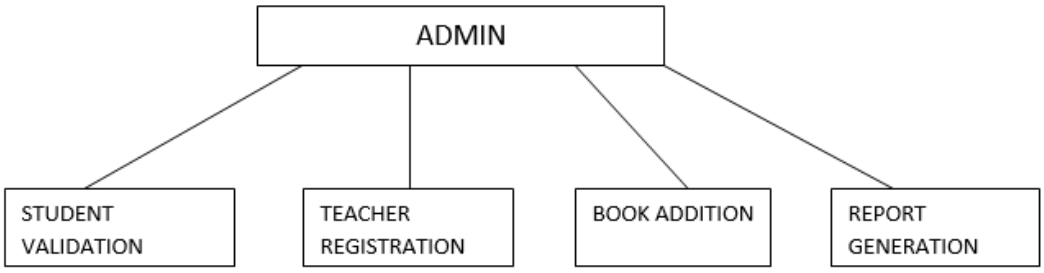
In this module, admin takes care of the entire library management system. Admin manages the student login and student info, staff login and staff info and their operations, the management of books in the library is also managed by the admin.

**Student Validation:** This step describes the admin control over the student login and the responses from the student.

**Teacher Validation:** This step describes the admin control over the teacher login and the responses from the teacher.

**Book Addition:** In this step, admin is responsible for the book adding process in the library software.

**Report Generation:** The admin takes care of the entire report from all the activities are generated.



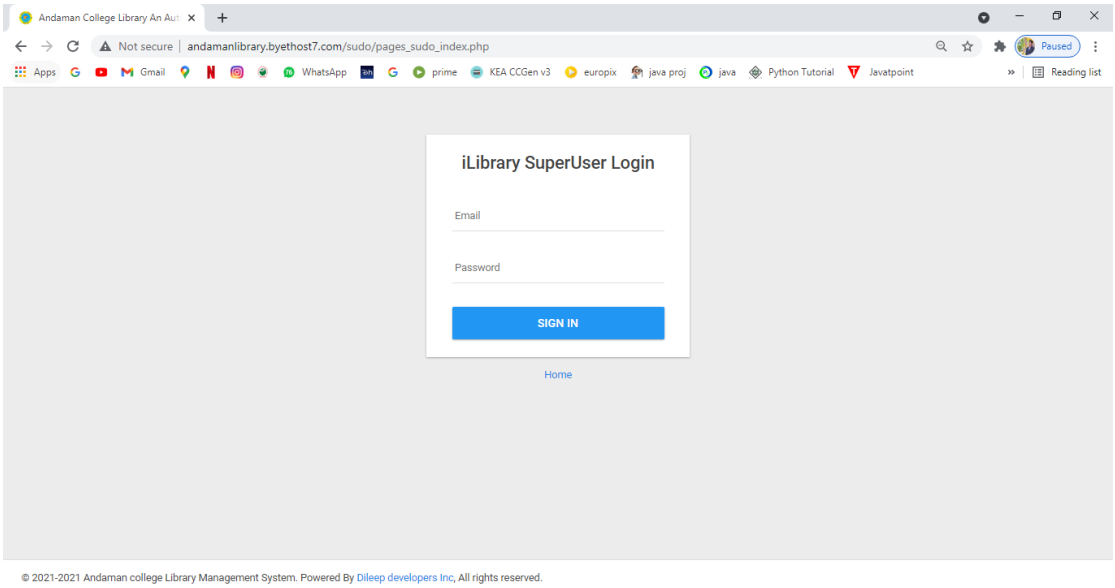




**Fig:** Admin Login page

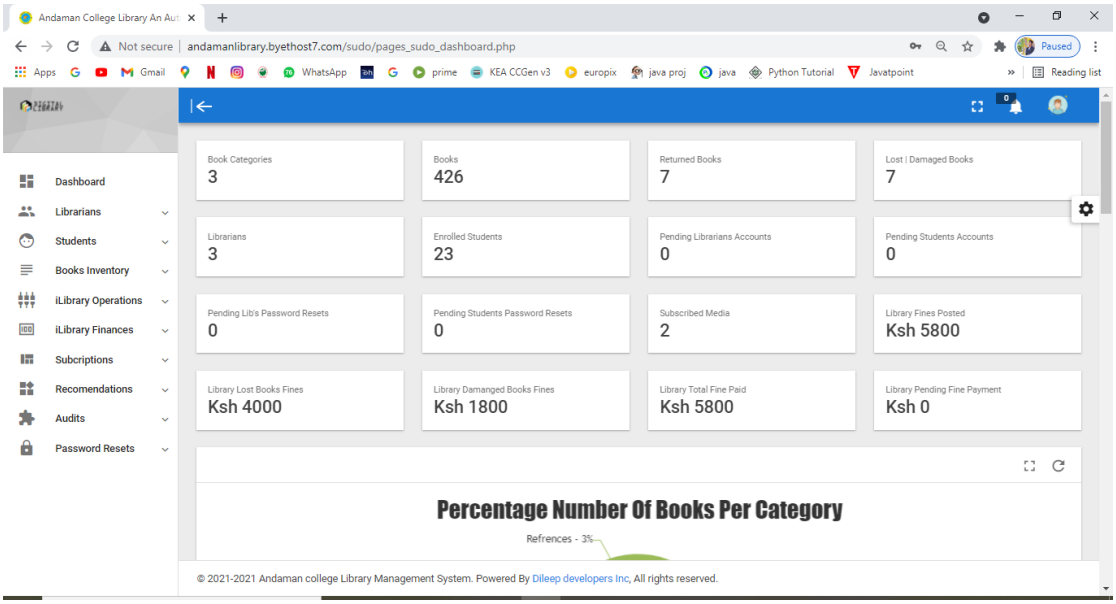


**Fig:** Admin Dashboard page

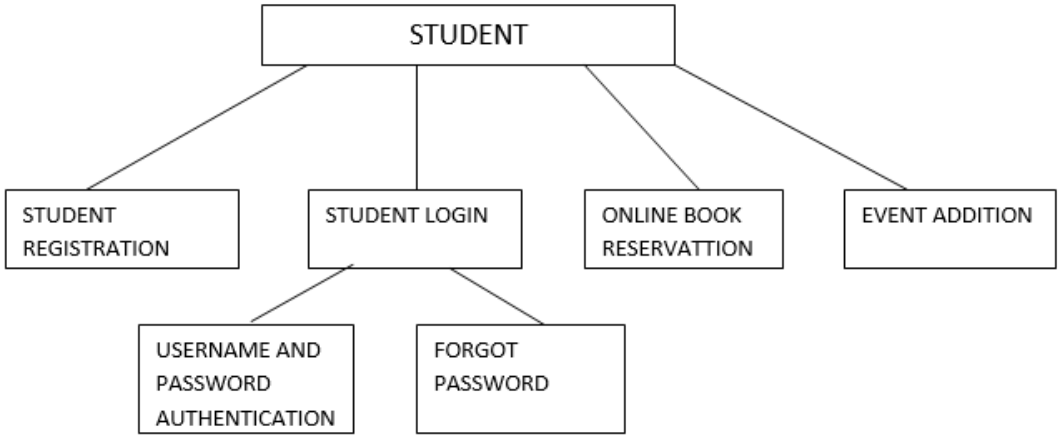
### 4.3.2 Student module

In this student module, the activities of students are specified. Student is going to take care of the registration of student in library software, login into portal with username and password authentication, online book reservation facility also available for student.

**Student Registration:** This step enables student to get registered into the library management system. Andaman college students gets registered by the admin.

**Student Login:** For Andaman college students the library management provides unique student id or username and password for students to access the library software.

**Online Book Reservation:** The student of Andaman college has a facility to reserve a book through the online portal.



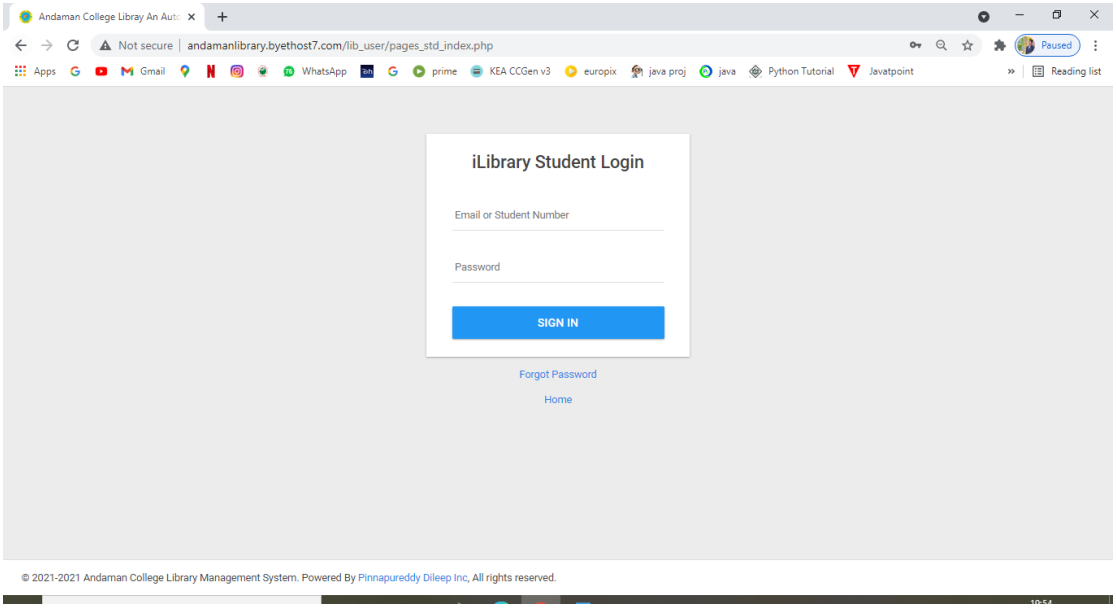




**Fig:** Student login page

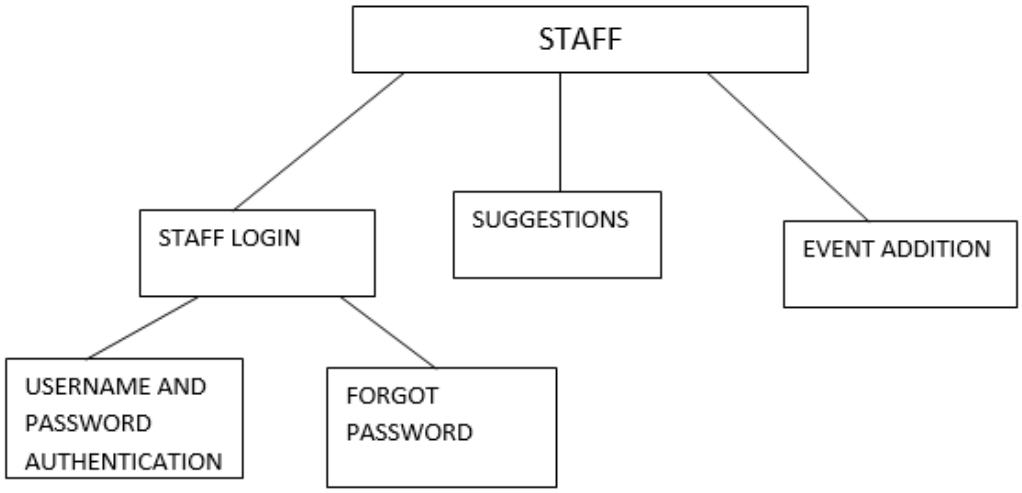
### 4.3.3 Staff Module

In this staff module, the activities of staff are specified. Staff is going to take care of the registration of faculty in library software, login into portal with username and password authentication, suggestions facility also available for staff.

**Staff Registration:** This step enables staff to get registered into the library management system. Andaman college staff gets registered by the admin.

**Staff Login:** For Andaman college staff the library management provides unique staff id or username and password for staff to access the library software.

**Suggestions:** The staff from Andaman College will provide the suggestions to students from the library management system.



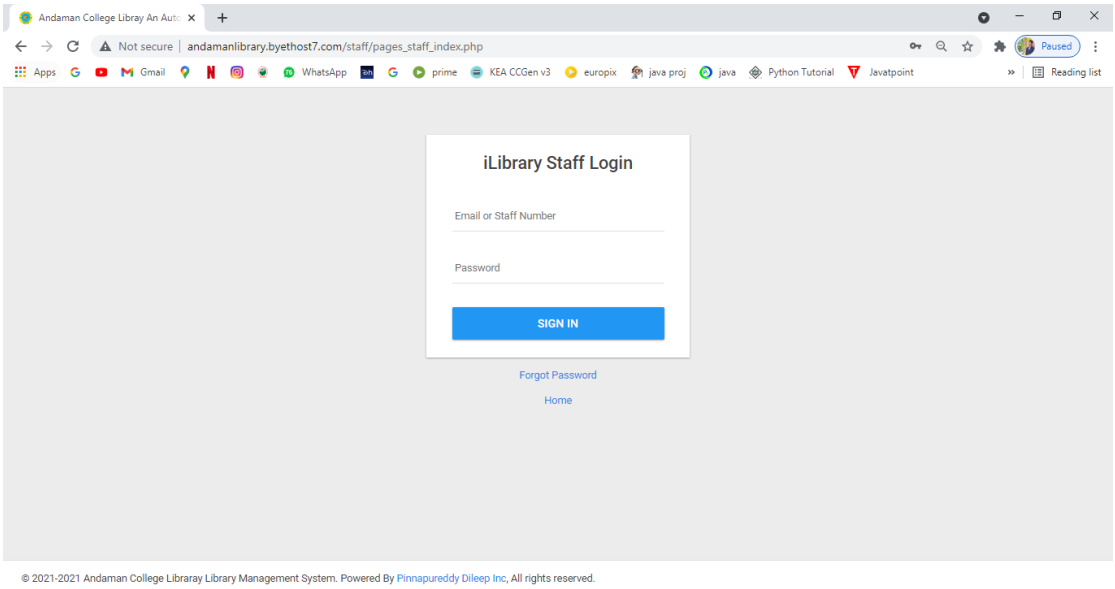
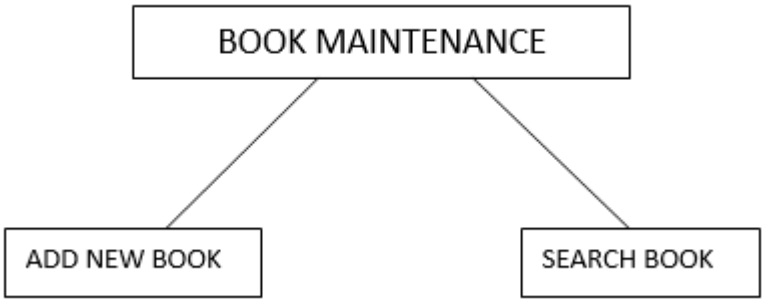




**Fig:** Staff Login Page

### 4.3.4 Book Module

In this Book module, the various books with different authors are maintained in the Andaman College library. In this book module the books are added and segmented based on the fiction, non-fiction and reference categories.



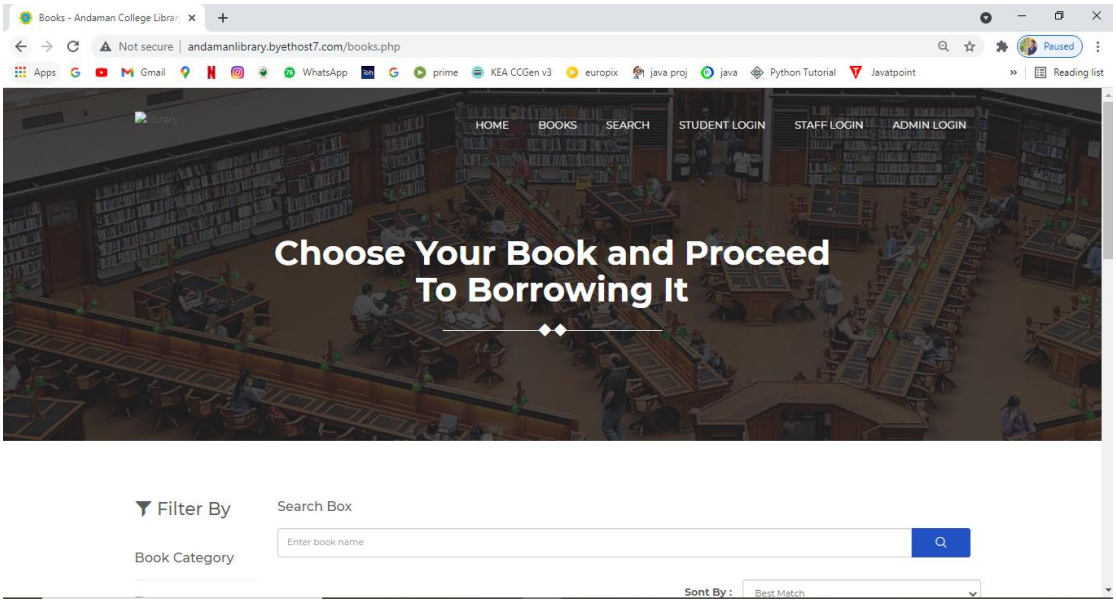
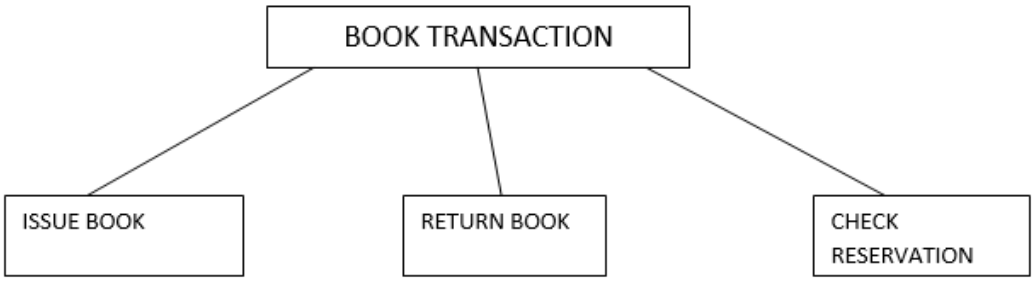
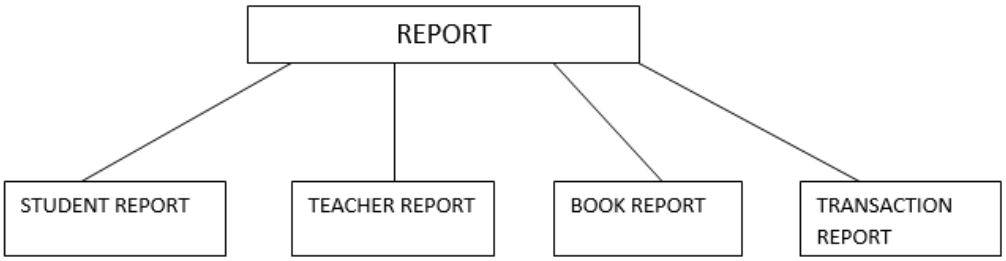




**Fig:** Books page

### 4.3.5 Book Transaction Module



### 4.3.6 Report Module




## 4.4 CONCLUSION

In Chapter 4 System Design, we had done about user interface design, database design, normalization and Entity Relationship Diagram. Due to the user of library system is staff and admin staff, the interface does not need to colorful but need to maintain the user friendliness. The interface designed is using system default color. The button also designed in suitable size so that the interface won't be messy. Suitable control has been used to ensure users can easily using the library system.

One of the problems I meet in interface design is the report interface. I don't know how to design a common report which can be used by most of the library. With the aids from my supervisor, I design one more form to let user key in the library detail. The library detail will be used as report header. In this way, every library who used our library system can print the report with different library details.

# 5. IMPLEMENTATION AND RESULT

## 5.1 INTRODUCTION

Andaman college library software mainly deals with the way of accessing books and management of students and staff accounts with the computerized format. A major partition in this project is the modules which are created for different purposes.

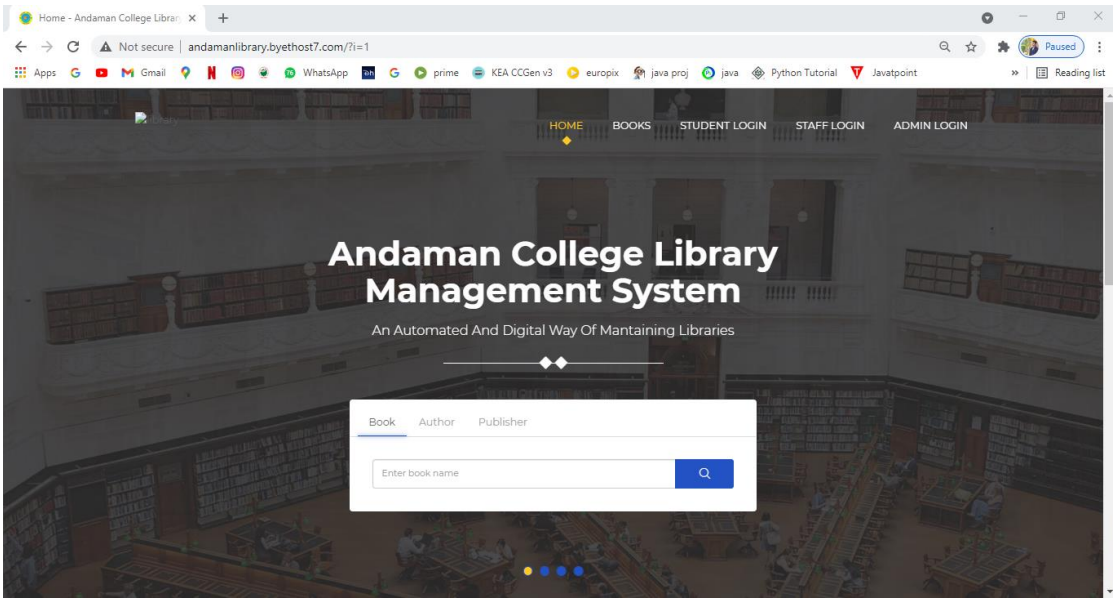



**Fig :** Home page for Andaman College Library Software

## 5.2 SOFTWARE TOOLS

The whole Project is divided in two parts the front end and the back end.

### 5.2.1 Front end

The front end is designed using of html, Php, CSS, Java script

HTML- **HTML** or **Hyper Text Markup Language** is the main markup language for creating web pages and other information that can be displayed in a web browser.HTML is written in the form of HTML elements consisting of *tags* enclosed in angle brackets (like <html>), within the web page content. HTML tags most commonly come in pairs like <h1> and </h1>, although some tags represent *empty elements* and so are unpaired, for example <img>. The first tag in a pair is the *start tag*, and the second tag is the *end tag* (they are also called *opening tags* and *closing tags*). In between these tags' web designers can add text, further tags, comments and other types of text-based content. The purpose of a web browser is to read HTML documents and compose them into visible or audible web pages. The browser does not display the HTML tags, but uses the tags to interpret the content of the page.HTML elements form the building blocks

of all websites. HTML allows images and objects to be embedded and can be used to create interactive forms. It provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. It can embed scripts written in languages such as JavaScript which affect the behavior of HTML web pages.

CSS- **Cascading Style Sheets** (**CSS**) is a style sheet language used for describing the look and formatting of a document written in a markup language. While most often used to style web pages and interfaces written in HTML and XHTML, the language can be applied to any kind of XML document, including plain XML, SVG and XUL. CSS is a cornerstone specification of the web and almost all web pages use CSS style sheets to describe their presentation.CSS is designed primarily to enable the separation of document content from document presentation, including elements such as the layout, colors, and fonts. This separation can improve content accessibility, provide more flexibility and control in the specification of presentation characteristics, enable multiple pages to share formatting, and reduce complexity and repetition in the structural content (such as by allowing for table less web design).CSS can also allow the same markup page to be presented in different styles for different rendering methods, such as on-screen, in print, by voice (when read out by a speech-based browser or screen reader) and on Braille-based, tactile devices. It can also be used to allow the web page to display differently depending on the screen size or device on which it is being viewed. While the author of a document typically links that document to a CSS file, readers can use a different style sheet, perhaps one on their own computer, to override the one the author has specified. However, if the author or the reader did not link the document to a specific style sheet the default style of the browser will be applied.CSS specifies a priority scheme to determine which style rules apply if more than one rule matches against a particular element. In this so-called *cascade*, priorities or *weights* are calculated and assigned to rules, so that the results are predictable.

JAVA SCRIPT- **JavaScript** (**JS**) is a dynamic computer programming language. It is most commonly used as part of web browsers, whose implementations allow client-side scripts to interact with the user, control the browser, communicate asynchronously, and alter the document content that is displayed. It is also being used in server-side programming, game development and the creation of desktop and mobile applications. JavaScript is a prototype-based scripting language with dynamic typing and has first-class functions. Its syntax was influenced by C. JavaScript copies many names and naming conventions from Java, but the two languages are otherwise unrelated and have very different semantics. The key design principles within JavaScript are taken from the Self and Scheme programming languages. It is a multi- paradigm language, supporting object-oriented, imperative, and functional programming styles. The application of JavaScript to use outside of web pages—for example, in PDF documents, site-specific browsers, and desktop widgets—is also significant. Newer and faster JavaScript VMs and platforms built upon them (notably Node.js) have also increased the popularity of JavaScript for server-side web applications. On the client side, JavaScript was traditionally implemented as an interpreted language but just-in-time compilation is now performed by recent (post-2012) browsers.

PHP- **PHP** is a server-side scripting language designed for web development but also used as a general-purpose programming language. PHP is now installed on more than 244 million websites and 2.1 million web servers. Originally created by Rasmus Leadoff in 1995, the reference implementation of PHP is now produced by The PHP

Group. While PHP originally stood for *Personal Home Page*, it now stands for *PHP: Hypertext Preprocessor*, a recursive backronym code is interpreted by a web server with a PHP processor module, which generates the resulting web page: PHP commands can be embedded directly into an HTML source document rather than calling an external file to process data. It has also evolved to include a command-line interface capability and can be used in standalone graphical applications. PHP is free software released under the PHP License. PHP can be deployed on most web servers and also as a standalone shell on almost every operating system and platform, free of charge.

### 5.2.2 Back End

The back end is designed using MySQL which is used to design the databases.

MYSQL- **MySQL** ("My S-Q-L", officially, but also called "My Sequel") is (as of July 2013) the world's second most widely used open-source relational database management system (RDBMS). It is named after co-founder Michael Widenius daughter, My. The SQL phrase stands for Structured Query Language. The MySQL development project has made its source code available under the terms of the GNU General Public License, as well as under a variety of proprietary agreements. MySQL was owned and sponsored by a single for- profit firm, the Swedish company MySQL AB, now owned by Oracle Corporation. MySQL is a popular choice of database for use in web applications, and is a central component of the widely used LAMP open source web application software stack (and other 'AMP' stacks). LAMP is an acronym for "Linux, Apache, MySQL, Perl/PHP/Python." Free-software-open source projects that require a full-featured database management system often use MySQL. For commercial use, several paid editions are available, and offer additional functionality. Applications which use MySQL databases include: TYPO3, MODx, Joomla, WordPress, phpBB, MyBB, Drupal and other software. MySQL is also used in many high-profile, large-scale websites, including Wikipedia, Google (though not for searches), Facebook, Twitter, Flickr, and YouTube.

## 5.2.3 OPEARTING SYSYTEM: WINDOWS 10

Windows 10 is a series of personal computer operating systems produced by Microsoft as part of its Windows NT family of operating systems. It is the successor to Windows 8.1, and was released to manufacturing on July 15, 2015 and broadly released for retail sale on July 29, 2015.
Windows 10 receives new builds on an ongoing basis, which are available at no additional cost to users, in addition to additional test builds of Windows 10 which are available to Windows Insiders. The latest stable build of Windows 10 is Version 1903 (May 2019 Update). Devices in enterprise environments can receive these updates at a slower pace, or use long-term support milestones that only receive critical updates, such as security patches, over their ten-year lifespan of extended support.

One of Windows 10's most notable features is its support for universal apps, an expansion of the Metro-style apps first introduced in Windows 8. Universal apps can be designed to run across multiple Microsoft product families with nearly identical code - available input devices - particularly on 2-in-1 PCs, both interfaces include an including PCs, tablets, smartphones, embedded systems, Xbox One, Surface Hub and Mixed Reality. The Windows user interface was revised to handle transitions between a mouse-oriented interface and a touchscreen-optimized interface based on updated

Start menu which incorporates elements of Windows 7's traditional Start menu which incorporates elements of Windows 7's traditional start menu with the tiles of Windows 8. Windows 10 also introduced the Microsoft Edge web browser, a virtual desktop system, a window and desktop management feature called Task View, support for fingerprint and face recognition login, new security features for enterprise environments, and DirectX 12.

## 5.3 EXECUTION

### 5.3.1 homepage

```
<?php
  require_once('sudo/assets/config/config.php');
?>
<!doctype html>
<html class="no-js" lang="zxx">

<head>
    <meta charset="utf-8">
    <meta http-equiv="x-ua-compatible" content="ie=edge">
    <title>Home - Andaman College Library- Automated and digital way of mantaining libraries</title>
    <meta name="description" content="">
    <meta name="viewport" content="width=device-width, initial-scale=1">

    <!-- Place favicon.ico in the root directory -->
    <link rel="apple-touch-icon" href="images/apple-touch-icon.png">
    <link rel="shortcut icon" type="image/ico" href="images/favicon.png" />

    <!-- Plugin-CSS -->
    <link rel="stylesheet" href="css/bootstrap.min.css">
    <link rel="stylesheet" href="css/owl.carousel.min.css">
    <link rel="stylesheet" href="css/icofont.css">
    <link rel="stylesheet" href="css/animate.css">
```

```
        <link rel="stylesheet" href="css/cardslider.css">
        <link rel="stylesheet" href="css/responsiveslides.css">

        <!-- Main-Stylesheets -->
        <link rel="stylesheet" href="css/normalize.css">
        <link rel="stylesheet" href="css/overright.css">
        <link rel="stylesheet" href="css/theme.css">
        <link rel="stylesheet" href="style.css">
        <link rel="stylesheet" href="css/responsive.css">
        <script src="js/vendor/modernizr-2.8.3.min.js"></script>
</head>

<body data-spy="scroll" data-target="#mainmenu" data-offset="50">

        <header class="relative" id="sc1">
            <!-- Header-background-markup -->
            <div class="header-bg relative home-slide">
                <div class="item">
                    <img src="images/slide/slide1.jpg" alt="library">
                </div>
                <div class="item">
                    <img src="images/slide/slide2.jpg" alt="library">
                </div>
                <div class="item">
                    <img src="images/slide/slide3.jpg" alt="library">
                </div>
                <div class="item">
                    <img src="images/slide/slide4.jpg" alt="library">
                </div>
```

```
</div>
<!-- Mainmenu-markup-start -->
<div class="mainmenu-area navbar-fixed-top" data-spy="affix" data-offset-top="10">
<nav class="navbar">
<div class="container">
<div class="navbar-header">
<div class="space-10"></div>
<button type="button" class="navbar-toggle" data-toggle="collapse" data-target="#mainmenu">
<span class="icon-bar"></span>
<span class="icon-bar"></span>
<span class="icon-bar"></span>
</button>
<!--Logo-->
<a href="#sc1" class="navbar-left show"><img src="images/logo2.png" alt="library"></a>
</div>
</body>
</html>
```

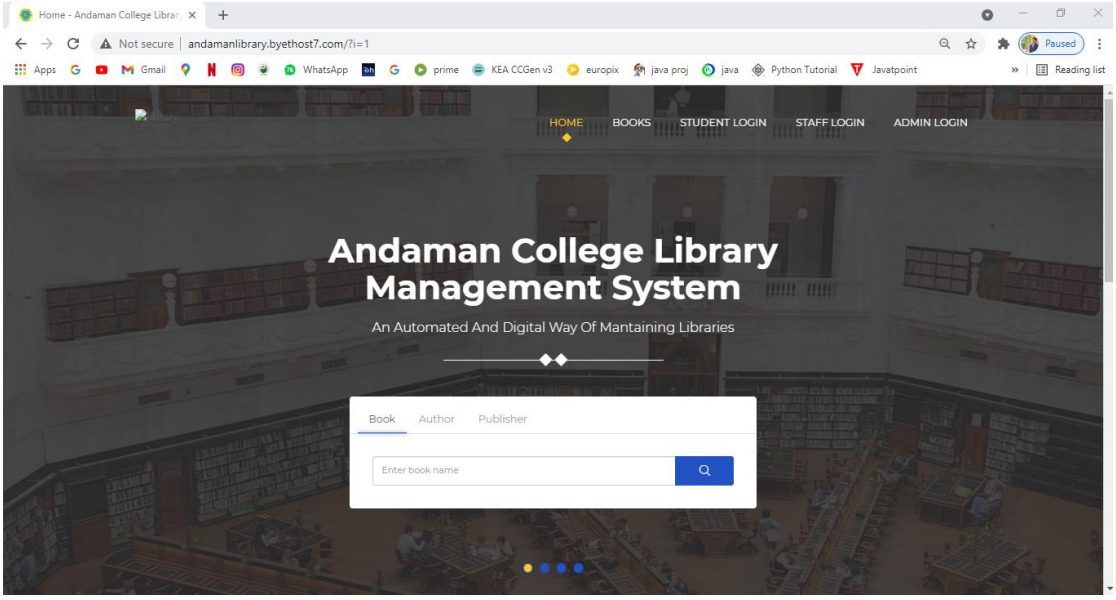
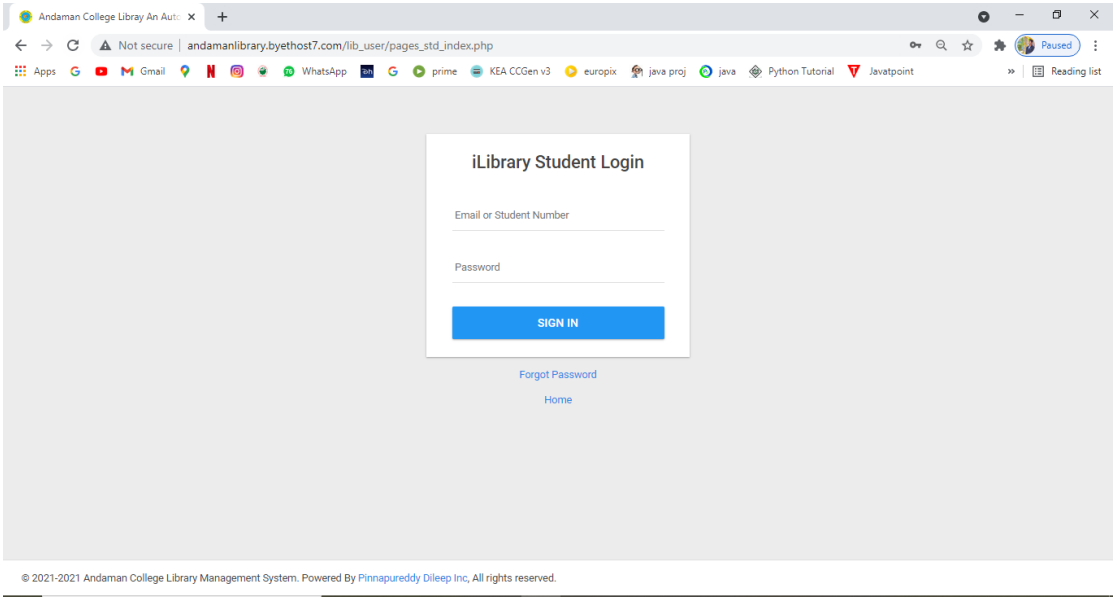



**Fig**: Andaman College Library software

## 5.3.2 Student module




## 5.3.3 Staff module

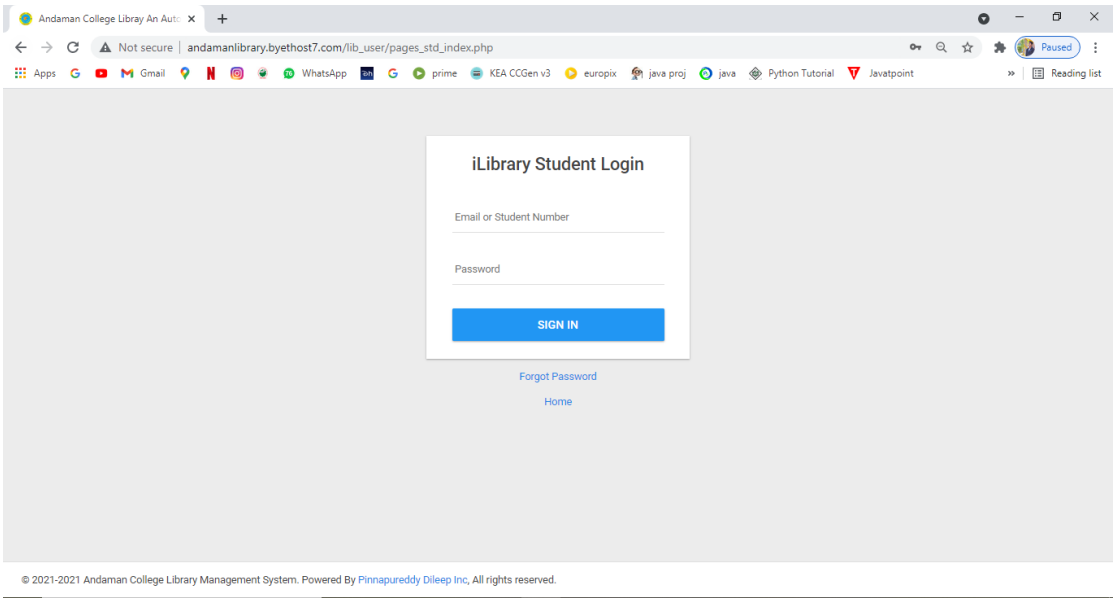



**Fig:** Student login page

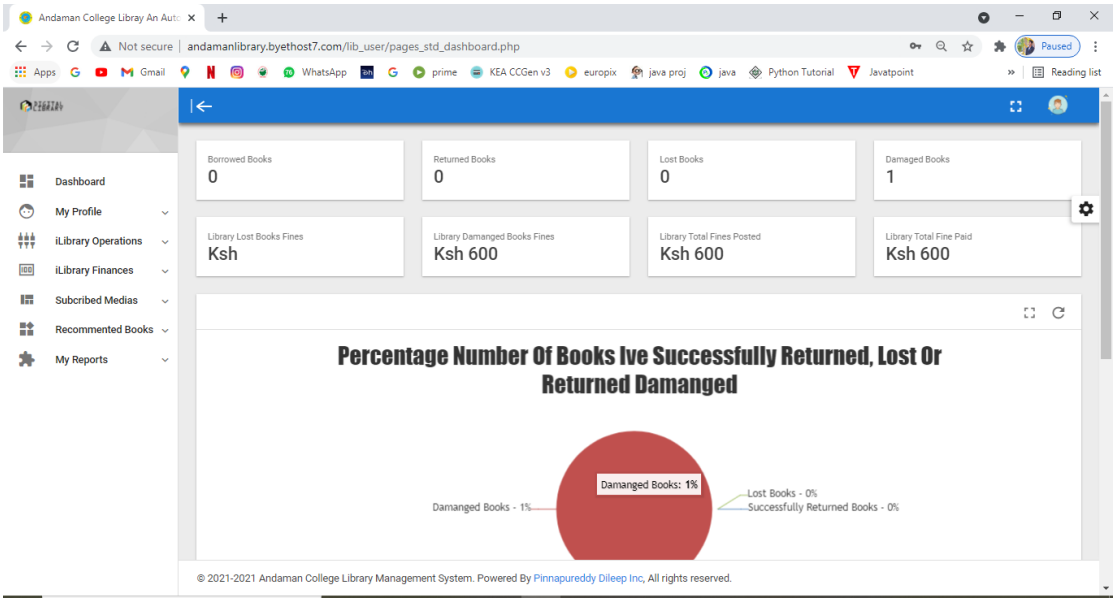



**Fig:** Student dashboard page

## 5.4 CONCLUSION

This Andaman College Library website provides a computerized version of library management system which will benefit the students as well as the staff of the library. It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for student login where student can login and can see status of books issued as well request for book or give some suggestions.

The lesson we learnt in this chapter is the most difficult part of programming is not coding but logic. Each business has their owns business logic and business flow process. We need to have clear understanding of how an organization works to create a system which desirable for them. Besides that, whenever we meet some coding difficulties, we can always seek help from Google. From this project, I knew that every coding has the sample or solution on the web. We should not keep complain that the coding is difficult but we should improve our knowledge on the logic business process.

# 6. TESTING AND VALIDATION

## 6.1 INTRODUCTION

## Unit Testing

Unit testing is undertaken when a module has been created and successfully reviewed. In order to test a single module, we need to provide a complete environment i.e. besides the module we would require the procedures belonging to other modules that the module under test calls Non local data structures that module accesses**.** A procedure to call the functions of the module under test with appropriate parameters

Unit testing was done on each and every module that is described under module description of chapter 4.

**Test For the admin module**

Testing admin login form-This form is used for log in of administrator of the system. In this we enter the username and password if both are correct administration page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for username and password

Student account addition- In this section the admin can verify student details from student academic info and then only add student details to main library database it contains add and delete buttons if user click add button data will be added to student database and if he clicks delete button the student data will be deleted

**Book Addition**- Admin can enter details of book and can add the details to the main book table also he can view the books requests.

**Test for Student login module**

Test for Student login Form-This form is used for log in of Student. In this we enter the library id, username and password if all these are correct student login page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for library id, username and password.

Test for account creation- This form is used for new account creation when student does not fill the form completely it asks again to fill the whole form when he fills the form fully it gets redirected to page which show waiting for conformation message as his data will be only added by administrator after verification.

**Test for teacher login module-**

Test for teacher login form- This form is used for log in of teacher. In this we enter the username and password if all these are correct teacher login page will open otherwise if any of data is wrong it will get redirected back to the login page and again ask for username and password.

**INTEGRATION TESTING**

In this type of testing we test various integration of the project module by providing the input

The primary objective is to test the module interfaces in order to ensure that no errors are occurring when one module invokes the other module.

## 6.2 DESIGN OF TEST CASES SCENARIOS & VALIDATION

| Tester Name: Dileep | | | |
|---|---|---|---|
| Module Name: Admin login module | | | |
| UserID: | admin@ilib.org | Password | admin |
| Expected Result:<br><br>Success login to system | | | |
| Comments from Supervisor / Moderator: none | | | |

| Tester Name: Dileep | | | |
|---|---|---|---|
| Module Name: Admin login module | | | |
| UserID: | Admin123@ilib.org | Password | 1111 |
| Expected Result:<br><br>Invalid Password | | | |
| Comments from Supervisor / Moderator: none | | | |

| Tester Name: Madhumathi | |
|---|---|
| Module Name: Add student | |
| Test method | Key in invalid data |
| Expected Result:<br><br>Message box prompt out to tell user that information is blank or in wrong format | |
| Comments from Supervisor / Moderator:<br>Must include email address also | |

| Tester Name: Madhumathi | | | |
|---|---|---|---|
| Module Name: Add student | | | |
| Test method | Key in correct information | | |
| Expected Result:<br><br>Message box show user 'Student001' successfully add | | | |
| Comments from Supervisor / Moderator: none<br>. | | | |

| Tester Name: Dileep | | | |
|---|---|---|---|
| Module Name: add new book | | | |
| ISBN | 9771985821003 | Barcode id | 977198582100301 |
| Expected Result:<br><br>Book successful added<br>Show database to show that book and book copy has been update | | | |
| Comments from Supervisor / Moderator:<br>-Add currency format when add new book | | | |

| Tester Name: Dileep | | | |
|---|---|---|---|
| Module Name: add publisher | | | |
| Publisher Id | P0003 | Publisher Name | Supervisor publisher Ltd. |
| Expected Result:<br><br>Publisher successful added | | | |
| Comments from Supervisor / Moderator: none | | | |

| Tester Name: Madhumathi |
|---|
| Module Name: book management |
| Expected Result:<br><br>1. successful edit the book and book copy information<br>2. show barcode printing of particular book |
| Comments from Supervisor / Moderator:<br><br>Crystal report need add header and generate time |

## 6.3 CONCLUSION

System testing phase made me understand the important of bug free system. If one system contains bugs, users will be frustrated and meet some problems. Computerized system should be creating to help user reduce the work so it is very importance so ensure the system is bug free.

In system testing, the problem I meet is time limitation. After complete the system, I only left few days due to wasting too much time at earlier stages. With the help of my friend, I done the module test and debug on it.

We must test the system completely and perfectly to ensure the system is bug free. No matter how powerful a system, it will not consider as good system if it contains bugs. The system which is bug free is more powerful and more helpful to end user because it does not produce problems and bugs.

# 7. CONCLUSION AND FUTURE ENHANCEMENTS

## Conclusion

This Andaman College Library website provides a computerized version of library management system which will benefit the students as well as the staff of the library. It makes entire process online where student can search books, staff can generate reports and do book transactions. It also has a facility for student login where student can login and can see status of books issued as well request for book or give some suggestions. It has a facility of teacher's login where teachers can add lectures notes and also give necessary suggestion to library and also add info about workshops or events happening in our college or nearby college in the online notice board.

### Future Enhancements

For future enhancement, there are few suggestions to improve the system abilities. Firstly, the library system should implement smart card technology which will log in the member by scanning the smart card. The smart card can act as a unique identifier of a member. The smart card technology is more advanced and is able to store all the information inside the chips. By implements this, the book transaction process will be enhanced and save time.

Next, the wide screen monitor is getting more popular day by day. Andaman College Library Management System should able to support the wide screen resolution such as 1152 x 648 or 1280 x 720 so that user can view the system in perfect view.

More information can be inserted into book table such as product version, type of product (magazine, encyclopedia or newspaper) to enhance the system to be more perfect. In addition, the system should be enhanced so that one book can have more than one author. Currently the system only supports one author per book. Some book is having more than one author and user may miss to search the book.

Currently, the reservation made cannot be detected without restart the system. The system should be enhanced so that the data can be updated in short time or pressing a button to avoid any error.

# 8. REFERENCES


- http://www.w3schools.com/html/html_intro.asp
- http://www.w3schools.com/css/css_background.asp
- http://www.w3schools.com/js/js_datatypes.asp
- http://www.w3schools.com/sql/sql_insert.asp
- http://www.w3schools.com/sql/sql_update.asp
- http://www.w3schools.com/php/php_forms.asp
- Fundamentals of software engineering by Rajib mall, PHI learning Web development and application development by Ivan Byross BPB publications.
- Problem statement from SIH 2020.
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- http://www.Udemy.com/css/css_background.asp
- http://www.w3schools.com/js/js_datatypes.asp

# APPENDIX-A

## Setup Project Environment

To execute this system, user must first setting up some project environment. Firstly, user must create a folder named 'Pictures' located in C:\. This folder is used to store the photo used in the system such as book cover or member photo.

## Installation Guide

- Initially set up Xampp server and MySQL workbench
- Now the Andaman College Library documents are copied to Xampp/htdocs folder.
- Start the Xampp server and give the required connection to MySQL workbench.
- Initially run the current web application from local server.
- After set up, now search in chrome as localhost with folder name.
- The Andaman College Library system is now available to use at desktop.