

Project Report

Library Management System

Presented By CodeCrafters (Team 19)



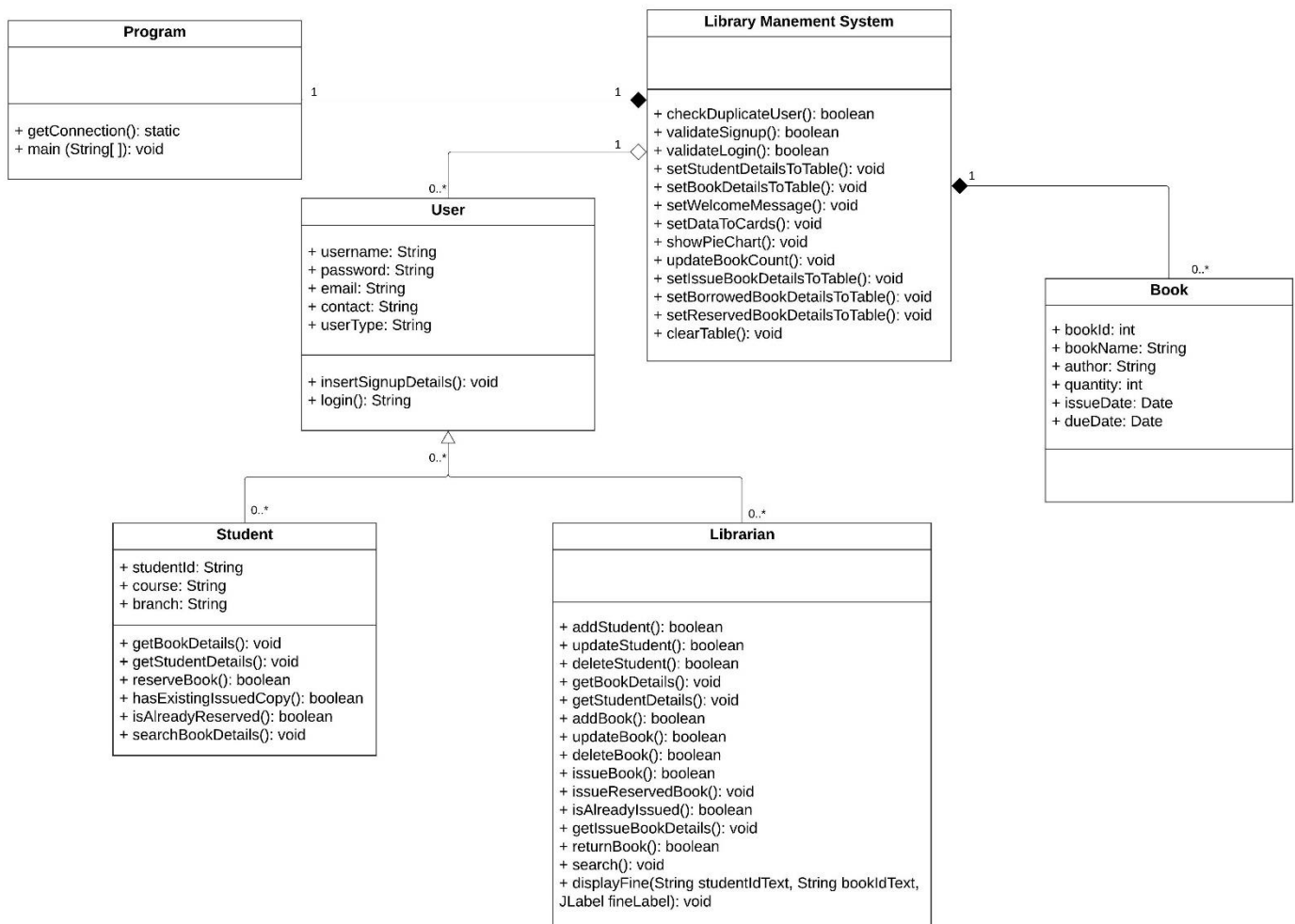
IT 3003 - Advanced Programming Techniques
Mini Group Project

Introduction

In the ever-evolving digital era, the imperative for efficient resource management has become paramount for companies, institutions, and libraries alike. Recognizing this imperative, our "**Library Management System**" project is strategically positioned to spearhead a transformative approach in how libraries navigate the intricacies of material handling. The primary objective of this initiative is to not only modernize but also simplify the intricate processes inherent to library management. Through the seamless integration of cutting-edge technologies, our system is poised to deliver an automatic and user-friendly platform that caters to the nuanced needs of both library personnel and patrons. At the core of this initiative is a commitment to providing an agile and responsive solution, enabling library stakeholders to navigate the challenges of an information landscape characterized by its rapid pace and dynamic nature. By facilitating smooth and intuitive access, search functionalities, reservation processes, and overall administration of library materials, our project aspires to elevate the library experience for all stakeholders. In a contemporary world where the dissemination of knowledge is synonymous with progress, this forward-looking response underscores our dedication to ensuring that libraries persist as vital cornerstones of knowledge accessibility.

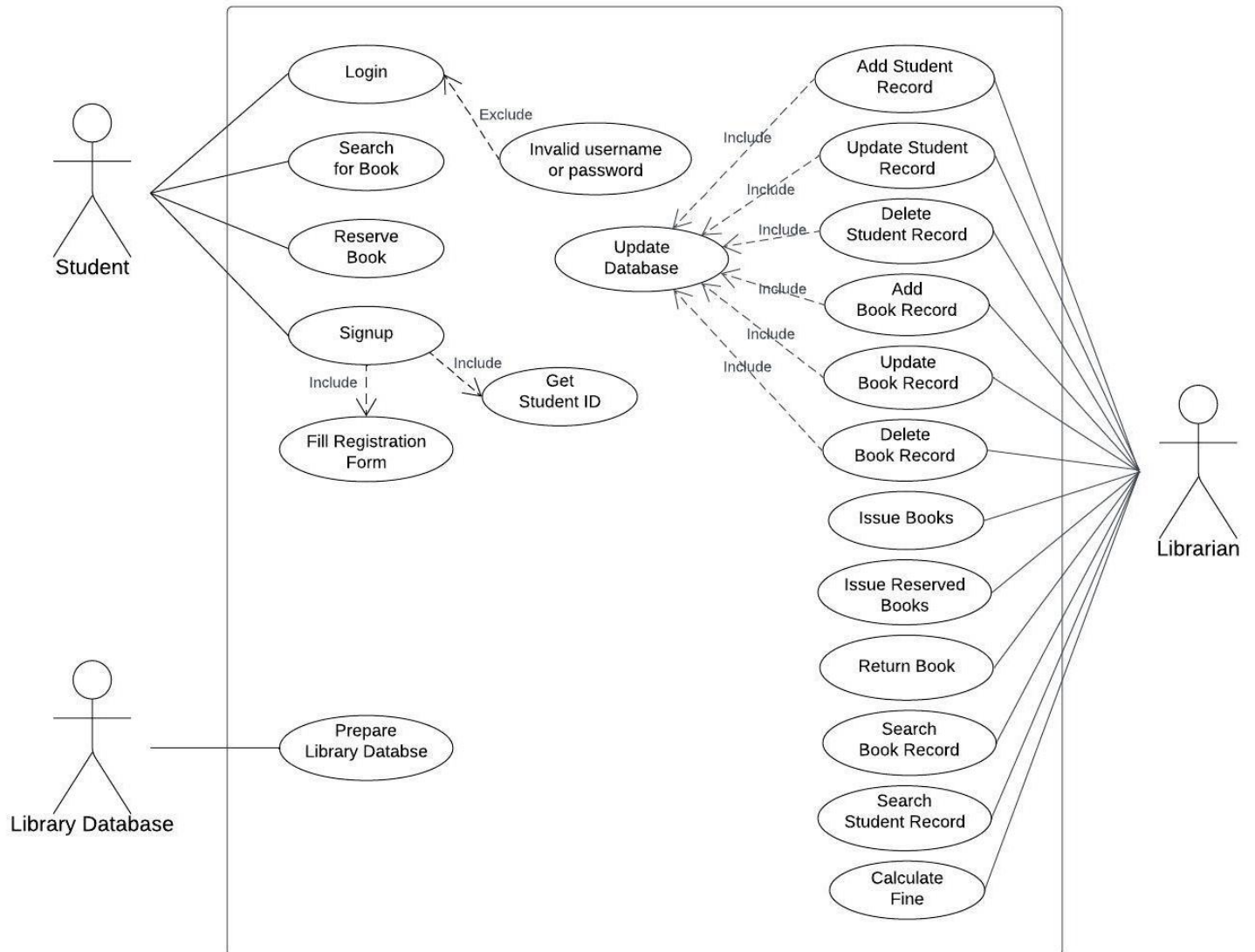
Class Diagram of the overall project

The class Diagram for a Library Management System typically represents the static structure of the system, showcasing the classes, their attributes, relationships, and methods.



Use case diagram describing the users/actors and their associated activities.

The use case diagram provides a visual representation of the interactions between different actors (users) and the system.



Features and functionalities of the system

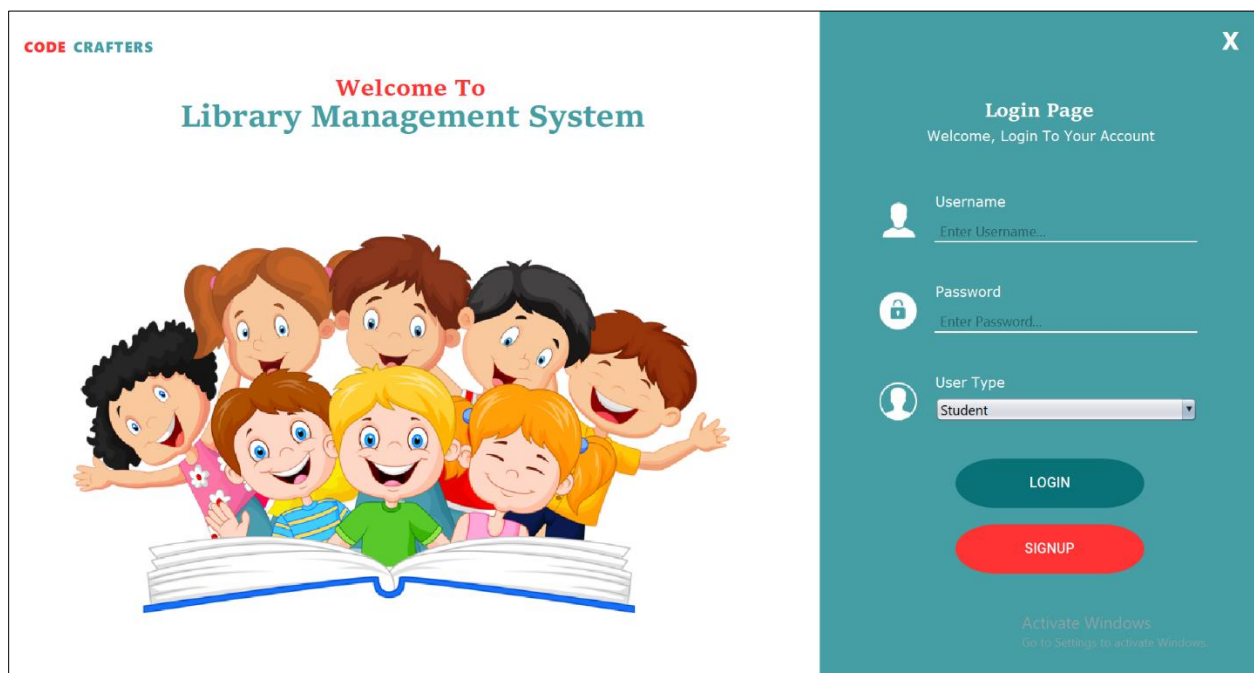
Sign-Up Page:

This feature allows new users, particularly students, to register for an account in the library system. It typically collects necessary information for account creation, such as name, password, email, contact details, and user type.



The screenshot displays the 'Sign-Up Page' of the 'Library Management System'. The page is divided into two main sections. The left section features a large illustration of six diverse children in school uniforms standing behind a tall stack of colorful books. Above them, the text 'Welcome To Library Management System' is displayed in a friendly font. The right section is a teal-colored sidebar containing the registration form. It includes fields for 'Username', 'Password', 'Email', 'Contact', and 'User Type' (a dropdown menu with 'Student' selected). A red 'SIGNUP' button is prominently placed below the form. At the bottom of the sidebar, there is a 'LOGIN' button and a small note about activating Windows.

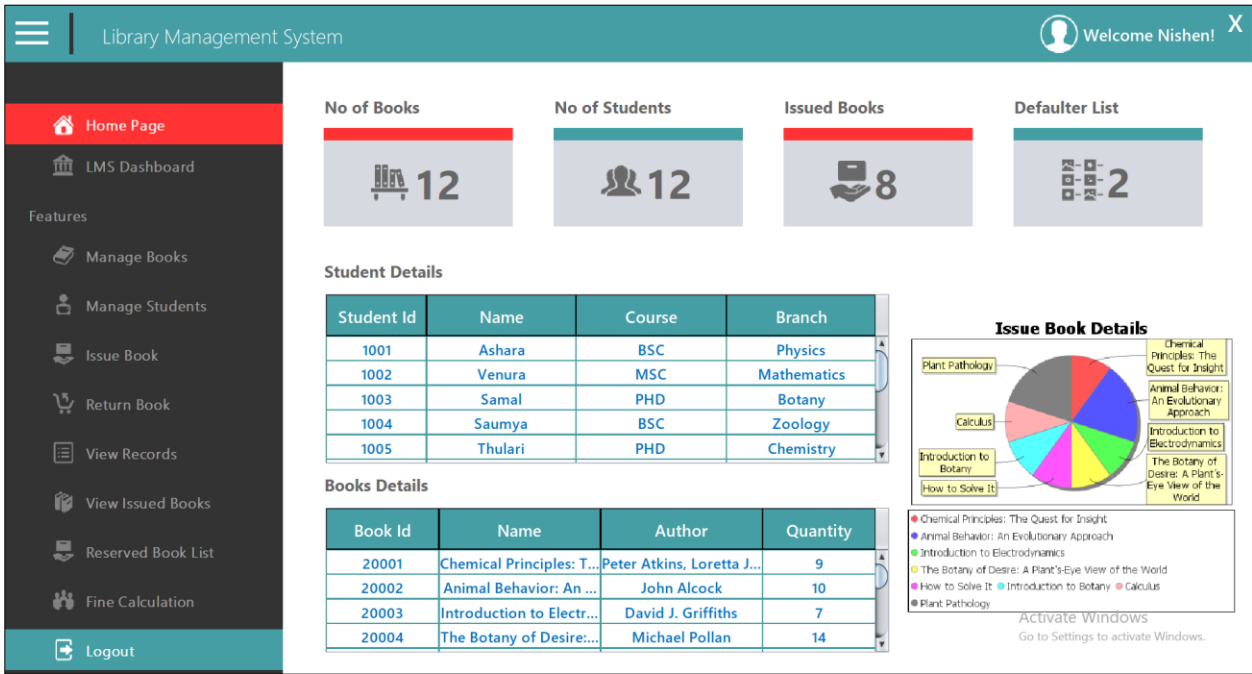
Login Page: The login page provides a secure gateway for both librarians and students to access the system. Librarians gain access to administrative features, while students enter to perform various actions related to borrowing and reserving books.



The screenshot displays the 'Login Page' of the 'Library Management System'. The page layout is similar to the sign-up page, with a large illustration of six diverse children in school uniforms on the left, standing behind a stack of books. The text 'Welcome To Library Management System' is also present. The right section is a teal-colored sidebar containing the login form. It includes fields for 'Username', 'Password', and 'User Type' (a dropdown menu with 'Student' selected). A teal 'LOGIN' button and a red 'SIGNUP' button are located below the form. At the bottom of the sidebar, there is a small note about activating Windows.

Home Page for Librarian:

Upon login, the librarian is presented with a dashboard offering a comprehensive overview of library operations. This interface includes quick links to essential features and key statistics, ensuring efficient management of library resources.



Manage Books Page:

Librarians can add, update, or delete books from the library catalog through this feature. Essential book details such as title, author, and quantity are managed in an organized manner.



Manage Students Page:

Librarians have the capability to manage student accounts, including account creation, updating student information, and deleting accounts when necessary.

Back

Enter Student Id

Enter Student Name

Select Course
BSC

Select Branch
Zoology

ADD

UPDATE

DELETE

Manage Students

Student Id	Name	Course	Branch
1001	Ashara	BSC	Physics
1002	Venura	MSC	Mathematics
1003	Samal	PHD	Botany
1004	Saumya	BSC	Zoology
1005	Thulari	PHD	Chemistry
1006	Gayan	BSC	Chemistry
1007	Samitha	MSC	Mathematics
1008	Nimal	PHD	Zoology
1009	Nimesha	MSC	Physics
1010	Chamika	BSC	Botany
1011	Shehan	BSC	Mathematics
1012	Pavani	MSC	Mathematics

Activate Windows
Go to Settings to activate Windows.

Issue Book Page:

Librarians can use this feature to issue books to students. It involves updating the database to reflect the borrowed book, linking it to the student's account, and adjusting availability status.

Back

Book Details

Book Id :

Book Name :

Author :

Quantity :

Student Details

Student Id :

Student Name :

Course :

Branch :

Issue Book

Book Id :

Student Id :

Issue Date :

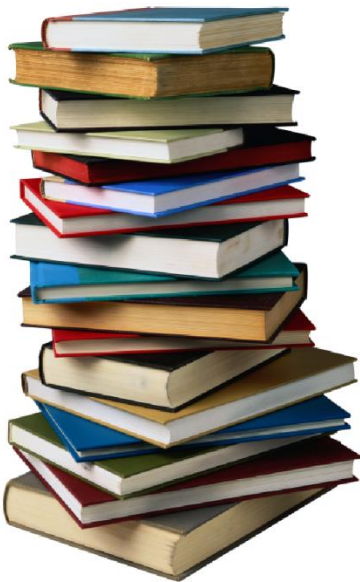
Due Date :


ISSUE BOOK

ISSUE RESERVED BOOK
Activate Windows
Go to Settings to activate Windows.


Return Book Page:

Librarians utilize this feature to process the return of borrowed materials. The system updates the database to mark the book as returned.



**Book Details**

Issue Id :
Book Name :
Student Name :
Issue Date:
Due Date:

**Return Book**

Book Id :
Student Id :


FIND



RETURN BOOK

Activate Windows
Go to Settings to activate Windows.

View All Records Page:

Librarians can access a comprehensive record of all transactions, including book issues, returns, and fines. This feature aids in maintaining transparency and accountability within the library system.

**View All Record**

Issue Date :  Due Date : 

SEARCH

ALL

Id	Book Name	Student Name	Issue Date	Due Date	Status
32	Animal Behavior: An Ev...	Saumya	2023-11-07	2023-11-21	Pending
33	How to Solve It	Samitha	2023-11-01	2023-11-15	Pending
34	Introduction to Botany	Samal	2023-11-03	2023-11-17	Pending
35	Chemical Principles: The...	Gayan	2023-11-09	2023-11-23	Returned
36	Introduction to Electro...	Thulari	2023-10-19	2023-11-02	Pending
37	The Botany of Desire: A ...	Samal	2023-10-02	2023-10-16	Pending
38	Calculus	Shehan	2023-11-14	2023-11-28	Pending
39	Plant Pathology	Chamika	2023-10-31	2023-11-13	Pending
40	Plant Pathology	Samal	2023-11-13	2023-11-27	Reserved
41	Animal Behavior: An Ev...	Samal	2023-11-16	2023-11-30	Reserved

Activate Windows
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Issued Books Details Page:

Librarians can view detailed information about books that are currently checked out by students, including due dates and borrower details.

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 **Issued Book Details**

Book Id	Book Name	Student Id	Student Name	Issue Date	Due date	Status
20002	Animal Behavior: ...	1004	Saumya	2023-11-07	2023-11-21	Pending
20005	How to Solve It	1007	Samitha	2023-11-01	2023-11-15	Pending
20009	Introduction to Bo...	1003	Samal	2023-11-03	2023-11-17	Pending
20003	Introduction to Ele...	1005	Thulari	2023-10-19	2023-11-02	Pending
20004	The Botany of Des...	1003	Samal	2023-10-02	2023-10-16	Pending
20010	Calculus	1011	Shehan	2023-11-14	2023-11-28	Pending
20012	Plant Pathology	1010	Chamika	2023-10-31	2023-11-13	Pending

Activate Windows
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Reserved Book List Page:

Librarians can access a list of books that have been reserved by students. This facilitates the efficient management of book reservations and ensures that the reserved items are made available when requested.

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X

 **Reserved Books List**

Book Id	Book Name	Student Id	Student Name	Issue Date	Due Date
20012	Plant Pathology	1003	Samal	2023-11-13	2023-11-27
20002	Animal Behavior: A...	1003	Samal	2023-11-16	2023-11-30

Activate Windows
Go to Settings to activate Windows.

Fine Calculation Page:

The system automatically calculates fines for overdue books, considering predefined rules. This feature helps maintain discipline and encourages timely return of borrowed materials.

Back

Student Id :

Book Id :

* Rs. 10 per additional day *

CALCULATE FINE

Fine Amount :

Fine Calculation

Defaulter List

Book Id	Book Name	Student...	Student Name	Issue Date	Due Date
20003	Introduction to Electro...	1005	Thulari	2023-10-19	2023-11-02
20004	The Botany of Desire: A...	1003	Samal	2023-10-02	2023-10-16

Activate Windows
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Home Page for Student:

Upon login, students are presented with a user-friendly dashboard displaying relevant information such as borrowed books, reserved dates and user details.

Library Management System

Welcome Samal!

Home Page

LMS Dashboard

Features

Search Book

Reserve Book

Logout

Username : Samal

Student Id : 1003

Email : samalperera@gmail.com

Contact : 0776130320

Borrowed Books Details

Book Id	Book Name	Issue date	Due Date
20009	Introduction to Bo...	2023-11-03	2023-11-17
20004	The Botany of Des...	2023-10-02	2023-10-16

Reserved Books Details

Book Id	Book Name	Issue Date	Due Date
20012	Plant Pathology	2023-11-13	2023-11-27
20002	Animal Behavior: ...	2023-11-16	2023-11-30

Activate Windows
Go to Settings to activate Windows.

Search Book Page:

Students can search for books using various criteria, such as title or author. This feature facilitates efficient exploration of the library catalog to find desired materials.

Back

Search Books

Book Id	Name	Author	Quantity
20001	Chemical Principles: ...	Peter Atkins, Loretta ...	10
20002	Animal Behavior: An ...	John Alcock	10
20003	Introduction to Electr...	David J. Griffiths	7
20004	The Botany of Desire...	Michael Pollan	14
20005	How to Solve It	George Pólya	13
20006	Inorganic Chemistry	Gary L. Miessler, Pau...	8
20007	The Diversity of Life	Edward O. Wilson	13
20008	Modern Physics	Paul A. Tipler	3
20009	Introduction to Botany	Murray Nabors	9
20010	Calculus	James Stewart	12
20011	Biology of the Invert...	Jan A. Pechenik	6
20012	Plant Pathology	George N. Agrios	7

Activate Windows
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Reserve Book Page:

Students can reserve books they intend to borrow in the future. This ensures availability and helps streamline the borrowing process.

Back

Book Details

Book Id :
Book Name :
Author :
Quantity :

Student Details

Student Id :
Student Name :
Course :
Branch :

Reserve Book

Book Id :
Student Id :
Issue Date :
Due Date :

RESERVE

Activate Windows
Go to Settings to activate Windows.

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Team Members (CodeCrafters – Team 19)

1. Malinda T.H.N. - 15246
2. Ashara Lindara - 15314
3. Venura Shenan - 15405
4. S.T.H.Liyanage - 15406
5. Chamindi Saumya - 15413
6. Madhumali J.T.D. - 15540
7. T.S.Gamage - 15613
8. S. Kamalanathan - 15629
9. A.G.Bernard - 15767