

विद्या ददाति विनयं, विनयाद् याति पात्रताम्

DEPARTMENT OF COMPUTER ENGINEERING
TSSM's
PADMABHOOSHAN VASANTDADA PATIL INSTITUTE OF
TECHNOLOGY, BAVDHAN, PUNE-21.

A
Mini Project
Report on
“LIBRARY MANAGEMENT SYSTEM”

SUBMITTED TO THE



SAVITRIBAI PHULE PUNE UNIVERSITY, PUNE

THIRD YEAR COMPUTER ENGINEERING

SUBMITTED BY

SHREYA BOGA ROLL NO (72)

VAIDEHI UMBARKAR ROLL NO (57)

PRITI SURYAWANSHI ROLL NO (67)

UNDER THE GUIDANCE OF

Prof. Pournima Watharkar



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CERTIFICATE

This is to certify that the mini project report

“LIBRARY MANAGEMENT SYSTEM”

Submitted by

SHREYA BOGA ROLL NO (72)

VAIDEHI UMBARKAR ROLL NO (57)

PRITI SURYAWANSHI ROLL NO (67)

is a bonafide work carried out by above students under the guidance of **Prof. Pournima Watharkar** and it is approved for the Artificial Intelligence– Mini Project fulfilment of the requirement of Savitribai Phule Pune University.

Prof. Pournima Watharkar

Subject Teacher

Dr. Sarika S.Jadhav

HOD, Computer Engineering

**PADMABHOOSHAN VASANTDADA PATIL INSTITUTE OF
TECHNOLOGY, BAVADHAN, PUNE-21**

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ABSTRACT

The **Library Management System (LMS)** on the **Salesforce platform** is a cloud-based mini project designed to streamline and automate the key operations of a library, including book management, user registration, book issue/return tracking, and overdue notifications. Leveraging Salesforce's powerful CRM capabilities, the system enhances efficiency, data accessibility, and user experience through customized apps, automated workflows, and intuitive dashboards.

Built using Salesforce tools like **Custom Objects, Lightning App Builder, Process Builder, Apex Triggers, and Flows**, this project allows librarians to manage inventory and monitor borrowing activities in real time. It supports features such as **book categorization, availability status updates, student/user profiles, issue history, and automated alerts** for due dates. The system ensures secure data storage, easy scalability, and multi-user access with defined roles and permissions.

This mini project not only simplifies library tasks but also demonstrates the flexibility of the Salesforce platform in building non-traditional CRM applications. It serves as an ideal model for educational institutions to digitize their library systems while offering hands-on experience with Salesforce development tools.

INTRODUCTION

In the digital era, manual systems for managing library operations are becoming increasingly inefficient and error-prone. To address these challenges, the **Library Management System (LMS)** has been developed on the **Salesforce platform**, a leading cloud-based Customer Relationship Management (CRM) system. This mini project aims to demonstrate how Salesforce can be leveraged beyond traditional CRM use cases to build a powerful and user-friendly application for managing library resources and operations.

The LMS facilitates key library functions such as **book cataloging, user registration, book issuing and returning, fine calculation, and inventory tracking**. By using **Salesforce tools** like **Custom Objects, Lightning Components, Apex programming, Flows, and Process Builder**, the system ensures automation, scalability, and secure access. It enables librarians to manage books and members efficiently, while students or users can view availability, borrow books, and receive notifications for due dates or overdue items.

This project showcases the adaptability of the Salesforce ecosystem in developing real-world applications and provides a practical solution to improve the operational efficiency of educational institutions' libraries.

IMPORTANCE OF CLOUD STORAGE

Cloud computing plays a pivotal role in the development and deployment of the **Library Management System (LMS)** on the **Salesforce platform**. As a cloud-native environment, Salesforce enables this system to be scalable, accessible, secure, and highly efficient—delivering significant advantages over traditional on-premise systems.

1. Anywhere, Anytime Accessibility

Since Salesforce is a cloud-based platform, the LMS is accessible from any device with an internet connection. This ensures that both librarians and students can interact with the system remotely—whether to check book availability, issue or return books, or manage inventory—without being tied to a physical location.

2. No Infrastructure Management

One of the core benefits of using a cloud platform like Salesforce is the elimination of the need to maintain physical servers or handle software installation and updates. All infrastructure, backups, and updates are handled by Salesforce, allowing developers and users to focus solely on functionality and user experience.

3. Scalability and Flexibility

Cloud computing allows the LMS to scale seamlessly with the growing needs of a library. Whether the library expands its user base or adds thousands of new books, the system can accommodate these changes without major architectural modifications or hardware upgrades.

4. Real-time Data and Automation

The Salesforce cloud supports real-time data processing and automation through tools like **Flows, Apex triggers, and Process Builder**. This enables instant updates on book availability, automated notifications for due/overdue books, and real-time tracking of issued items—drastically improving operational efficiency.

5. Data Security and Role-Based Access

Salesforce provides robust security features such as **role-based access control**, **field-level security**, **two-factor authentication**, and **data encryption**, ensuring that only authorized users have access to sensitive information. This is essential for maintaining the privacy of user data and preventing unauthorized manipulation of library records.

6. Disaster Recovery and Data Backup

With cloud infrastructure, data is automatically backed up and stored redundantly across multiple servers. In case of accidental data loss or technical failure, Salesforce ensures fast recovery and continuity of service, which is critical for managing an institution's vital academic resources.

7. Integration Capabilities

Salesforce allows easy integration with other educational or administrative systems (like student management portals, attendance tracking, or notification systems), further enhancing the scope and utility of the LMS.

8. Cost-Effectiveness

Using a Software-as-a-Service (SaaS) model like Salesforce reduces the total cost of ownership. There is no need for expensive hardware, and maintenance costs are minimal. The pay-as-you-go model also allows institutions to control costs more effectively based on their usage.

TOOLS AND TECHNOLOGIES IMPLEMENTED

SOFTWARE REQUIRED :

- **Operating System:** Windows 10 or higher / macOS
- **Web Browser:** Google Chrome / Mozilla Firefox / Safari
- **Salesforce Platform:** Salesforce Developer Edition
- **Internet Connectivity:** Required for accessing Salesforce cloud services
- **Other Tools:** PDF viewer (for guides/tutorials), Spreadsheet editor (for data planning)

Frameworks and Languages

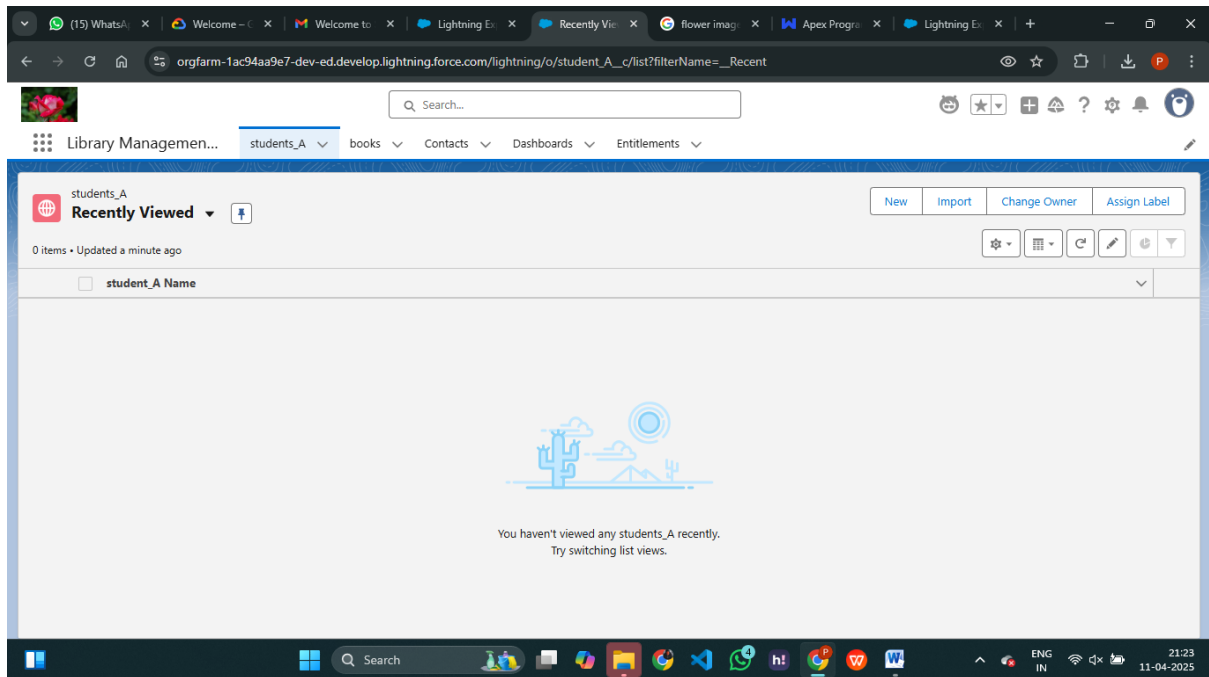
- **Platform:** Salesforce Lightning Platform
- **Frameworks:** Lightning Web Components (LWC)
Aura Components (optional)
- **Languages Used:**
 - Apex (for backend logic, if used)
 - SOQL (Salesforce Object Query Language)
 - HTML/CSS (for component UI)
 - JavaScript (client-side interactivity)
- **Methodology**
- **Development Model:** Agile (Iterative development and testing)
- **Steps Followed:**
 1. Signed up for Salesforce Developer Edition.
 2. Created a Custom App.
 3. Defined Custom Objects: Student and Book.
 4. Added Fields (e.g., Name, ID, Author, Course).
 5. Created Tabs and Page Layouts.

6. Added Records using UI.
7. Validated data creation and relationships.
8. Tested app for basic CRUD operations

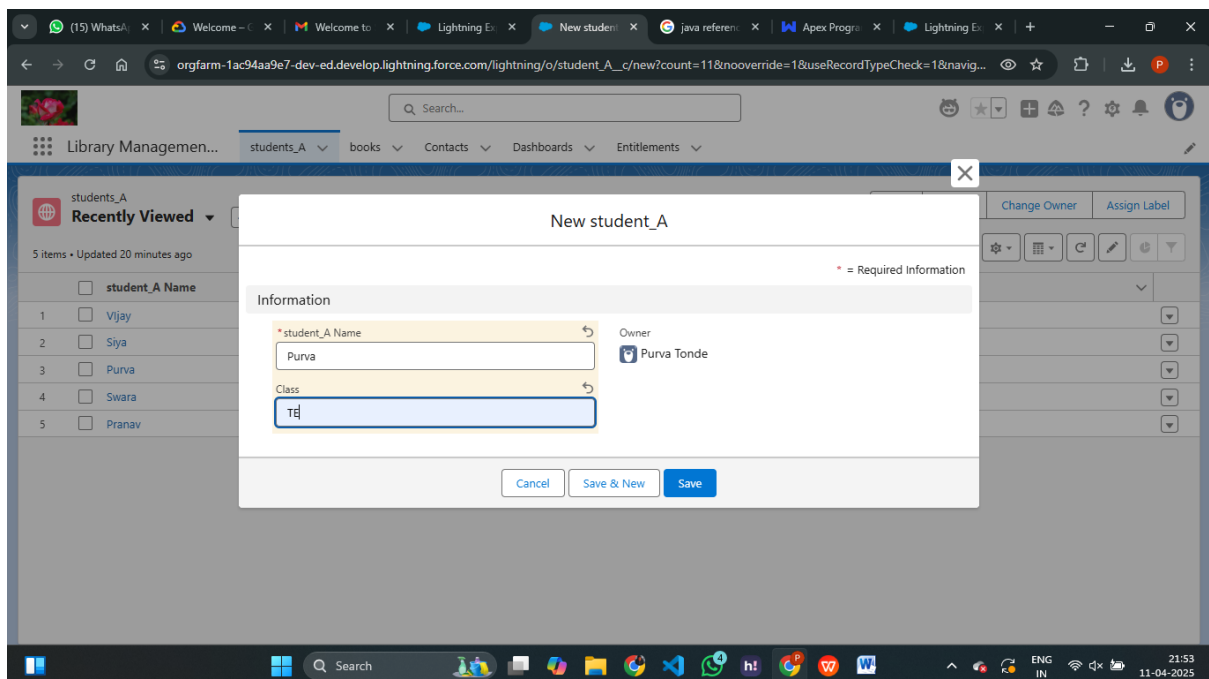
Functionality:

- **Custom App created in Salesforce allows:**
 - Adding and viewing Student Records.
 - Adding and managing Book Records.
 - Associating fields like student name, roll number, book title, author, etc.
 - Navigating between different records using custom tabs.
- **Features Include:**
 - Easy record creation with form interface.
 - Cloud-based data storage and access.
 - Real-time updates and validation.
 - Customizable layouts and UI components.

OUTPUT :



New Record In: Student



orgfarm-1ac94aa9e7-dev-ed.develop.lightning.force.com/lightning/o/student_A_c/list?filterName=__Recent

Library Management... students_A books Contacts Dashboards Entitlements

students_A Recently Viewed

5 items • Updated a few seconds ago

	<input type="checkbox"/> student_A Name	
1	<input type="checkbox"/> Vijay	
2	<input type="checkbox"/> Siya	
3	<input type="checkbox"/> Purva	
4	<input type="checkbox"/> Swara	
5	<input type="checkbox"/> Pranav	

orgfarm-1ac94aa9e7-dev-ed.develop.lightning.force.com/lightning/r/student_A_c/a00gL000002qpV7QAI/view

Library Management... students_A books Contacts Dashboards Entitlements

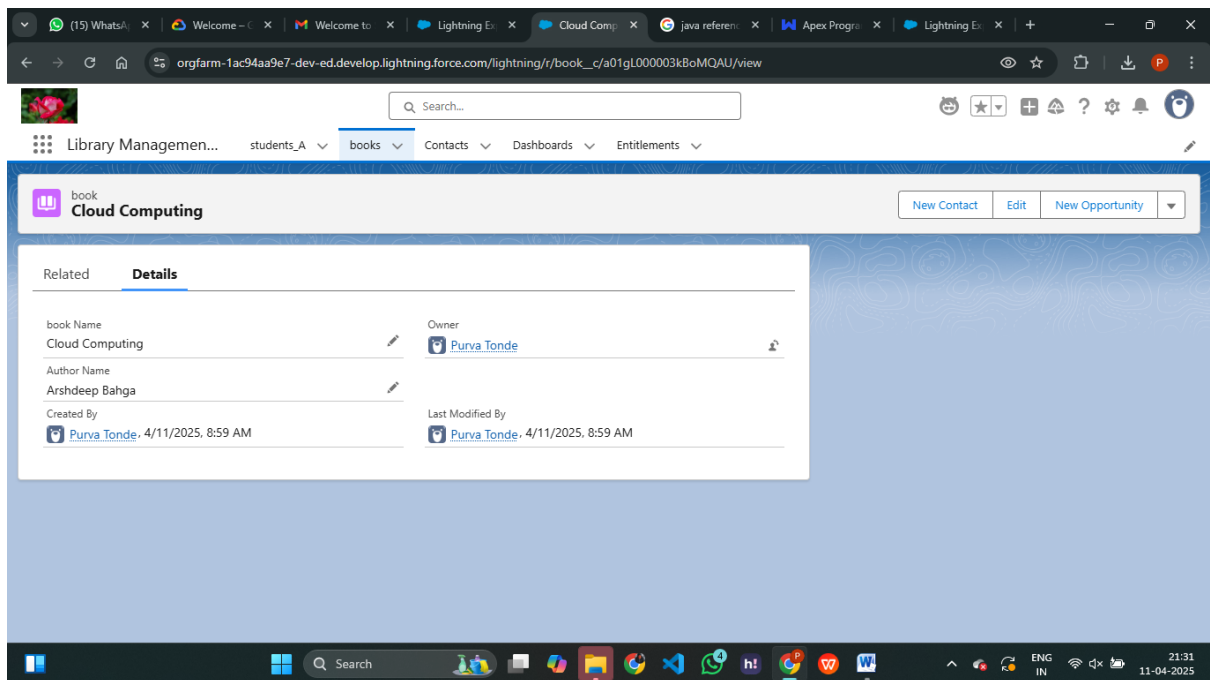
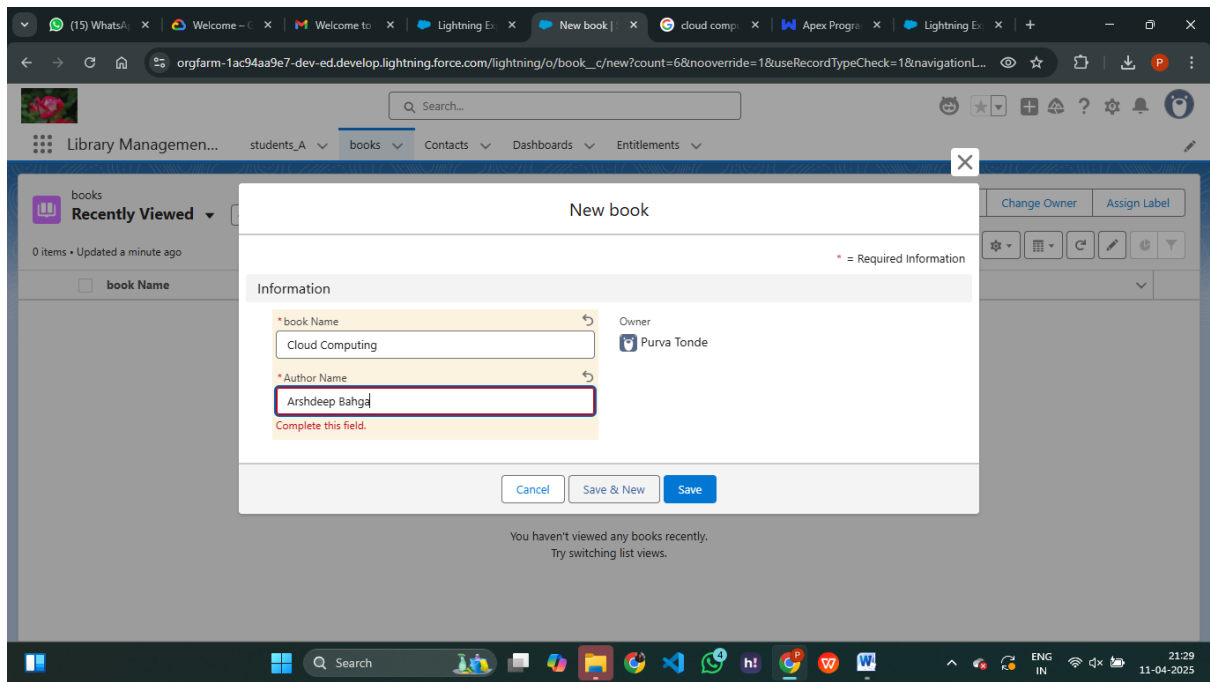
student_A Purva

New Contact Edit New Opportunity

Related Details

student_A Name	Purva	Owner	Purva Tonde
Class	TE	Last Modified By	Purva Tonde
Created By	Purva Tonde		

New Record in :Book



Browser tabs: (15) WhatsApp, Welcome - C, Welcome to, Lightning E, Recently Vie, java referen, Apex Progr, Lightning Ex, +

Address bar: orgfarm-1ac94aa9e7-dev-ed.develop.lightning.force.com/lightning/o/book_c/list?filterName=_Recent

Search bar: Search...

Navigation: Library Managemen..., students_A, books, Contacts, Dashboards, Entitlements

Section: books, Recently Viewed

Buttons: New, Import, Change Owner, Assign Label

2 items • Updated a few seconds ago

Table:

	<input type="checkbox"/> book Name	
1	<input type="checkbox"/> Cloud Computing	
2	<input type="checkbox"/> Java Reference Book	

Windows taskbar: Search, 21:31, 11-04-2025

CONCLUSION

This practical successfully demonstrated how to build a simple custom app using Salesforce. By creating and configuring custom objects like **Student** and **Book**, users can leverage the power of cloud CRM for managing data. This hands-on experience introduces students to platform development, custom object modeling, and UI configuration within the Salesforce ecosystem.

REFERENCES

☐ **Salesforce Developer Guide – Create a Custom App**

Learn how to create and customize apps within Salesforce.

🔗 https://developer.salesforce.com/docs/atlas.en-us.appmeta.meta/appmeta/meta_app_create.htm

☐ **Salesforce Trailhead – Build a Custom Object**

A beginner-friendly tutorial on how to create and manage custom objects.

🔗 https://trailhead.salesforce.com/content/learn/modules/custom_objects

☐ **Salesforce Help – Create Custom Tabs**

Official help article on adding tabs to your custom objects.

🔗 https://help.salesforce.com/s/articleView?id=sf.creating_custom_tabs.htm

☐ **Salesforce Object Manager – Setup and Fields**

Guide on using Object Manager to create and customize fields.

🔗 https://help.salesforce.com/s/articleView?id=sf.object_fields.htm

☐ **Trailhead Playground – Practice Salesforce Development**

Create your own practice environment to explore Salesforce features.

🔗 https://trailhead.salesforce.com/en/content/learn/modules/trailhead_playground_management

☐ **Lightning App Builder Overview**

Design custom page layouts for your app using a visual editor.

🔗 https://help.salesforce.com/s/articleView?id=sf.app_builder_overview.htm