Library Management Phase 10: Final Presentation & Demo Day Documentation

Objective:

Demonstrate the end-to-end functionality of the Library Management , highlight outcomes, and provide documentation for teachers, students, librarians, and library admin.

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1. Project Pitch

Goal: Showcase how Smart Library CRM simplifies resource tracking, improves student–teacher interaction, and increases library efficiency.

Key Points to Present:

1. Streamlined student/teacher record management.
2. Automated book issue/return tracking & fine calculation.
3. Real-time updates for teachers, students, and librarians.
4. Analytics through reports and dashboards (usage trends, overdue items, popular books).

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2. Demo Flow (Click-by-Click Navigation)

Step 1 – Login & Access App

- Open Salesforce → Go to Library Management Lightning App.

Step 2 – Add/Manage Student or Teacher

- Navigate to Students or Teachers Tab → New.
- Fill in details (Name, DOB, Contact, Class/Department).
- Save → System applies any automation (e.g., auto-assign class or default library card number).

Step 3 – Book Selection / Issue

- Navigate to Books Tab → Select Book.
- Create Borrow Request by selecting book, issue date, and due date.

Step 4 – Return & Fine Handling

- Navigate to Borrow Requests Tab → Mark as Returned.

- System auto-calculates Fine Amount (if overdue).
- Librarian records payment of fine if applicable.

Step 5 – Notifications & Feedback

- Confirm book issue/return → Student receives notification (demo simulated without actual emails).
- Navigate to Feedback Tab → New Feedback to record user feedback on library services.

Step 6 – Dashboard Update

- Navigate to Dashboards → Library Overview Dashboard.
- Verify that new borrow requests, returns, fines, and feedback appear correctly.

PHASE 1 Project Title: Library Management

Problem Statement

Managing and tracking books can become cumbersome when done manually or on paper. Small libraries, students, or hobbyists often need a lightweight system to record book details, view them quickly, and make edits without installing heavy software or maintaining a server. The Simple Library Management website addresses this by offering a browser-based CRUD tool using only HTML, CSS, and JavaScript with localStorage.

Requirement Gathering

- Identify what core actions the user needs (add, view, edit, delete books).
- Decide which fields are mandatory (Title, Author, Year, ISBN).
- Determine storage mechanism (localStorage vs. server).
- Collect UI expectations (form + table layout, buttons).
- Plan file structure (index.html, styles.css, script.js).
- Document non-functional needs (works offline, simple design).

Stakeholder Analysis

- Define primary users (students, small libraries, demo users).
- Identify secondary users (developers learning CRUD apps).
- Note stakeholders' technical skills (beginner-friendly, no server).
- Capture feedback on desired features (extra fields, pop-ups).
- Understand constraints (browser-only, small data sets).
- Set expectations for future enhancements (server API, multi-user).

Business Process Mapping

- Map the flow of adding a book (form input → JS → localStorage → table).
- Describe how data persists after refresh (JSON in localStorage).
- Show the edit flow (click edit → prompt/update → save back).
- Map the delete flow (click delete → confirm → remove from storage).
- Define initial data state (empty table).
- Document error handling or confirmations (validation, clearing storage).

Industry-Specific Use Case Analysis

- Compare with small-scale library or personal book lists.
- Explore educational uses (teaching CRUD in classes).
- Consider adaptation for inventory or asset tracking.
- Assess scalability limits (localStorage size, single user).
- Identify privacy and data safety considerations (local only).
- Evaluate user interface needs across devices (desktop, mobile).

AppExchange / Expansion Exploration

- Plan how to extend fields (Genre, Publisher, Ratings).
- Replace prompts with inline edit forms or modals.
- Investigate moving from localStorage to a simple backend or API.
- Consider packaging as a small open-source app or template.
- Experiment with new UI styles (Tailwind, Bootstrap, animations).
- Explore publishing on platforms like Salesforce AppExchange or GitHub Pages as a free tool.

PHASE 2: Org Setup & Configuration

1. Introduction

This phase sets up a Salesforce Developer Org to model a small library for cataloguing, lending, and returns. It builds on Phase 1 by configuring book records, librarian/member roles, and security so the system reflects real library workflows for adding, editing, deleting, and viewing books.

2. Objective

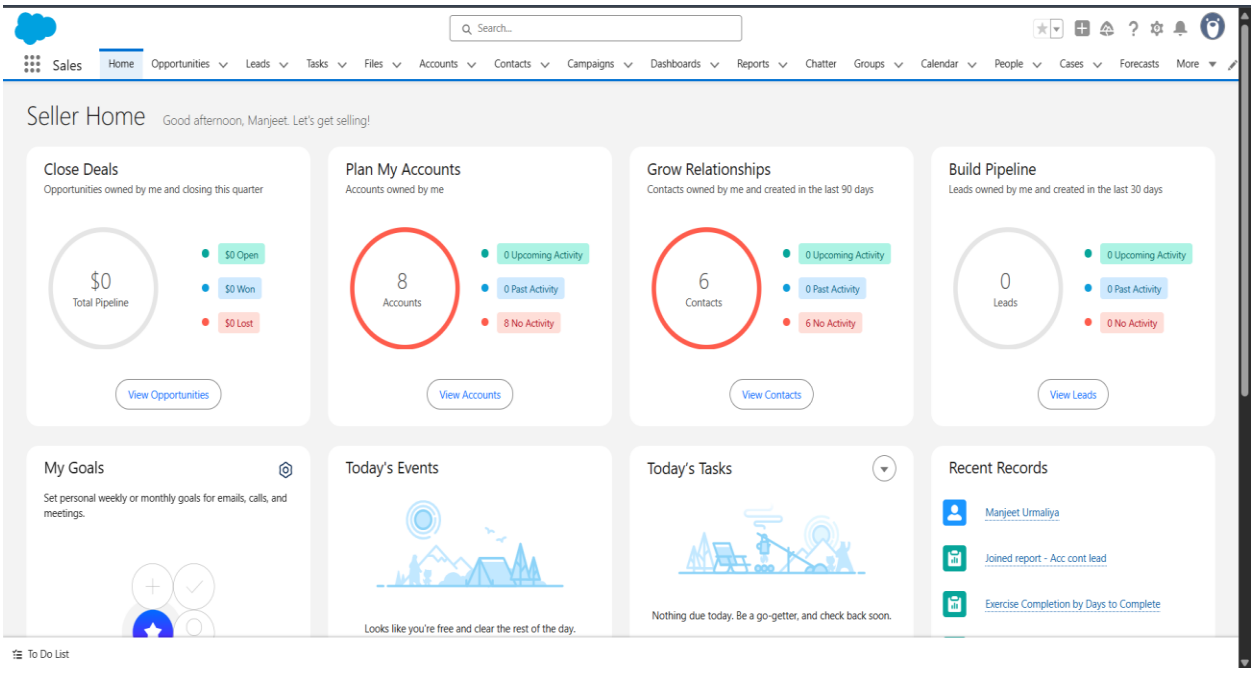
Create a clean Salesforce Developer Org named “Library Connect” with sample users (Head Librarian, Librarian, Member).

Use OWD and sharing rules to protect book data.

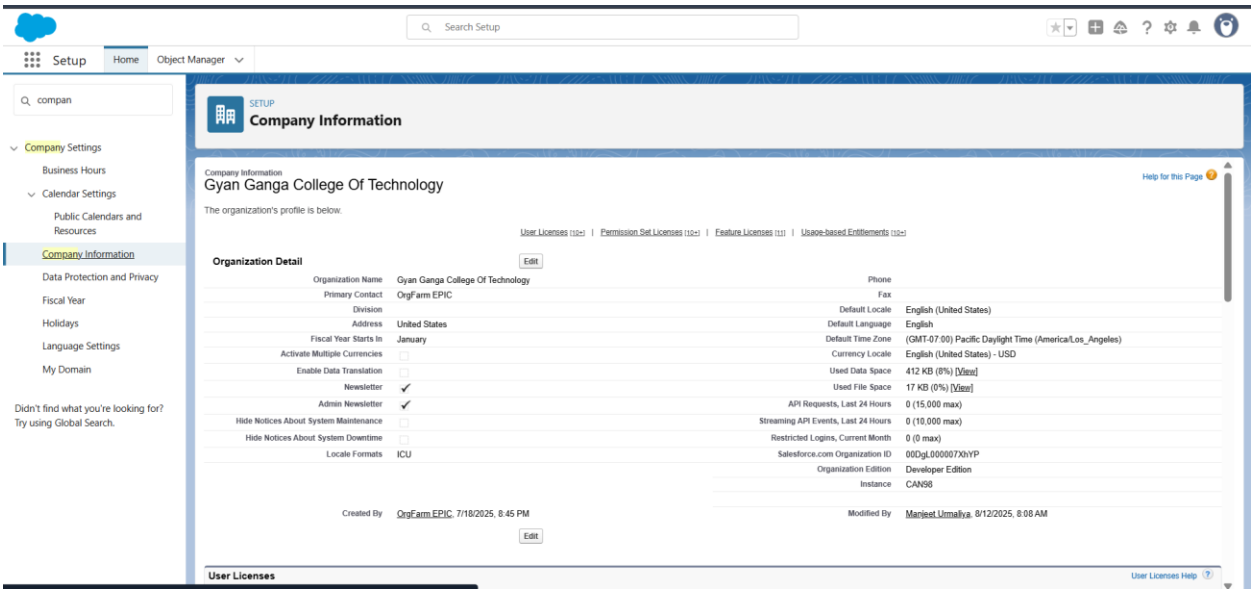
Showcase book entry, editing, and role-based visibility, and lay the groundwork for future fields and external integrations.

Step 1:- • Salesforce Editions Sign up & Login

Signed up for a Salesforce Developer Edition and logged into the Lightning Experience. Confirmed access to the Setup area sing the gear icon.



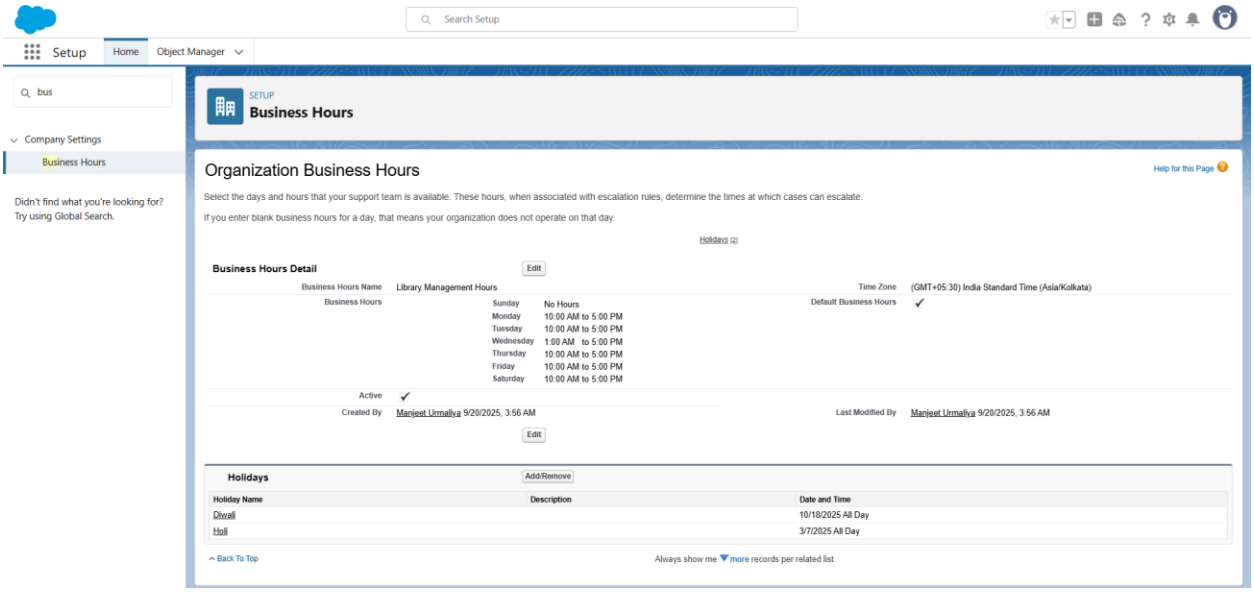
Step 2:- •Company Profile Setup



Step 3:- • Business Hours & Holidays

Created " Library Management Hours" Mon-Sat 10 AM-5 PM.

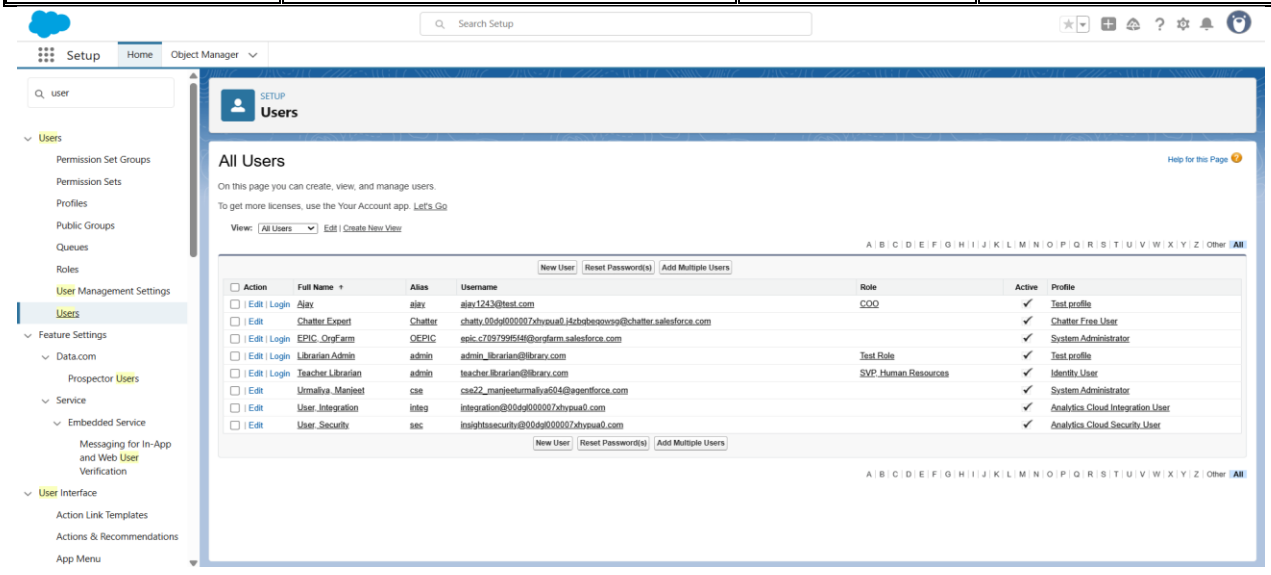
Added relevant Holidays and linked them to Business Hours.



Step 4:- • User Setup & Licenses

- Created 2 sample users:

Display Name	Username (example)	Profile	Role
Librarian Admin	admin_librarian@library.com	Test Profile	Test Role
Teacher Librarian	teacher.librarian@library.com	Identity User	SVP, Human Resources



Step 5:- Profiles

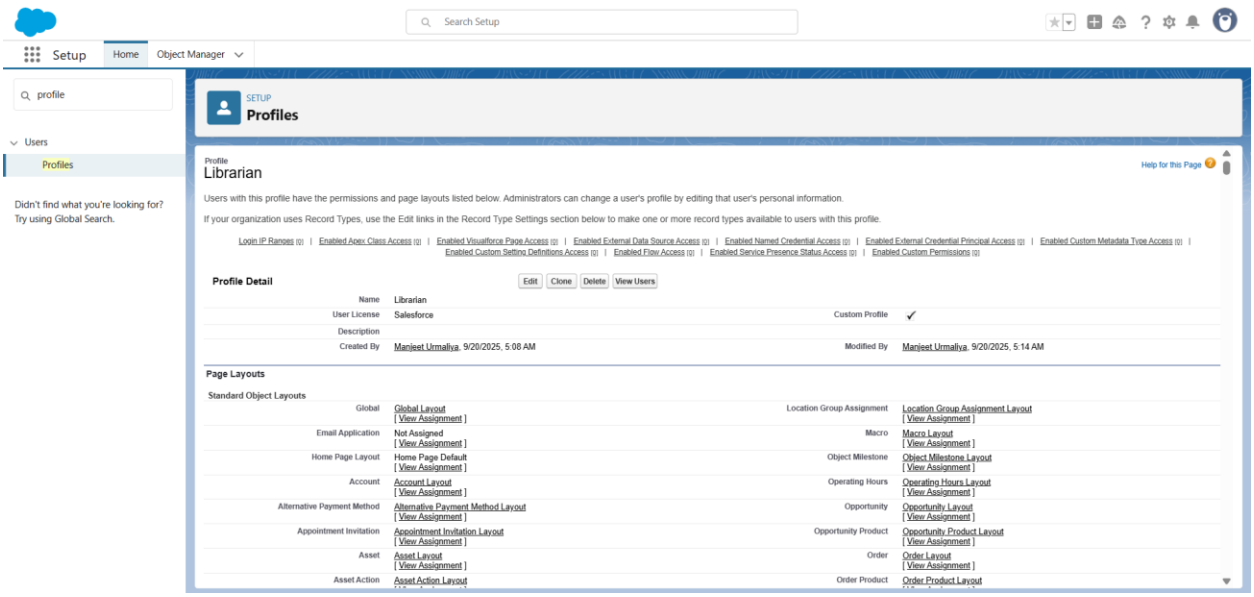
Cloned Standard User → created Librarian profile.

Cloned Standard User → created Teacher profile.

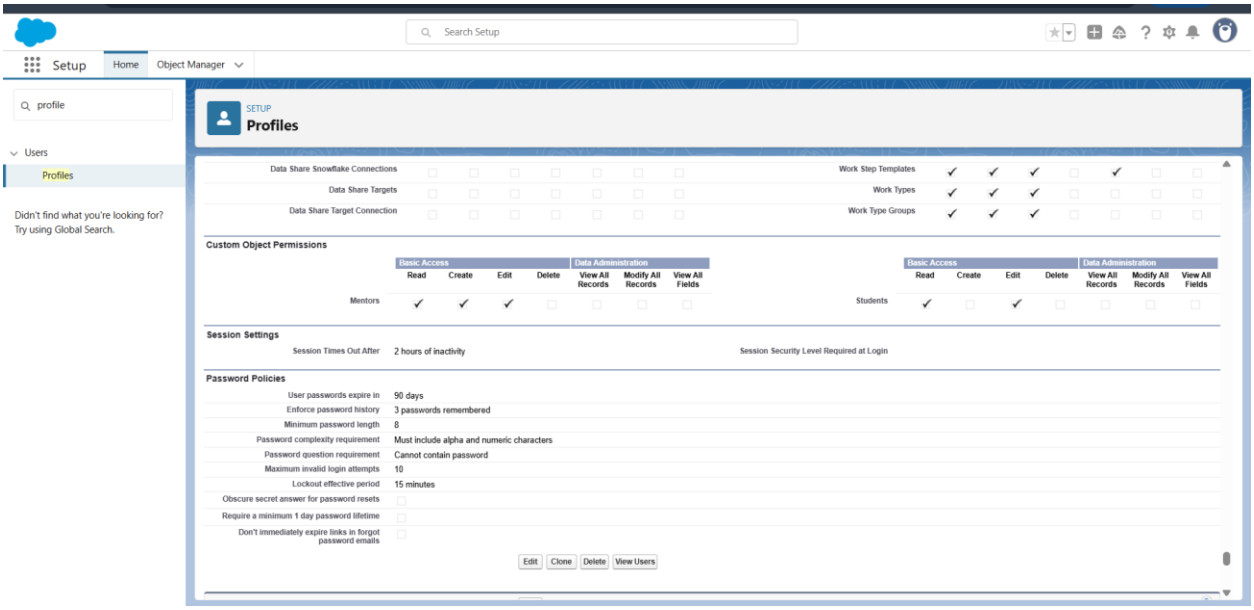
Adjusted Object Permissions:

Mentor_c: Doctor = Read/Create/Edit/Delete = Read/Create/Edit/Delete

student_c: Doctor = Read/Edit/Create/Delete = Read/Edit/Create



Librarian profile

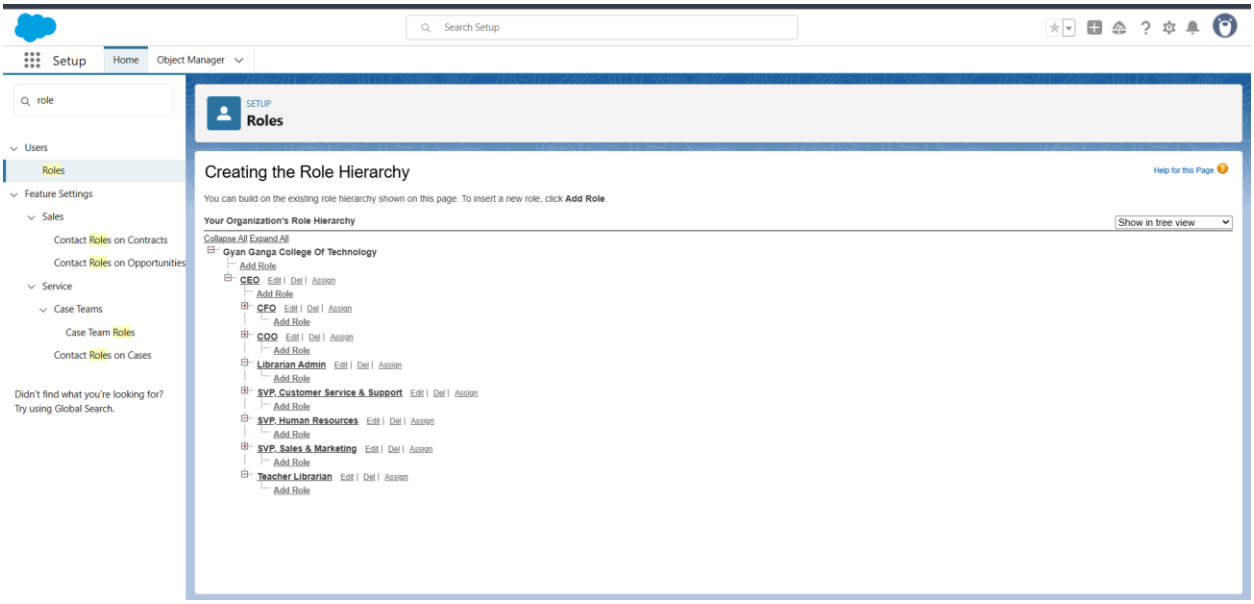


Teacher profile

Step 6 — Role Hierarchy

Created simple hierarchy

- Librarian Admin
  - Librarian
    - Teacher

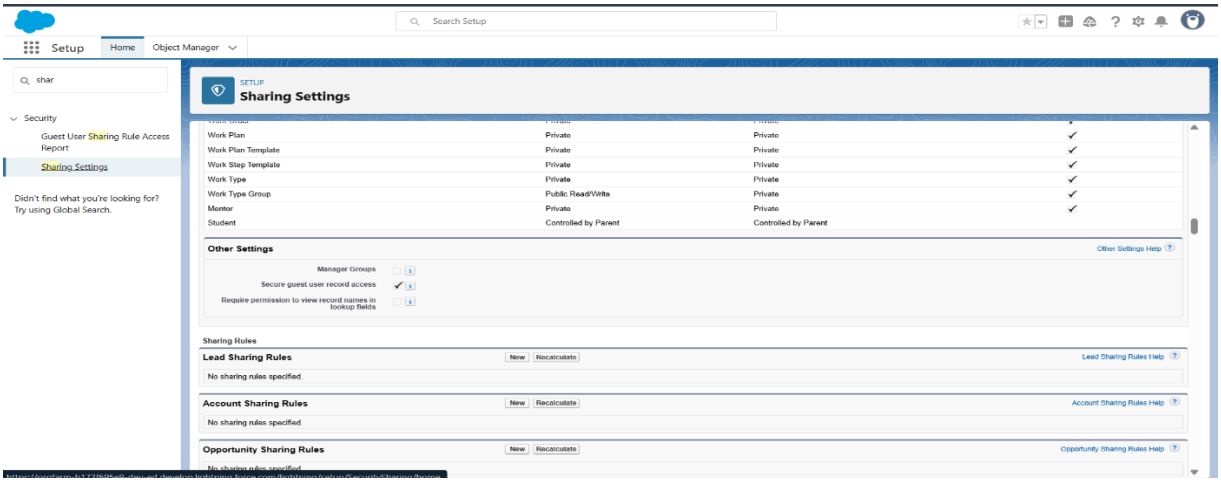


Step 7 Org:- Wide Defaults (OWD)

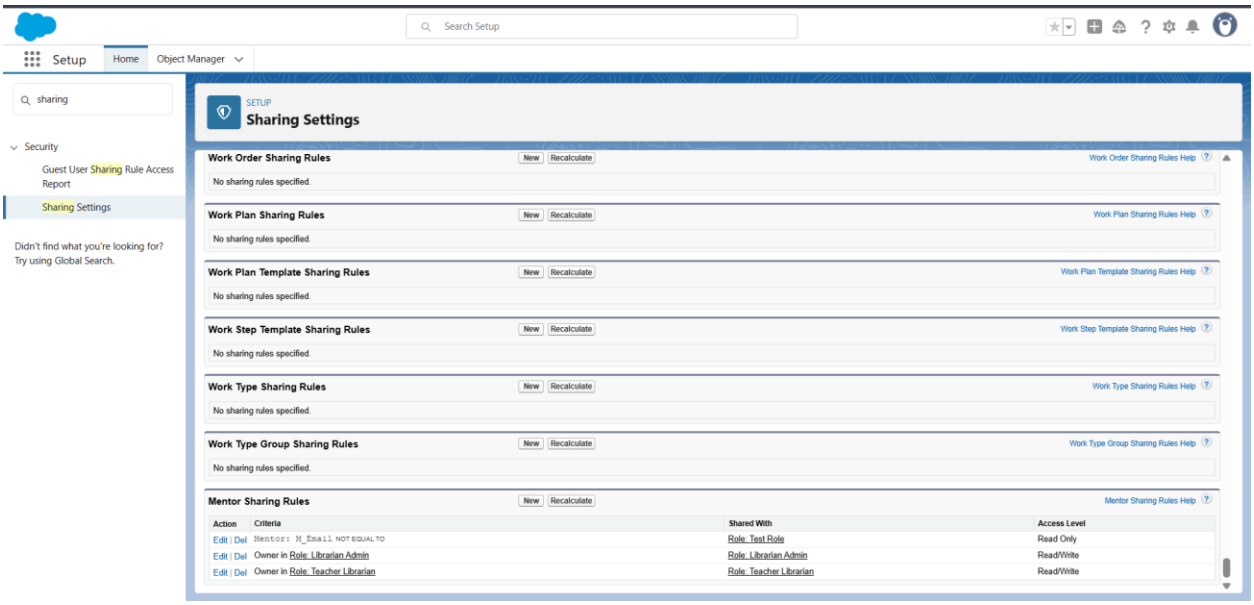
Setup → Sharing Settings

Mentor_c = Private.

Student_c = Controlled by Parent .

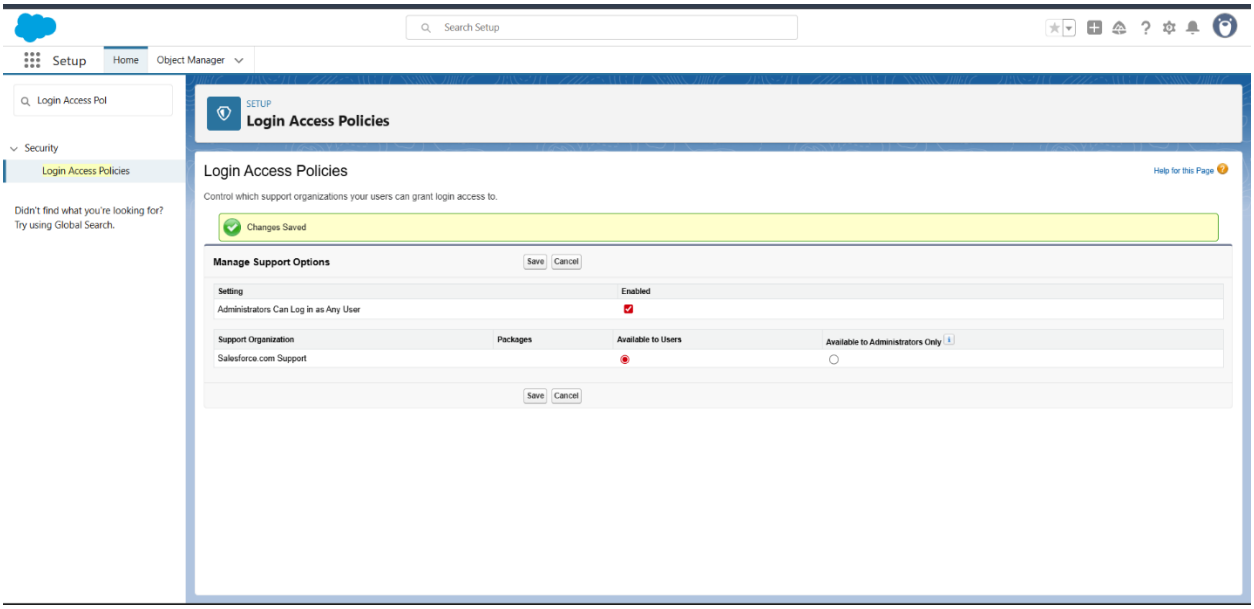


Step 8:- • Sharing Rules



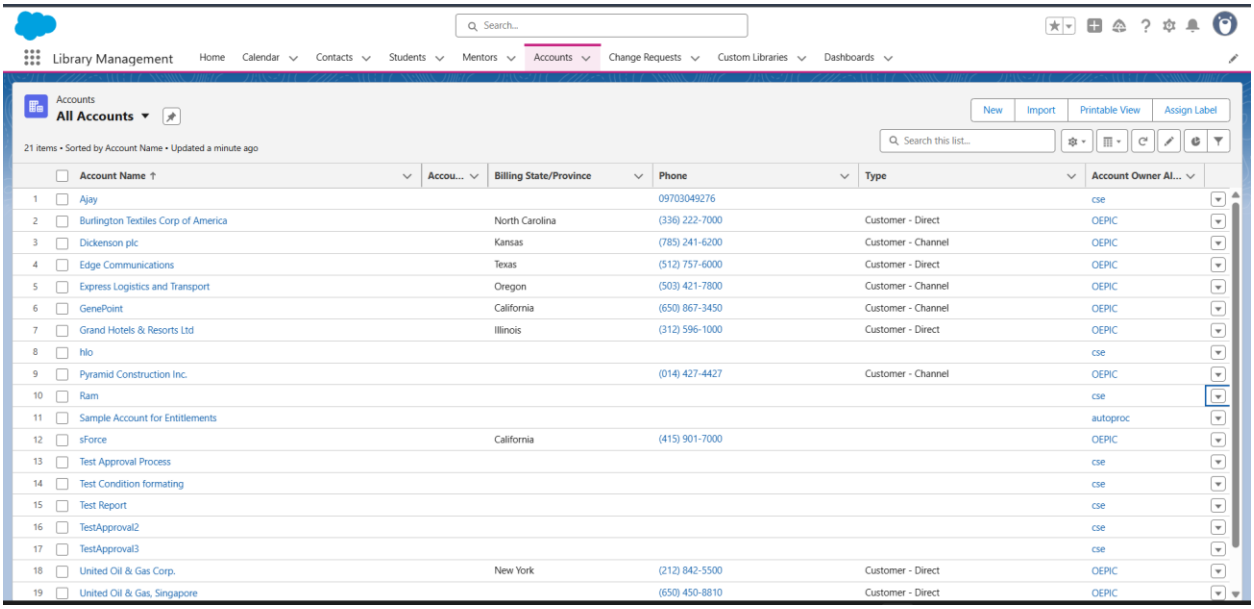
Step 9:- Login Access Policy

- Enabled Administrators Can Log in as Any User.

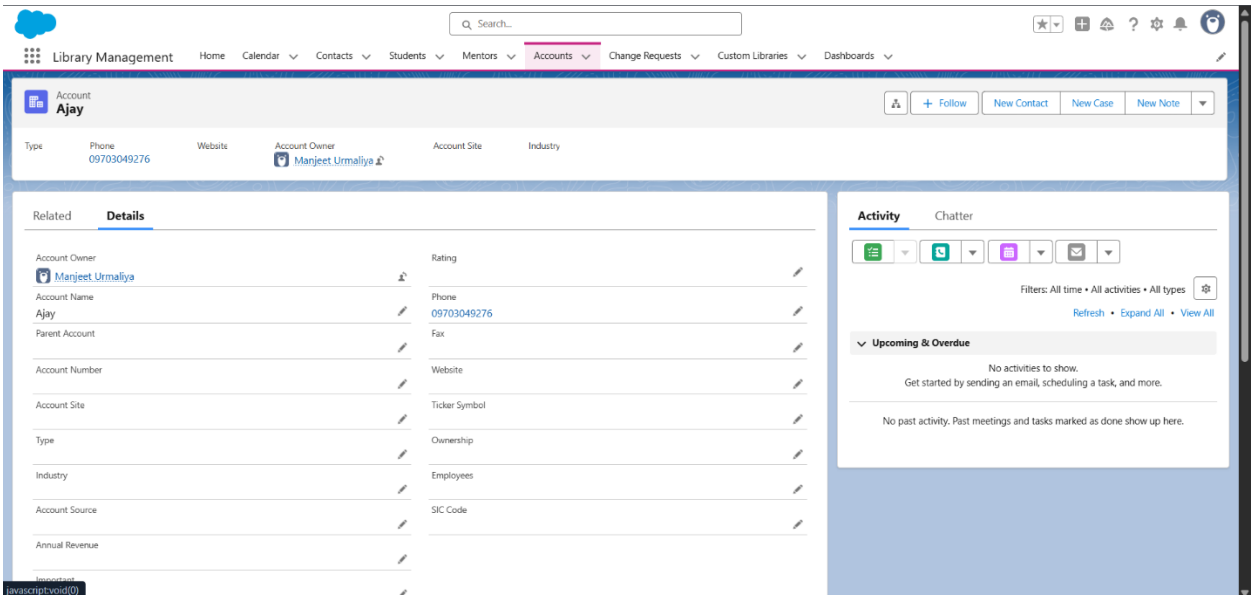


Step 10:- Library Management Lightning App.

• Setup → App Manager → New Lightning App “Library Management”



Step 11:- Testing



PHASE 3: Data Modeling & Relationships

Introduction

Define and implement the data structure of Library Connect to link Members, Book Loans and Books. Configure record types, page layouts, navigation tabs and security so that each role (Admin, Librarian, Member) can perform its tasks.

1. Standard & Custom Objects

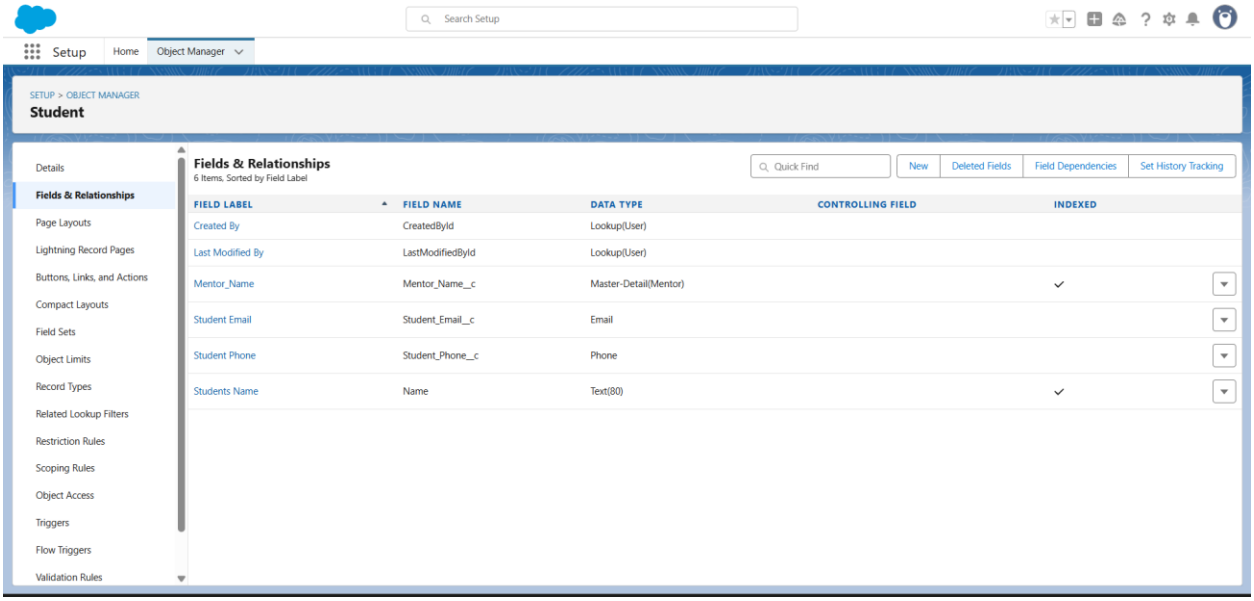
- **Contact (Student):** Used to store student information such as **Date of Birth, Roll Number/Student ID, Contact Details**.

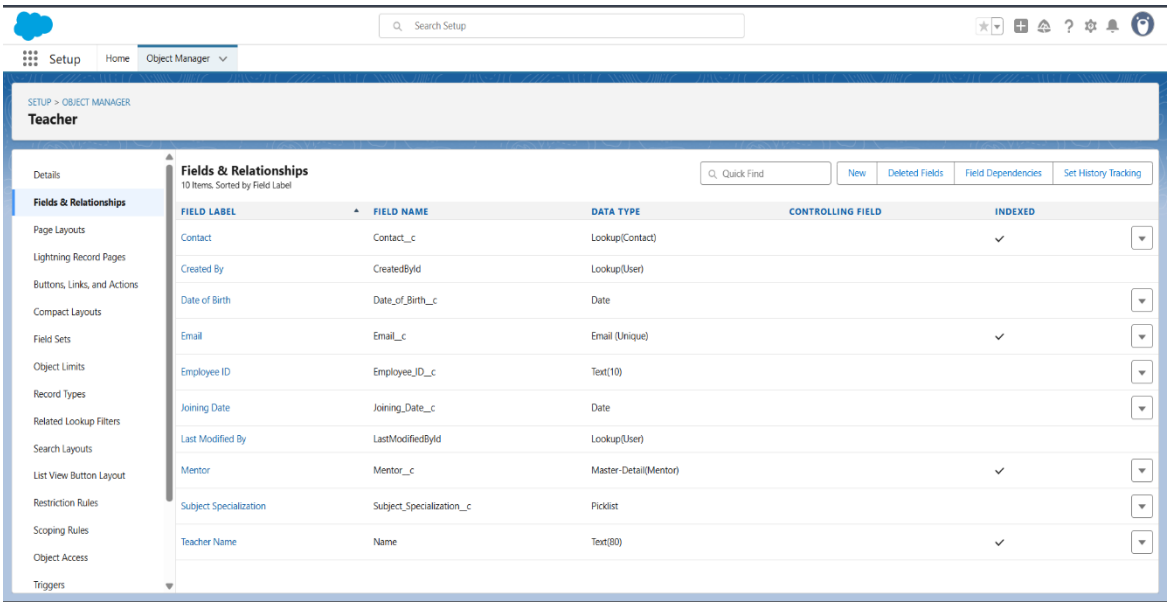
- **Teacher (Custom):** Captures teacher information and tracks their classes/sessions. Includes fields for **Subjects Taught, Qualifications, Availability/Timings**, and **lookup to Student (Contact)** for assigned students or mentoring relationships.

- **Student (Custom):** Tracks student academic cases like **Performance, Issues, or Counseling**. Includes fields for **Description, Plan/Action, Status**, and **lookups to Student (Contact)** and **Teacher (User)**.

2. Fields

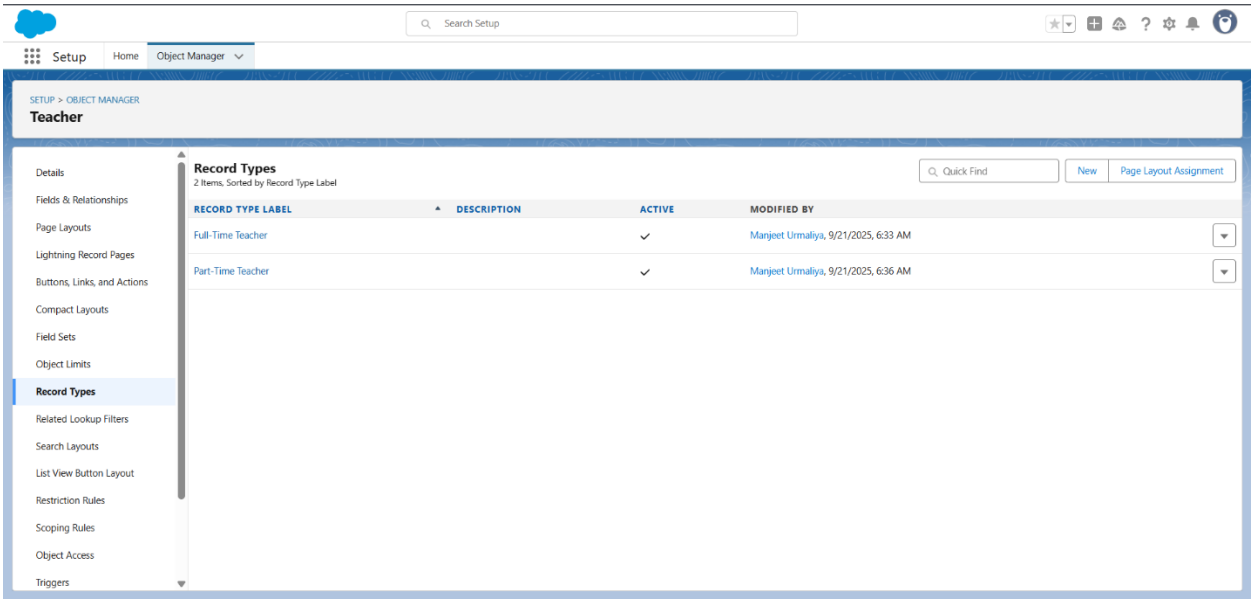
- **Student** – Stores key student details (name, DOB, ID, contact, class, status) and links them to book loans, courses, and mentors to track borrowing and enrollment.
- **Teacher** – Stores main teacher details (name, DOB, ID, subject, contact, status) and links them to students, classes, and book loans to show who teaches or approves activities.



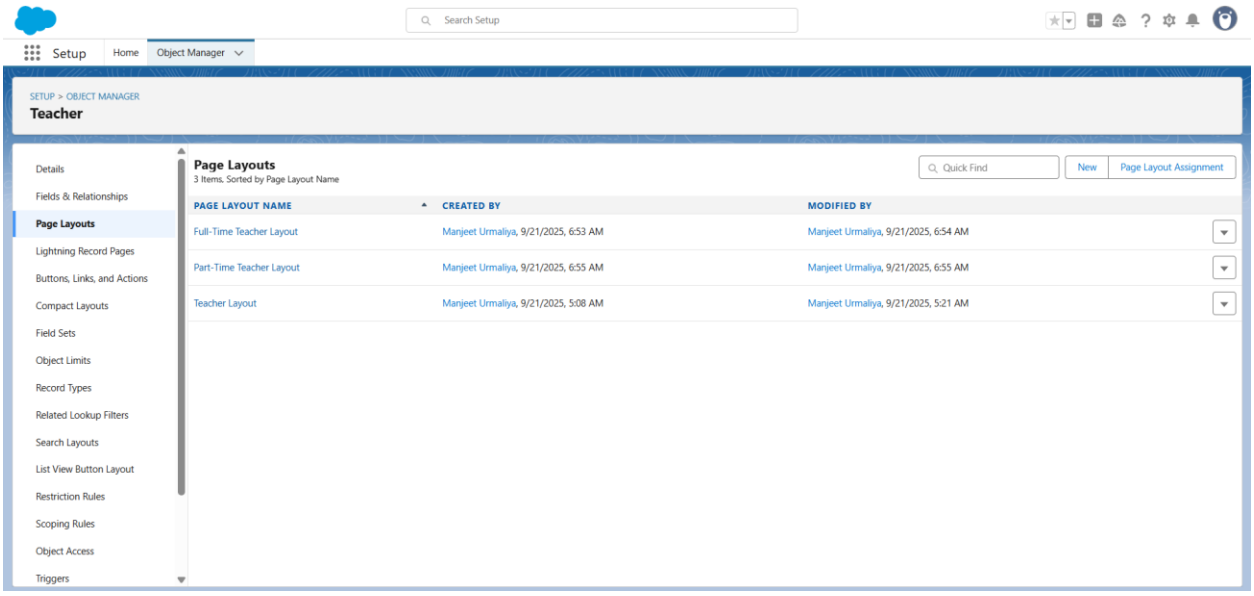


3.Record Types

- Teacher record types: Full-Time Teacher and Part-Time Teacher.
- Separate page layouts exist for each record type to show relevant fields.

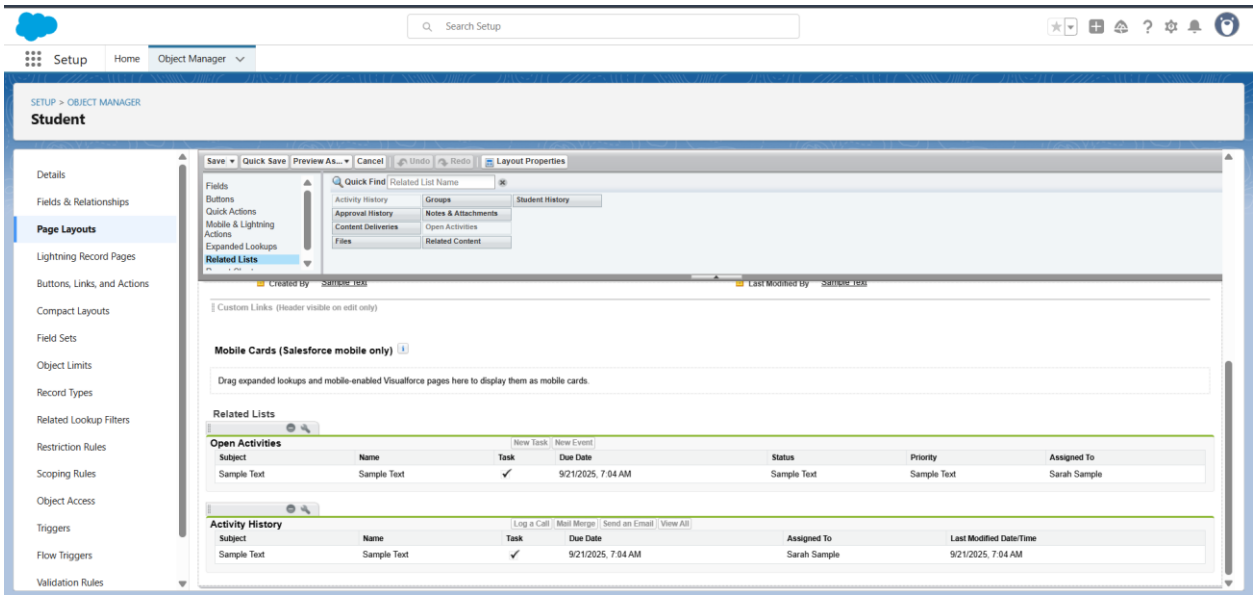


Teacher Record Types

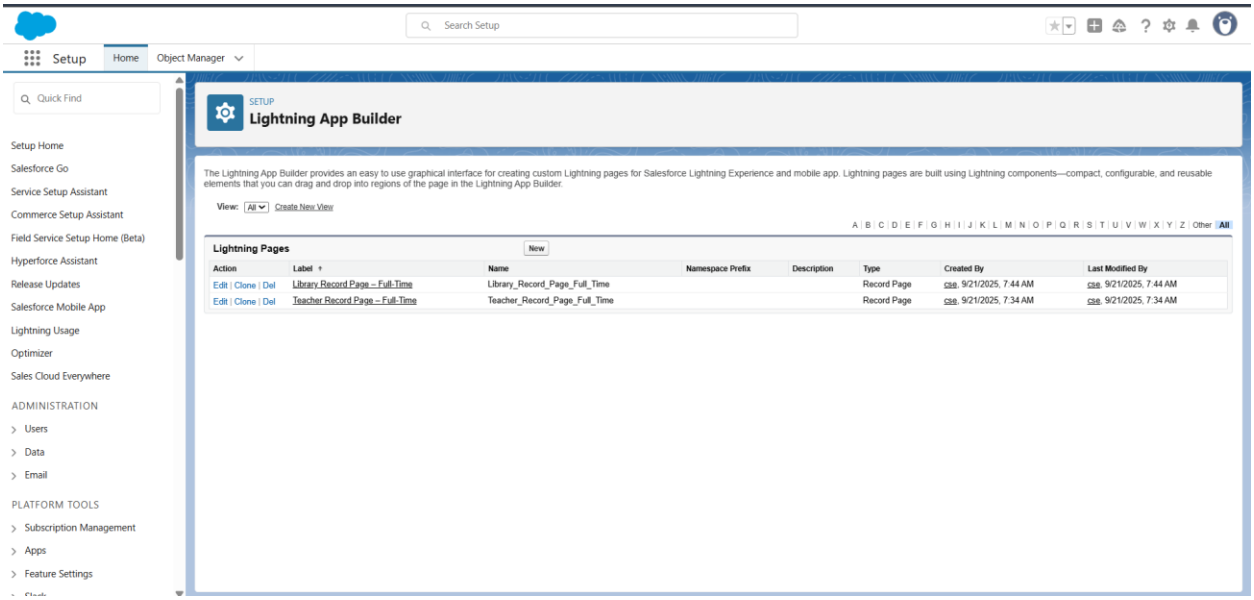


Teacher Page Layouts

4.Page Layouts & Related Lists



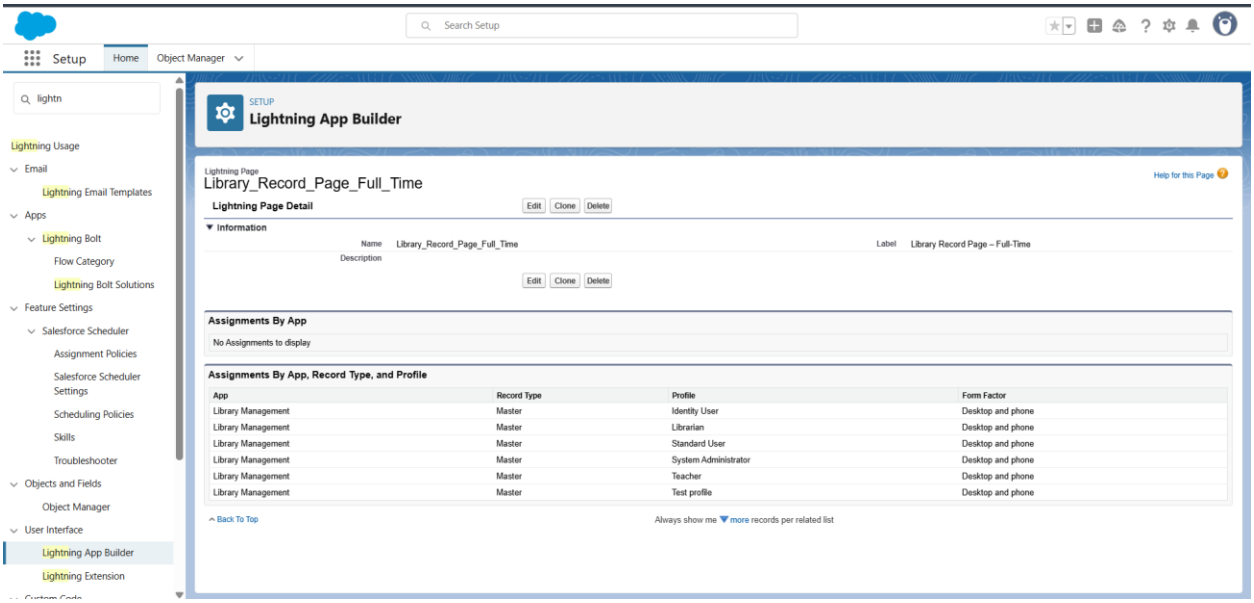
5.Lightning Record Pages & Compact Layouts



Library

Custom Lightning Record Pages created for Library to give Librarians and Students tailored views.

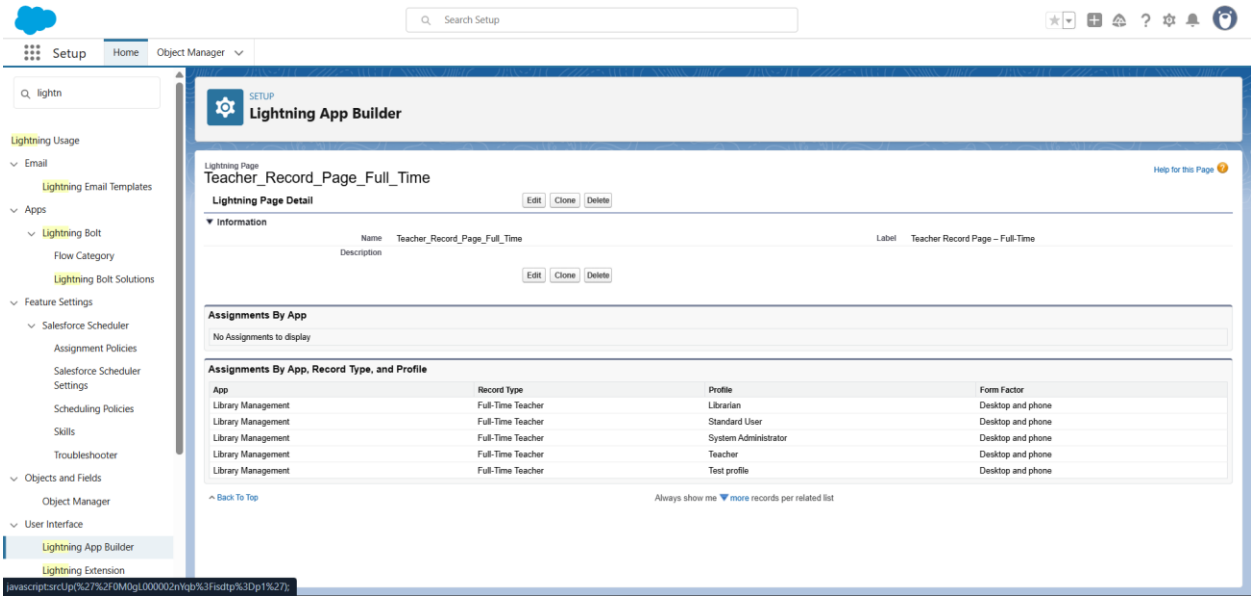
Compact Layouts show key Library fields (Book Title, Author, Availability, Genre) for quick glance.



Teacher

Custom Lightning Record Pages created for Teacher to give Admins and Staff tailored views.

Compact Layouts show key Teacher fields (Name, Subject, Class, Contact) for quick glance.



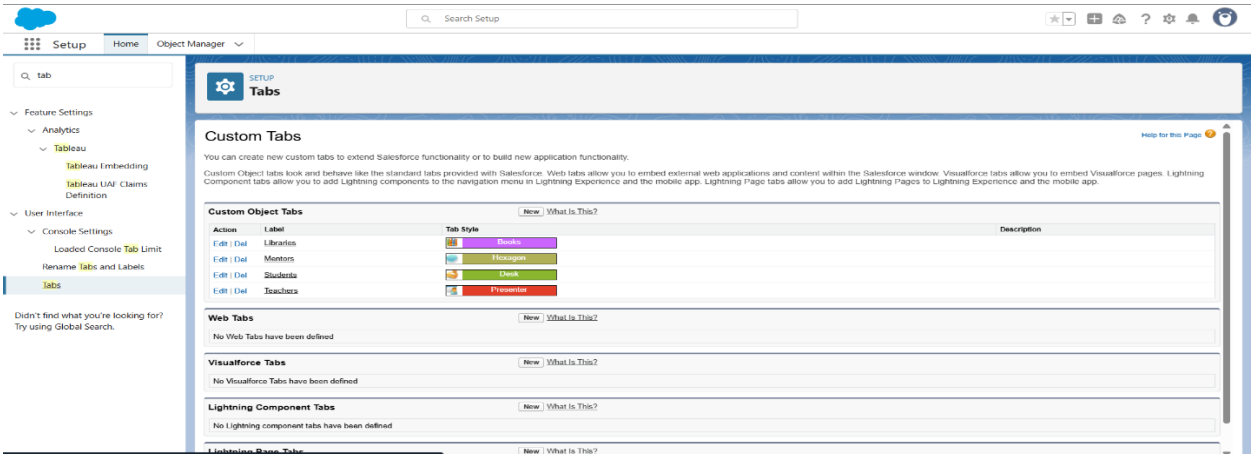
6. Tabs & App Navigation

Teacher

Tabs & Navigation:_Teachers, Students, Classes, Attendance, Reports. Custom tab for Teachers.

Library

Tabs & Navigation: Library, Books, Students, Issued Books, Reports. Custom tab for Library.



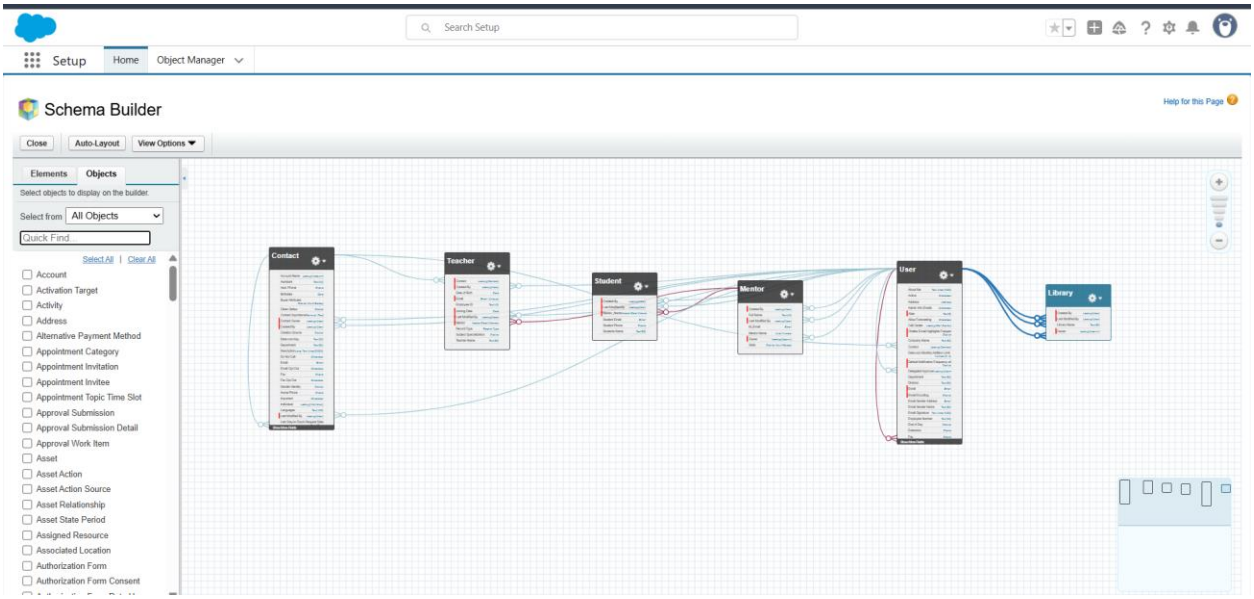
7.Schema Builder (ERD)

Teacher

Schema Builder (ERD): Displays Teacher, Student, Class, and User objects with lookup relationships. Teacher is central, linked to Classes and Students.

Library

Schema Builder (ERD): Displays Library, Book, Student, and User objects with lookup relationships. Library is central, linked to Books and Students.



8. Security & Field-Level Visibility

- Teacher profile has Read/Create/Edit on Student and Class records.
- Librarian profile has Read/Create/Edit on Library and Book records, but read-only on Student records.
- Sensitive fields like Salary or Private Notes hidden from Librarian profile.
- Mentor profile can view assigned Students and Classes but cannot edit Library records.

9. Sample Data & Testing

- Sample Students and Teachers created with details like Name, Class, and Contact info.
- Library records (Books) created by Librarian, linked to Students and Teachers with record type “Issued” or “Available.”
- Mentor records created and linked to Students for guidance tracking.
- Teacher login view shows Classes and Students; Student record shows related lists (Books issued, Mentor info).

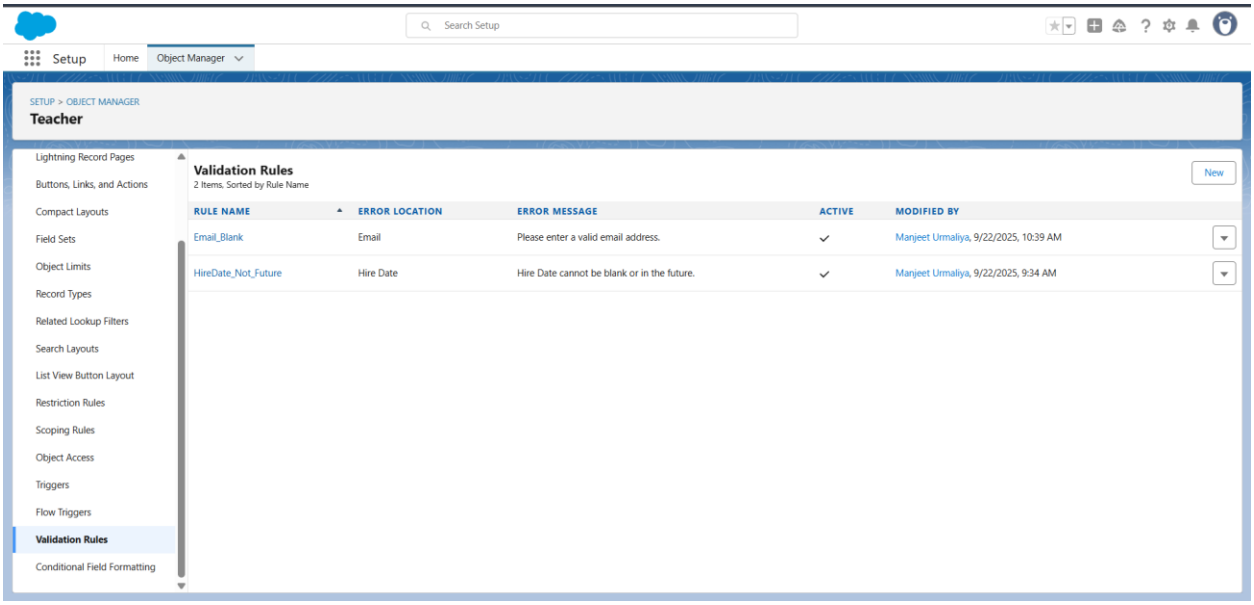
10. Current System Behaviour

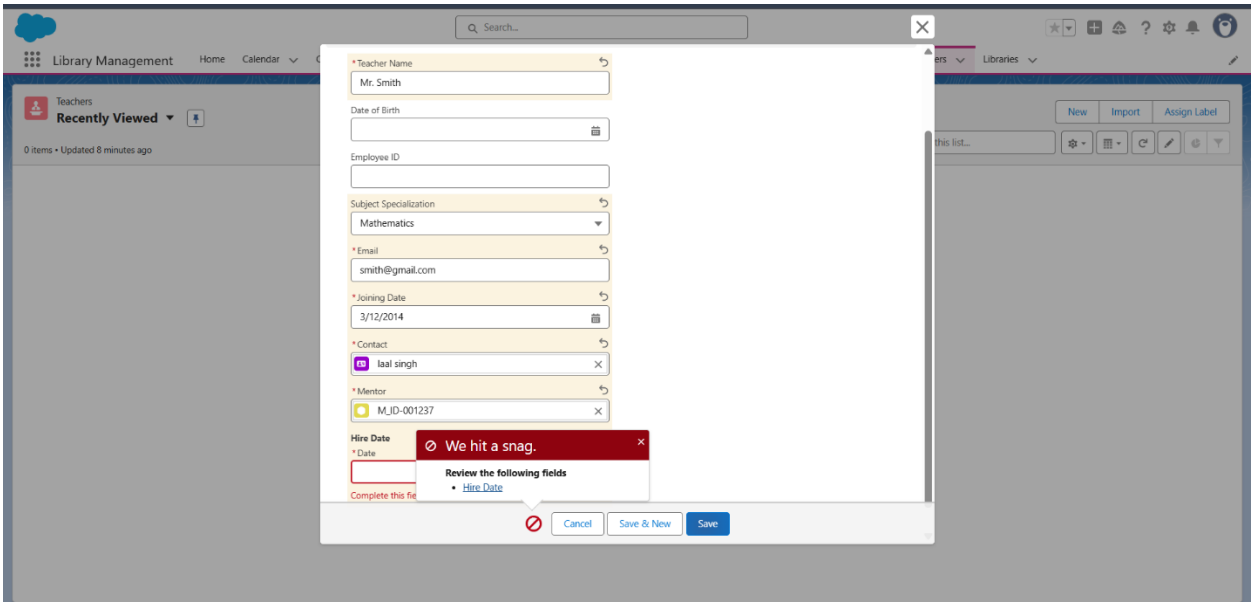
- Library records link both Students and Teachers for issuing/tracking books.
- Mentors hold guidance/notes information linked to the same Students.
- Record types like Issued Book and Available Book display appropriate layouts.
- Student records show all related Classes, Library records, and Mentor assignments.
- Teachers can view Students and Classes assigned to them.
- Librarians can create Library records and view limited Student info.
- The Schema Builder ERD reflects the current relationships between Teacher, Library, Mentor, Student, and User.

Phase 4: Process Automation (Admin)

1. Validation Rules

- A validation rule created on Teacher object HireDate_Not_Future Date/ Time Hire Date cannot be blank or in the future.
- A validation rule created on Teacher object Email_Blank Please enter a valid email address.

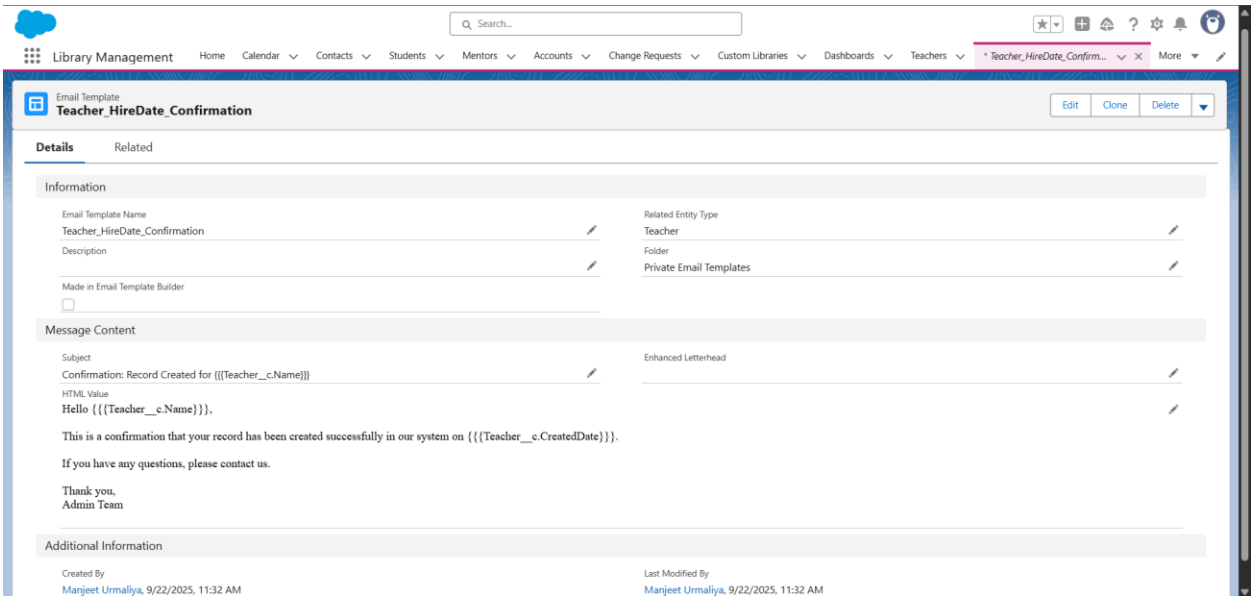


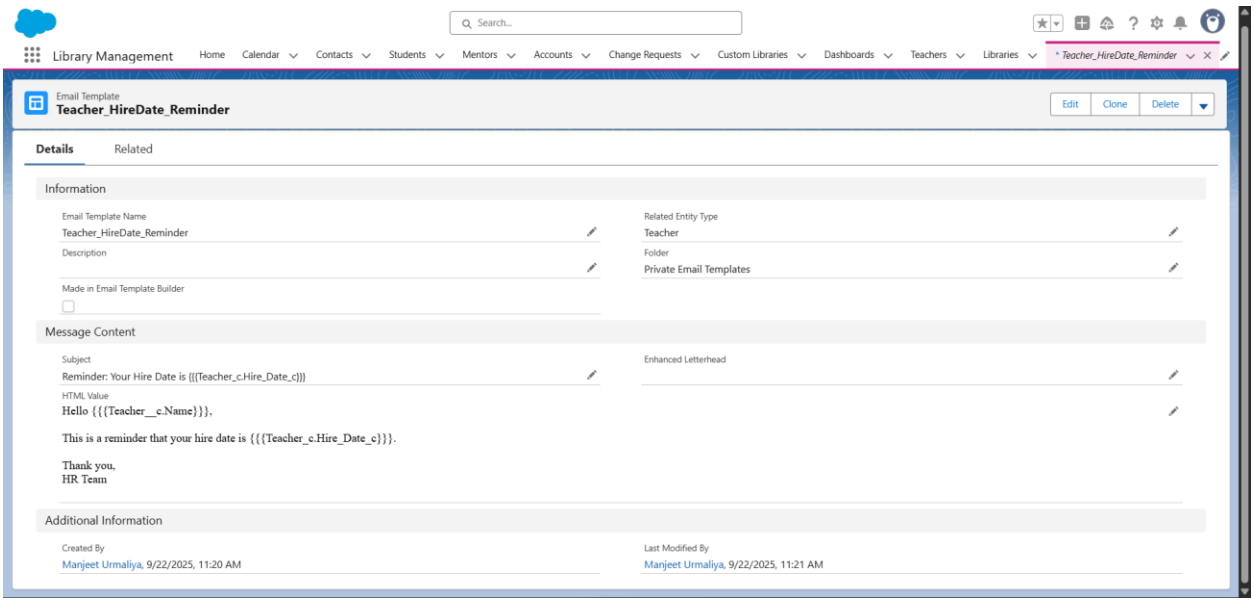


2. Email Templates for Automation

Two classic email templates were created and stored under Private Email Templates:

•Teacher_HireDate_Confirmation – sends confirmation to the teacher when a date is created or confirmed.



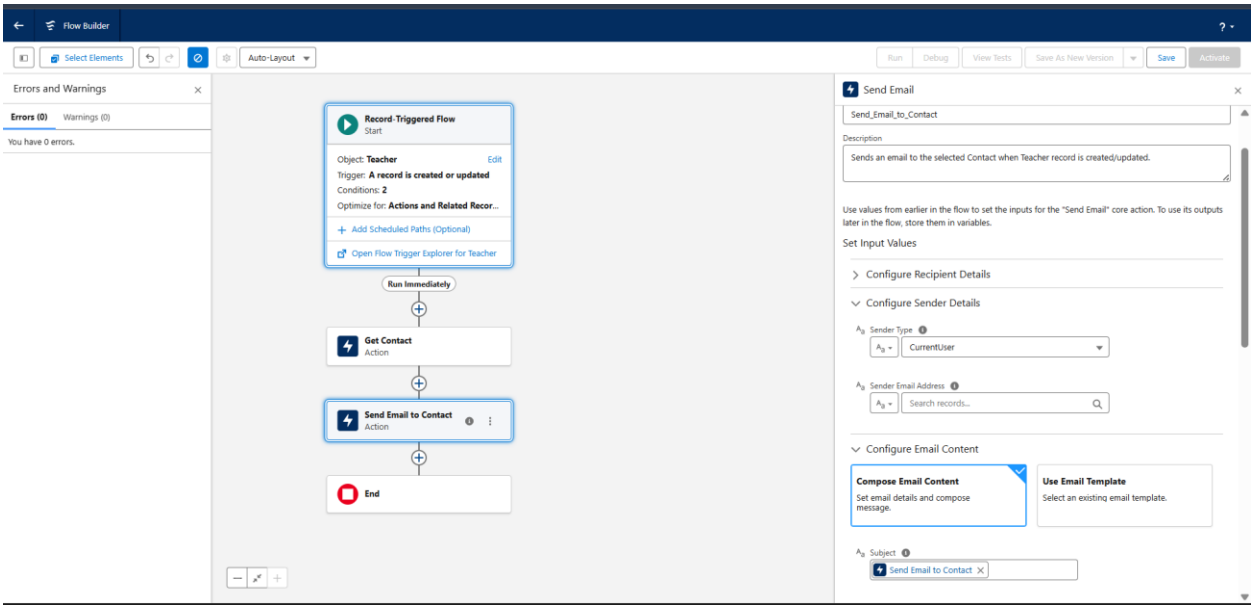


3.Flow for TeacherConfirmation :-

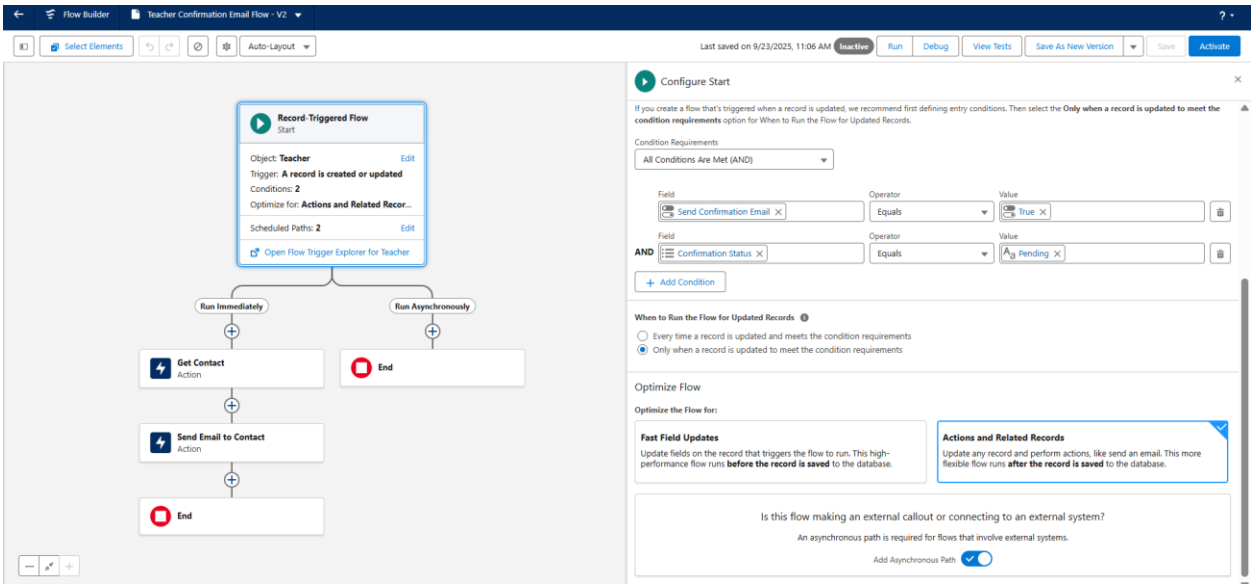
A record-triggered flow “Teacher_Confirmation_Flow” built on Teacher object:

Trigger: When record is created or when Status changes to “Confirmed.”

- Action:
- Update “Confirmation Sent” checkbox on the Teacher.



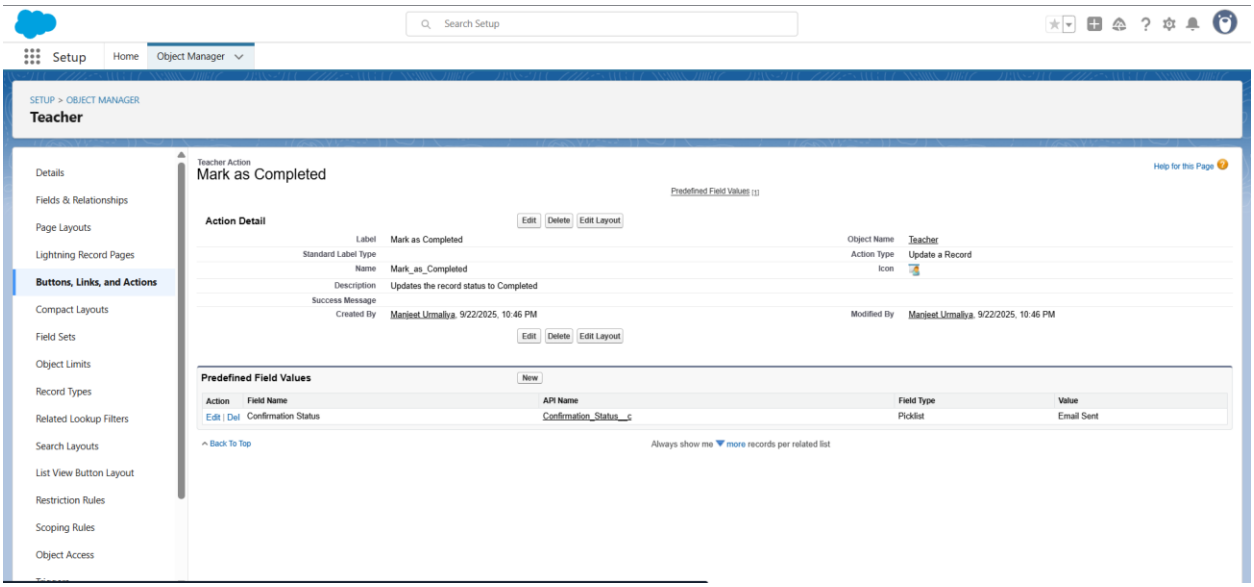
4.Reminder Notification & Email (Scheduled Path)



6. Quick Action – “Mark as Completed”

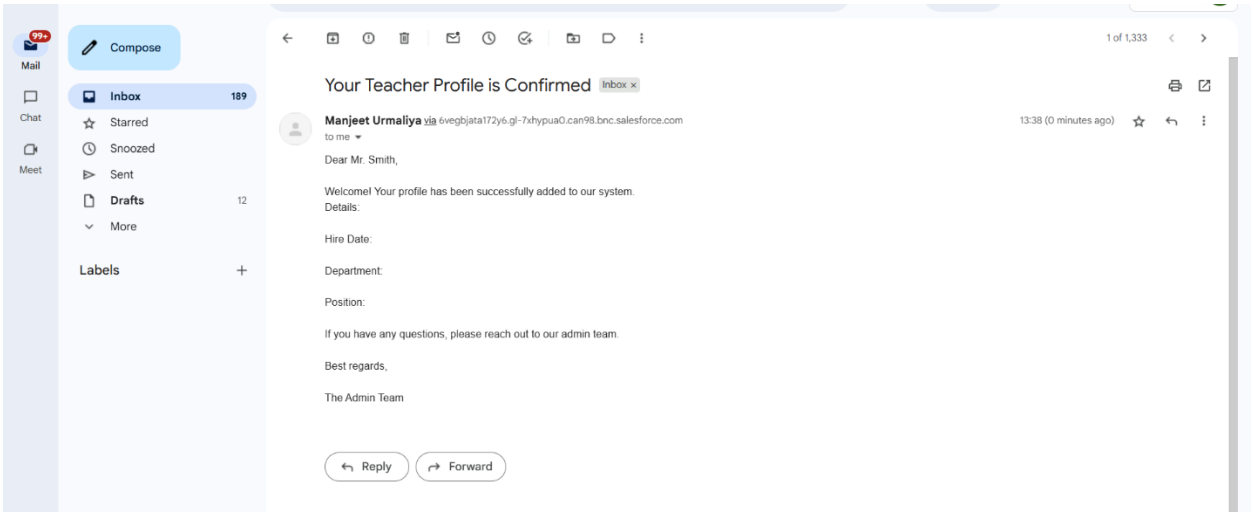
A Quick Action added Teacher object:

- Action Type: Update a Record.
- Predefined Field Values: Status c = “Completed.”



8.Testing & Results

Sample Appointments were created to test the automation:



Phase 5: Apex Programming (Developer)

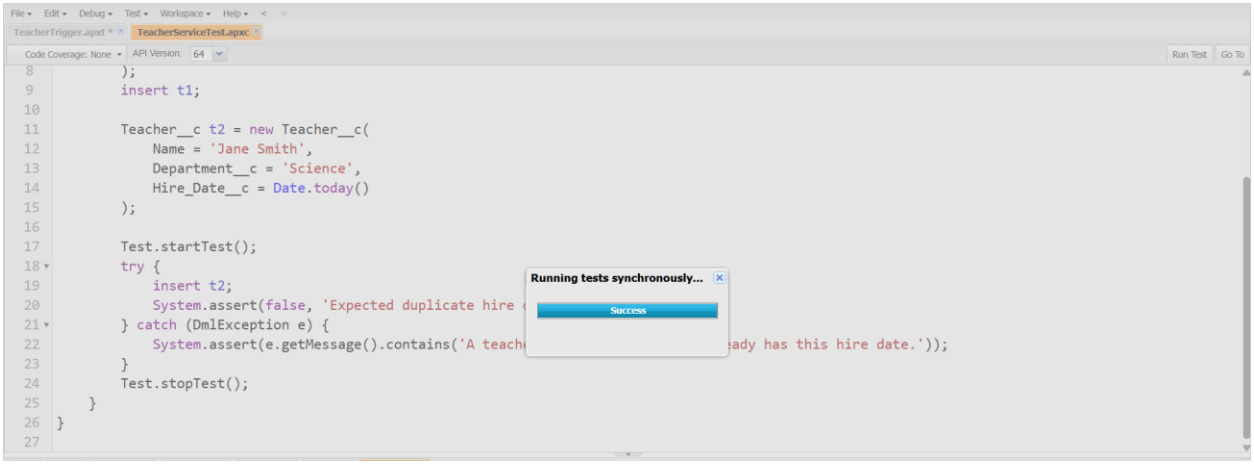
1. Classes & Objects

Created an Apex utility class **TeacherService:**

- Inner Comparator: **TeacherHireDateComparator** – sorts teachers by **Hire_Date__c.**
- Static Method:

- **preventDuplicateHireDates(List<Teacher_c> incoming, Map<Id, Teacher_c> oldMap)** – checks new/updated teacher records against existing teacher records to ensure no conflicting hire dates for the same department (or other criteria) and uses **addError()** to block duplicates.

File → New → Apex Class.
Name it TeacherServiceTest → click **OK**.
Paste test code:
Save.

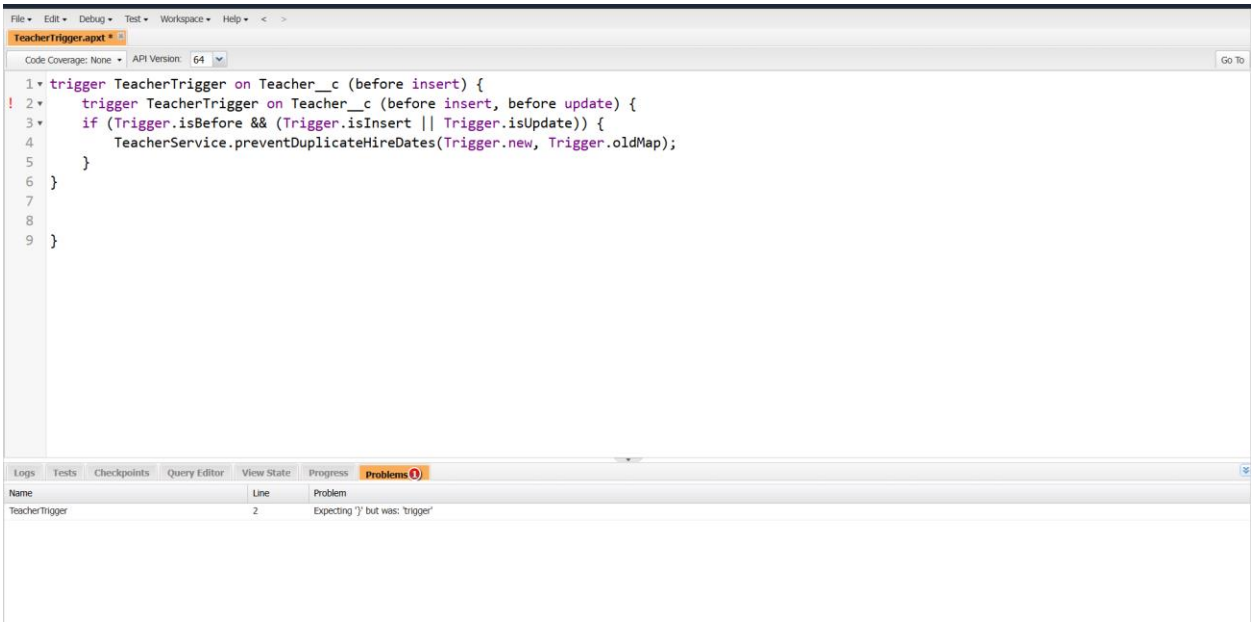


2. Apex Trigger

File → New → Apex Trigger.
Enter:

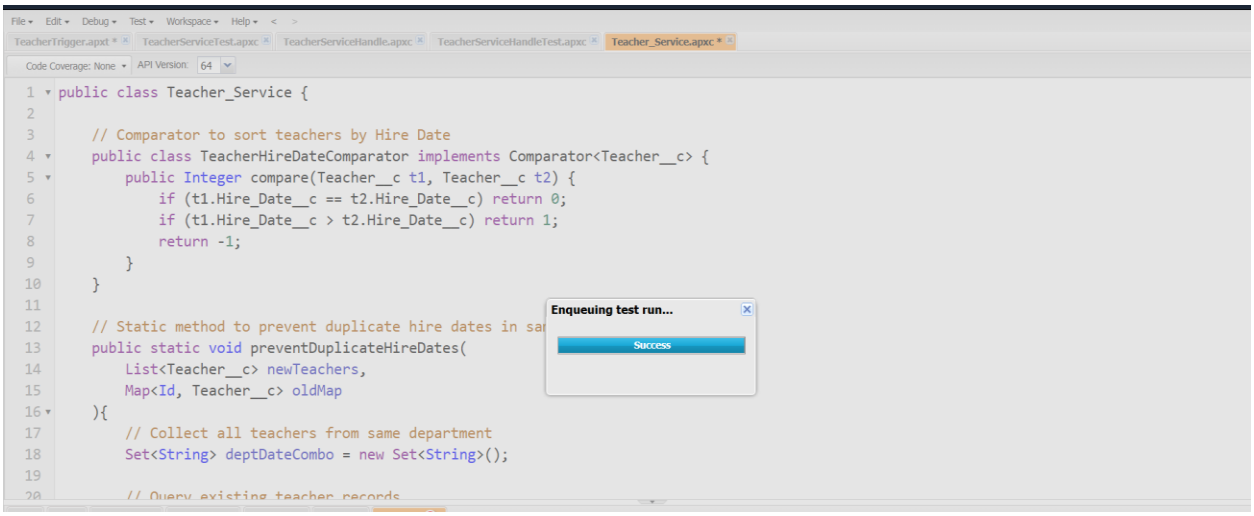
- Name: TeacherTrigger
- sObject: Teacher__c

Click **Submit**.
Save.



- 3.Trigger Design Pattern:

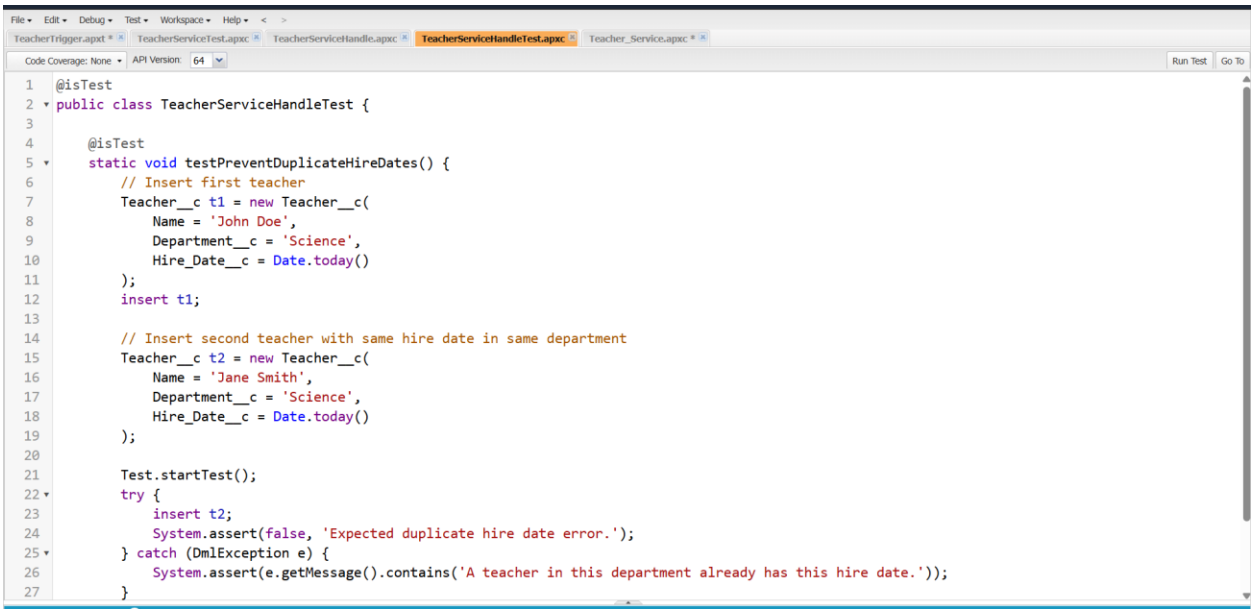
  Business logic is kept in the TeacherService class; the trigger on Teacher__c simply calls the class method.



4. SOQL & Collections

Inside preventOverlap:

- **SOQL** queries existing Teacher for relevant new Teacher.



```
@isTest
public class TeacherServiceHandleTest {

    @isTest
    static void testPreventDuplicateHireDates() {
        // Insert first teacher
        Teacher__c t1 = new Teacher__c(
            Name = 'John Doe',
            Department__c = 'Science',
            Hire_Date__c = Date.today()
        );
        insert t1;

        // Insert second teacher with same hire date in same department
        Teacher__c t2 = new Teacher__c(
            Name = 'Jane Smith',
            Department__c = 'Science',
            Hire_Date__c = Date.today()
        );

        Test.startTest();
        try {
            insert t2;
            System.assert(false, 'Expected duplicate hire date error.');
        } catch (DmlException e) {
            System.assert(e.getMessage().contains('A teacher in this department already has this hire date.'));
        }
```

5. Control Statements

for loops, if conditions and **addError()** to prevent overlaps.

6. Test Classes (Teacher Example)

A test class TeacherTriggerTest was created to:

- Insert a valid teacher (no duplicate hire date in the same department) and verify it saves successfully.
- Attempt to insert a teacher with a duplicate hire date in the same department and verify a **DmlException** with “already has this hire date” in the message is thrown.

This test indirectly executes the logic in

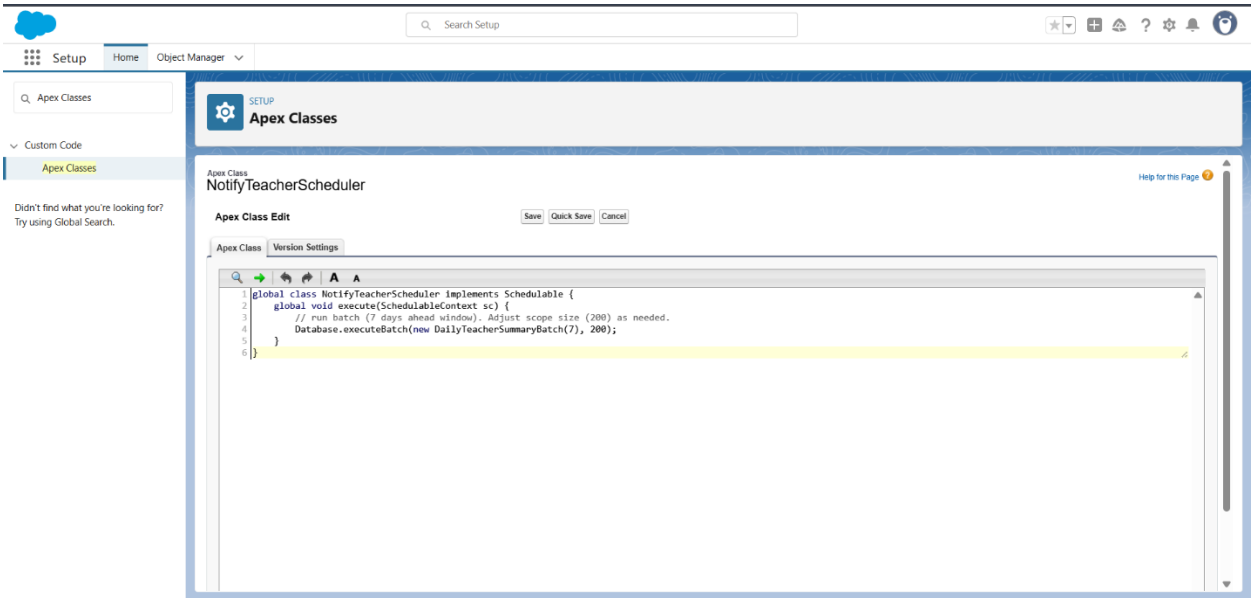
TeacherServiceHandle.preventDuplicateHireDates and gives code coverage for both the trigger **(TeacherTrigger)** and the service class (**TeacherServiceHandle**).

```apex
static void testPreventDuplicateHireDates() {
    // Insert a valid teacher (no duplicate hire date)
    Teacher__c t1 = new Teacher__c(
        Name = 'John Doe',
        Department__c = 'Science',
        Hire_Date__c = Date.today()
    );
    insert t1;

    // Attempt to insert a teacher with duplicate hire date in same department
    Teacher__c t2 = new Teacher__c(
        Name = 'Jane Smith',
        Department__c = 'Science',
        Hire_Date__c = Date.today()
    );

    Test.startTest();
    try {
        insert t2;
        System.assert(false, 'Expected duplicate hire date error.');
    } catch (DmlException e) {
        System.assert(e.getMessage().contains('already has this hire date'));
    }
    Test.stopTest();
}
}
```

7. Batch Apex and Scheduled Jobs

   A Batch Apex class TeacherSummaryBatch was created to:

   - Query recently hired teachers by department.
   - Generate and log summary reports (or prepare reminders for admin review).
   - Run daily at 6:00 AM using a Scheduled Apex job.



8. Exception Handling

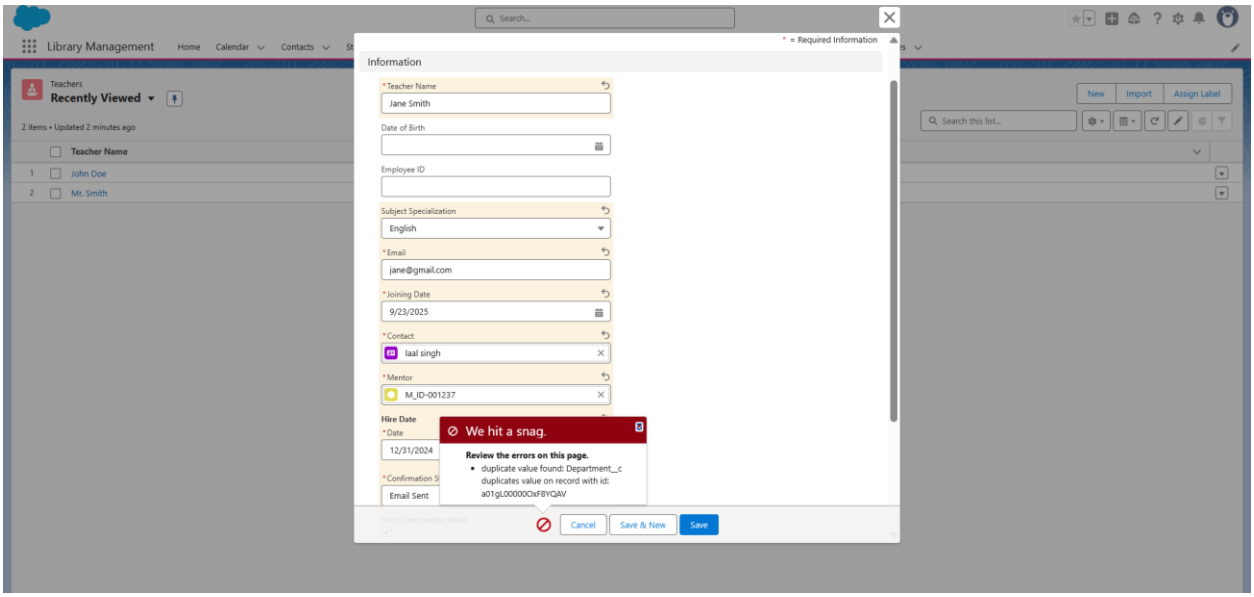
   Used addError() on SObjects to stop DML with a user-friendly message.

```
        Date futureDate2 = today.addDays(10);
        Date hire2 = Date.newInstance(futureDate2.year() - 1, futureDate2.month(), futureDate2.day());
        Teacher__c t2 = new Teacher__c(Name = 'Bob Teacher', Department__c = 'Math', Hire_Date__c = hire2);

        insert new List<Teacher__c>{ t1, t2 };

        Test.startTest();
            // Run batch directly
            Database.executeBatch(new DailyTeacherSummaryBatch(7), 200);

            // Schedule the schedulable class (this will run during Test.stopTest())
            String cronExp = '0 0 6 * * ?'; // every day at 06:00
            String jobId = System.schedule('Test Notify Teacher Job', cronExp, new NotifyTeacherScheduler());
        Test.stopTest();

        // Assert that at least one email invocation occurred (the batch should have queued at least one email)
        System.assert(Limits.getEmailInvocations() > 0, 'Expected email(s) to be sent by the batch');
    }
}
```

9.Skipped / Not Implemented

Queueable Apex, Future Methods, Asynchronous Processing beyond the daily batch job were not implemented at this phase.

10. Testing & Results



Phase 6: User Interface Development

Introduction

This phase focuses on building an intuitive Lightning experience for different library roles (Teacher, Student, Librarian/Admin).

Using Lightning App Builder, Record Pages, Tabs, Home Page Layouts, Utility Bar, plus a custom LWC and Apex integration, a seamless UI was delivered to every user type.

1. Lightning App Builder

• Customized Pages for Each Role: Different Lightning Record Pages were designed for Book/Resource – Teacher View and Book/Resource – Student View (and optionally Librarian/Admin View).

Role-Based Components: Each page displays only the components relevant to that specific role, e.g.

– Teacher: can upload resources, create assignments, view students' borrowing history.

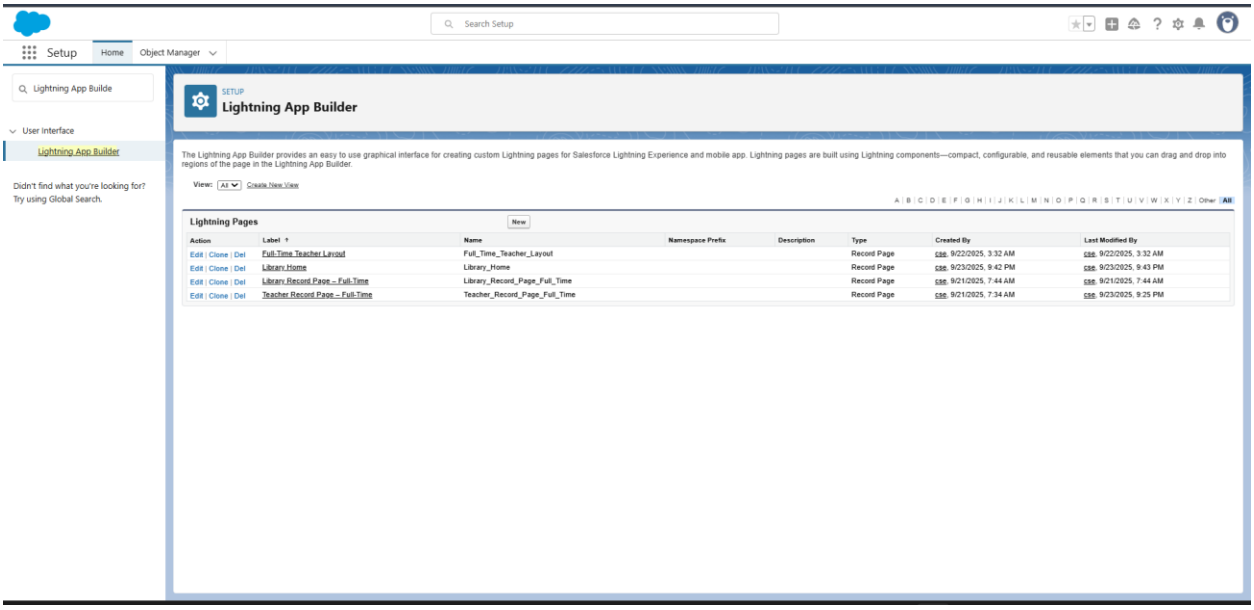
– Student: can search books, borrow/return, view personal borrowing history.

– Librarian/Admin: can add/edit/delete books, manage stock, approve requests.

• Tabs & Home Layouts: Tabs and Home Page Layouts were set up separately for Teacher, Student, and Librarian/Admin so each profile lands on the correct workspace.

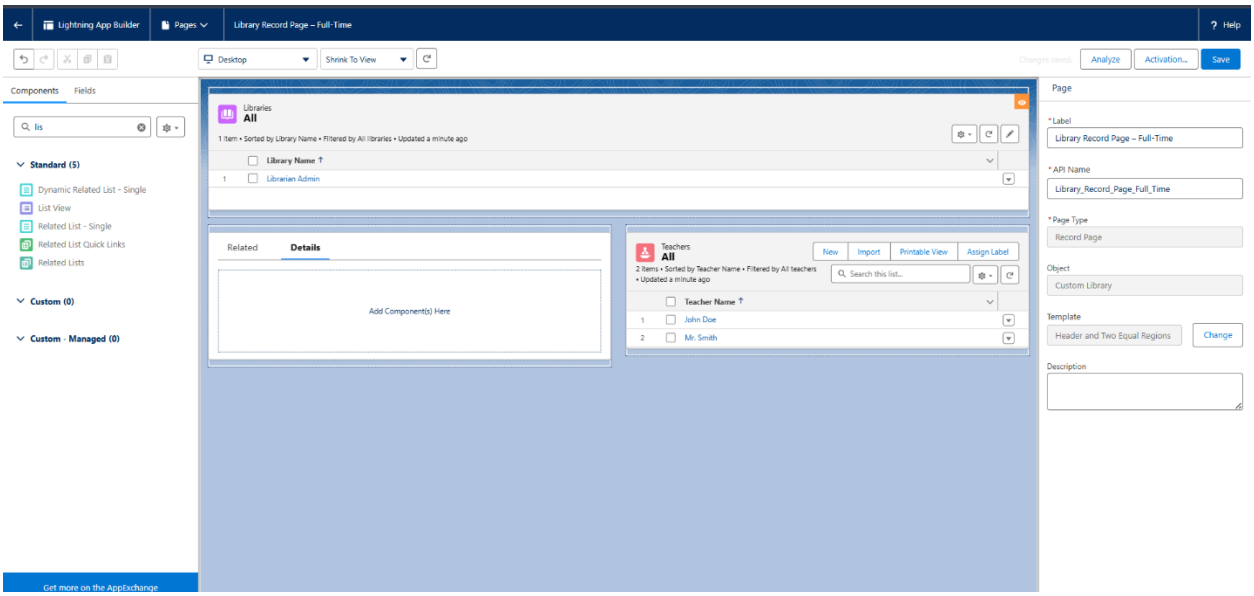
Utility Bar: Added quick-access actions and shortcuts in the Utility Bar for commonly used features by each role, e.g.

Librarian/Admin: "Add New Book," "View Overdue Items," "Send Notifications."

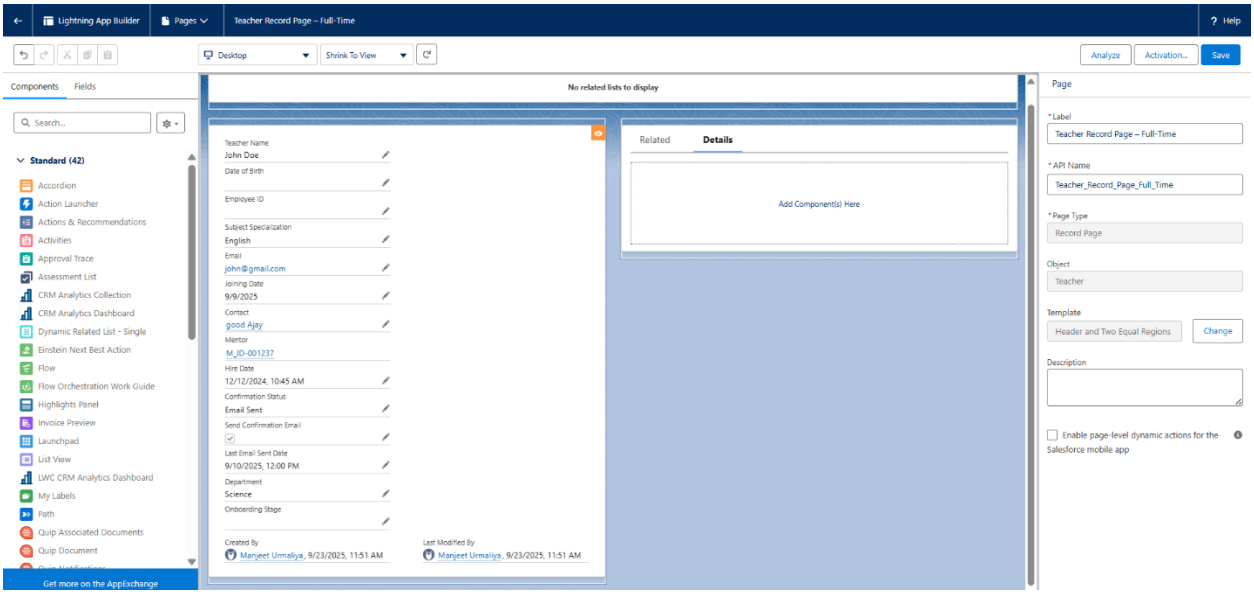


2. Record Pages (Teacher & Student Views)

- Teachers need quick access to class resources and student borrowing history. Students need an easy way to browse and request library materials. Two record pages were created with appropriate components:
-
- Library Resource – Teacher View: shows resource summary, related student borrow/return history, and an upcoming assignments/resources LWC.
-
- Library Resource – Student View: optimized for quick browsing, book request/renewal, and viewing personal borrowing history.
-
- Activated per profile/record type so each user sees the correct page automatically.

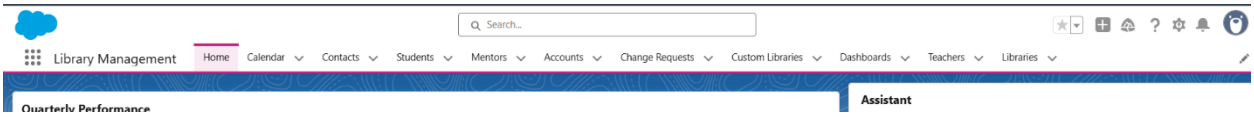


Library(Record Page)



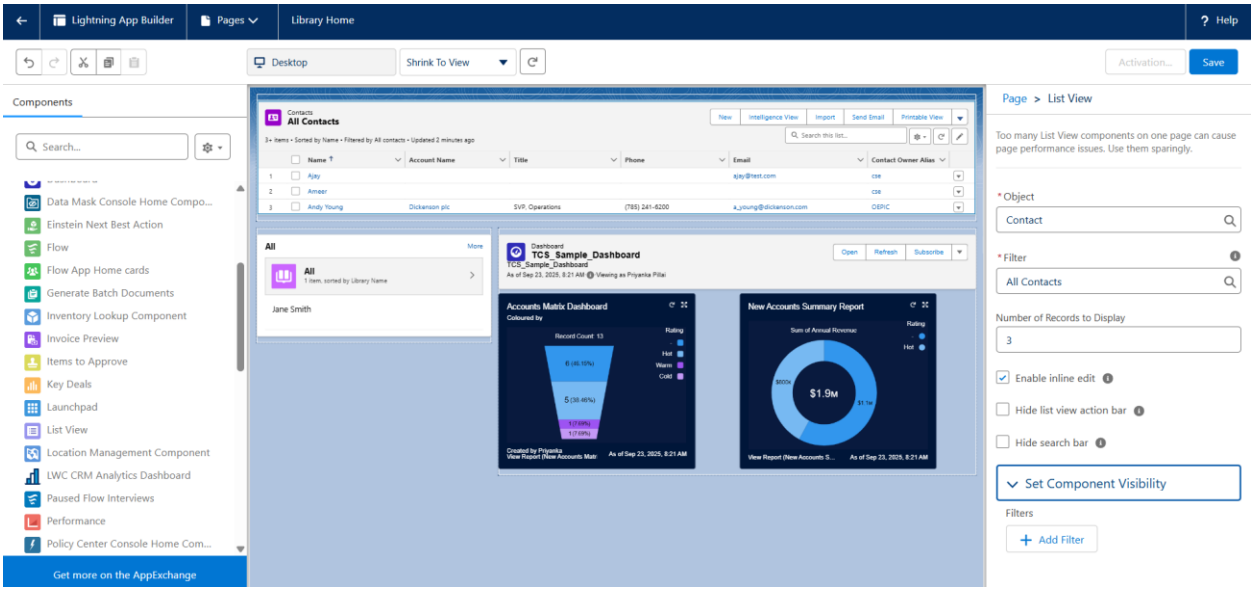
3. Tabs

   All major library objects (Books/Resources, Borrow Requests, Students/Teachers, Classes) were exposed as tabs in the Library Management Lightning App so Teachers, Students, and Librarians can navigate quickly to the areas they need.



4. Home Page Layouts

   A custom Library Management Home Page was built that displays dashboard components such as Upcoming Book Returns, Recent Borrow Requests, Popular Books, and Overdue Items Report Chart to give Teachers, Students, and Librarians a real-time view of library activity.



Phase 7 — Integration & External Access (Implemented Parts)

Step 1: Create an External Credential (one time)

Go to **Setup → Quick Find** → type **External Credentials** → click **External Credentials**.

Click **New External Credential**.

Fill the form:

- **Label:** GoogleMapsAPIAuth
- **Name:** GoogleMapsAPIAuth
- **Authentication Protocol: No Authentication**

Click **Save**.

You now have an External Credential called **GoogleMapsAPIAuth**.

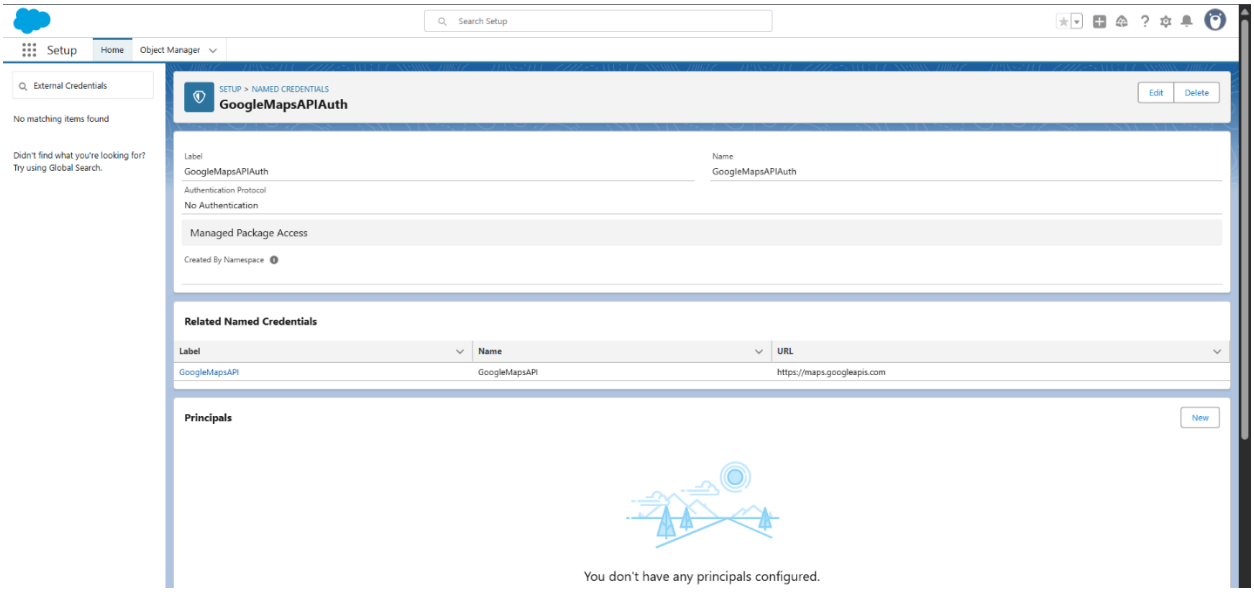
Step 2: Create the Named Credential (link to External Credential)

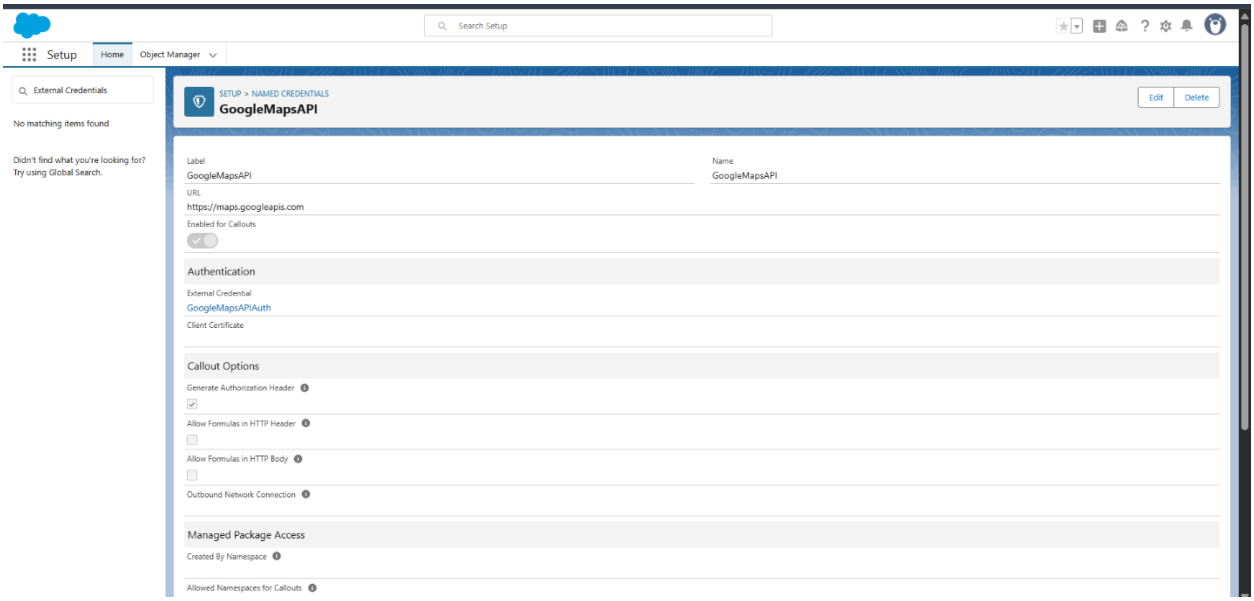
Go to **Setup → Quick Find → Named Credentials** → click **Named Credentials** → click **New**.

Fill details:

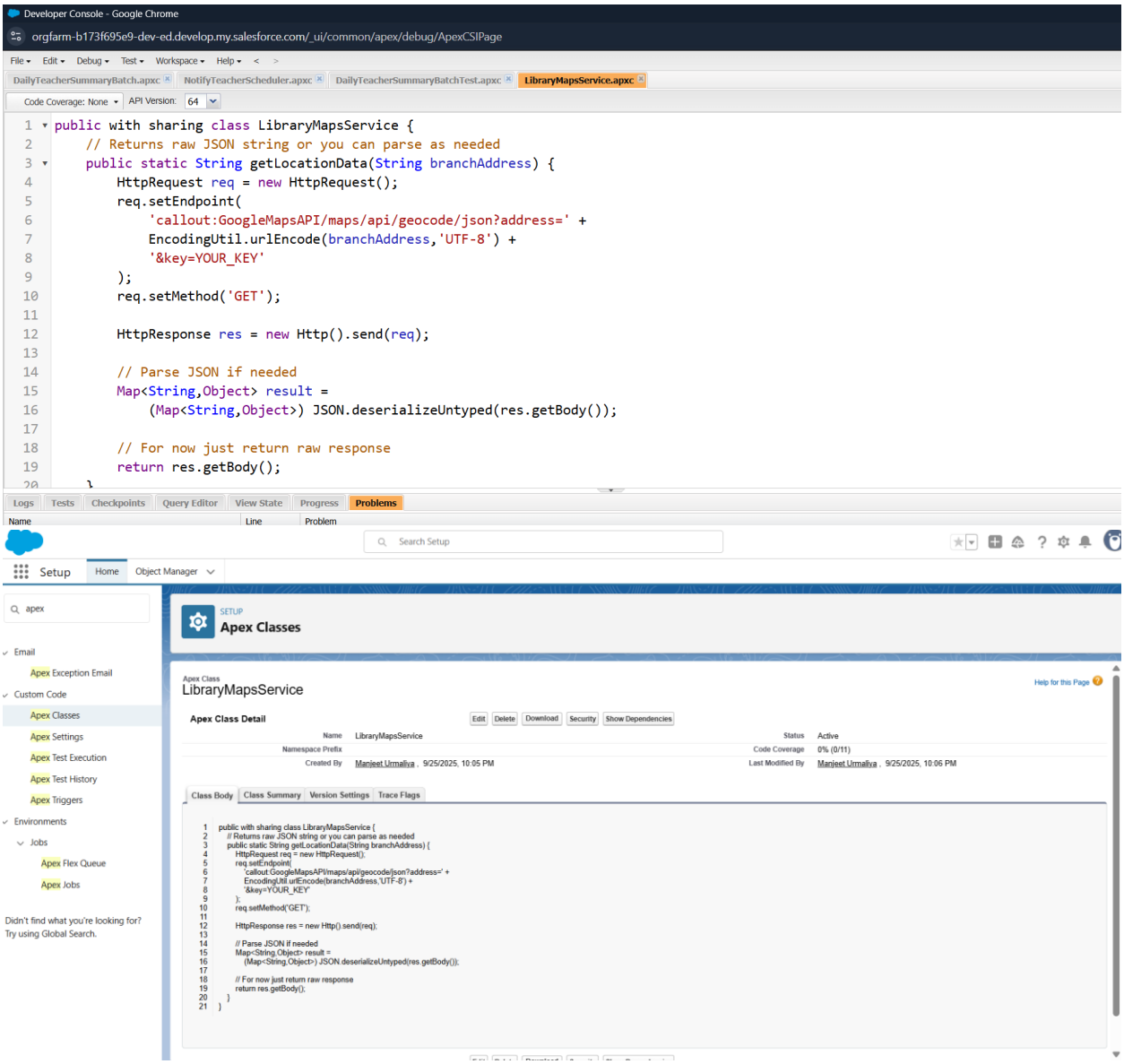
- **Label:** GoogleMapsAPI
- **Name:** GoogleMapsAPI
- **External Credential:** pick **GoogleMapsAPIAuth**
- **URL:** https://maps.googleapis.com
- **Generate Authorization Header:** leave checked
- **Authentication:** nothing extra (because using API key)

Click **Save**.





```
public with sharing class LibraryMapsService {
    // Returns raw JSON string or you can parse as needed
    public static String getLocationData(String branchAddress) {
        HttpRequest req = new HttpRequest();
        req.setEndpoint(
            'callout:GoogleMapsAPI/maps/api/geocode/json?address=' +
            EncodingUtil.urlEncode(branchAddress,'UTF-8') +
            '&key=YOUR_KEY'
        );
        req.setMethod('GET');

        HttpResponse res = new Http().send(req);

        // Parse JSON if needed
        Map<String,Object> result =
            (Map<String,Object>) JSON.deserializeUntyped(res.getBody());

        // For now just return raw response
        return res.getBody();
    }
}
```



An LWC is always 3 separate files inside force-app/main/default/lwc/libraryMap/:

- libraryMap.html
- libraryMap.js
- libraryMap.js-meta.xml

Here's the **correct code** for your libraryMap LWC — all in one answer:

libraryMap.html

<template>

```
    <lightning-card title="Nearest Library Branch">
        <div class="slds-p-around_medium">
            <iframe
                src={mapUrl}
                width="100%"
                height="300"
                style="border:0;"
                allowfullscreen
                loading="lazy">
            </iframe>
        </div>
    </lightning-card>
</template>
```

libraryMap.js

```
import { LightningElement, api } from 'lwc';

export default class LibraryMap extends LightningElement {
    @api branchAddress;
    mapUrl;

    connectedCallback() {
        // Directly build Google Maps iframe URL
        this.mapUrl =
          'https://www.google.com/maps/embed/v1/place?key=YOUR_KEY&q=' +
this.branchAddress;
```

```
    }
}
```

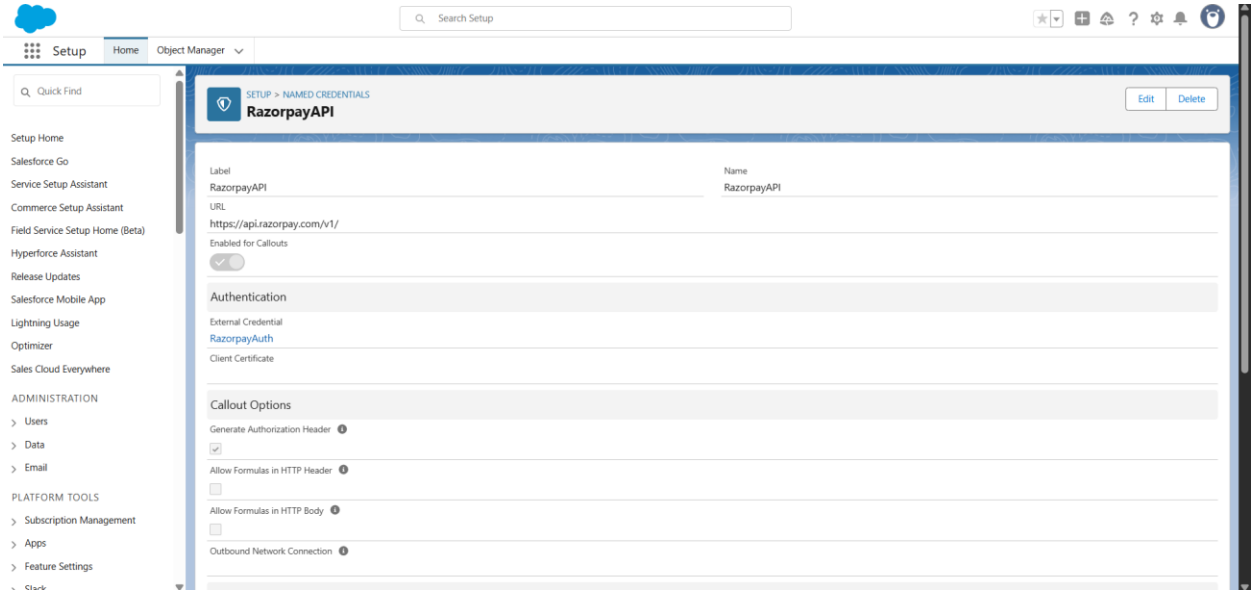
libraryMap.js-meta.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<LightningComponentBundle xmlns="http://soap.sforce.com/2006/04/metadata">
    <apiVersion>59.0</apiVersion>
    <isExposed>true</isExposed>
    <targets>
        <target>lightning__RecordPage</target>
        <target>lightning__AppPage</target>
        <target>lightning__HomePage</target>
    </targets>
    <targetConfigs>
        <targetConfig targets="lightning__RecordPage,lightning__AppPage,lightning__HomePage">
            <property name="branchAddress" type="String" label="Branch Address"
description="Address to show on map"/>
        </targetConfig>
    </targetConfigs>
</LightningComponentBundle>
```

Step 3:

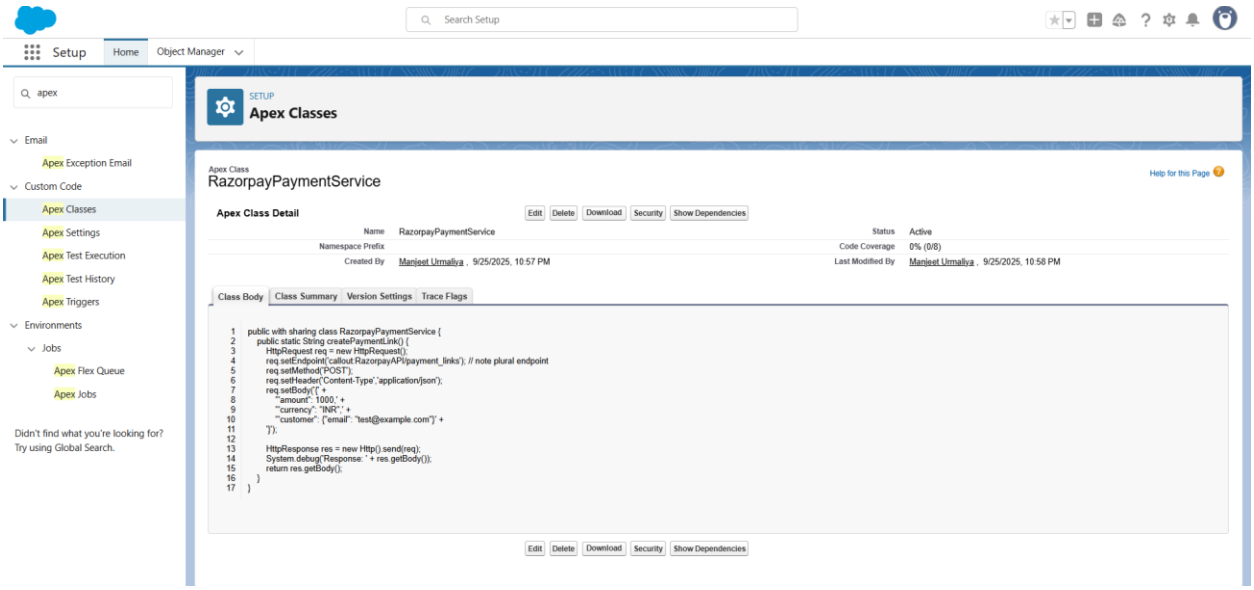
Create a Named Credential

1. In Setup, search **Named Credentials → New**.
2. Fill:
    - **Label**: RazorpayAPI
    - **Name**: RazorpayAPI
    - **External Credential**: **RazorpayAuth** (the one you just made)
    - **URL**: https://api.razorpay.com/v1/
    - Leave “Generate Authorization Header” checked.
3. Save.




```
public with sharing class RazorpayPaymentService {
    public static String createPaymentLink() {
        HttpRequest req = new HttpRequest();
        req.setEndpoint('callout:RazorpayAPI/payment_links'); // note plural endpoint
        req.setMethod('POST');
        req.setHeader('Content-Type','application/json');
        req.setBody('{' +
            '"amount": 1000,' +
            '"currency": "INR",' +
```

```
        '"customer": {"email": "test@example.com"}' +
    '}');

    HttpResponse res = new Http().send(req);
    System.debug('Response: ' + res.getBody());
    return res.getBody();
  }
}
```

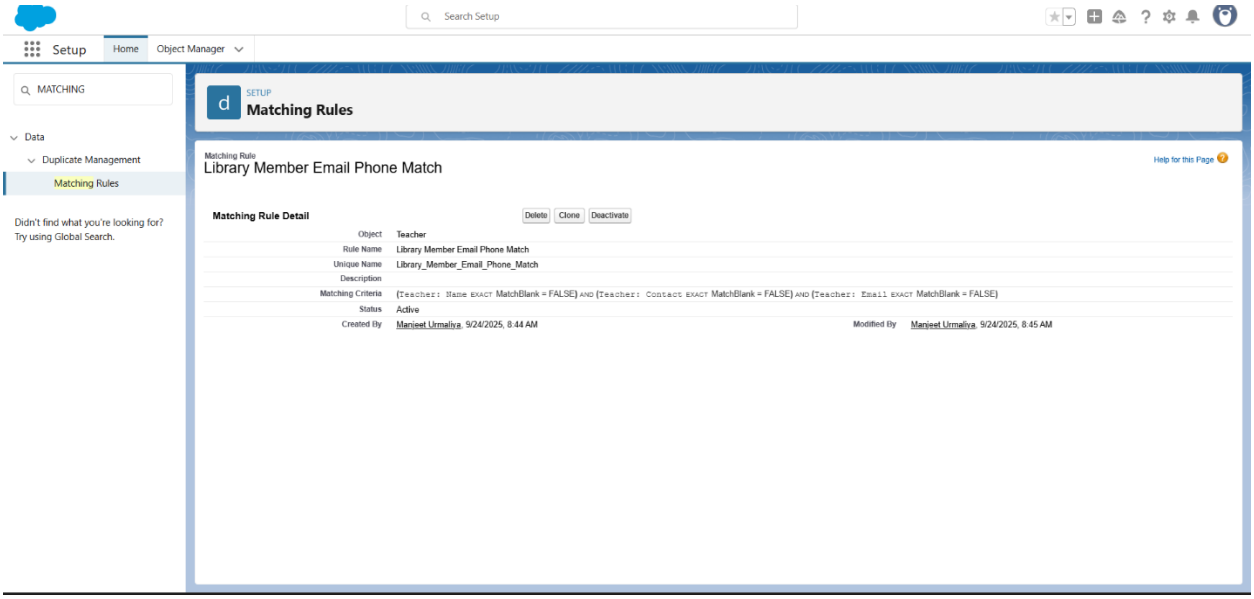


Phase 8: Data Management & Deployment

1. Create the Matching Rule

- Setup → Quick Find → Matching Rules → New Rule
- Object: Teacher
- Rule Name: Library Member Email Phone Match
- Add Matching Criteria:
    - Field = Email → Matching Method = Exact
    - Click Add Row → Field = Phone → Matching Method = Exact

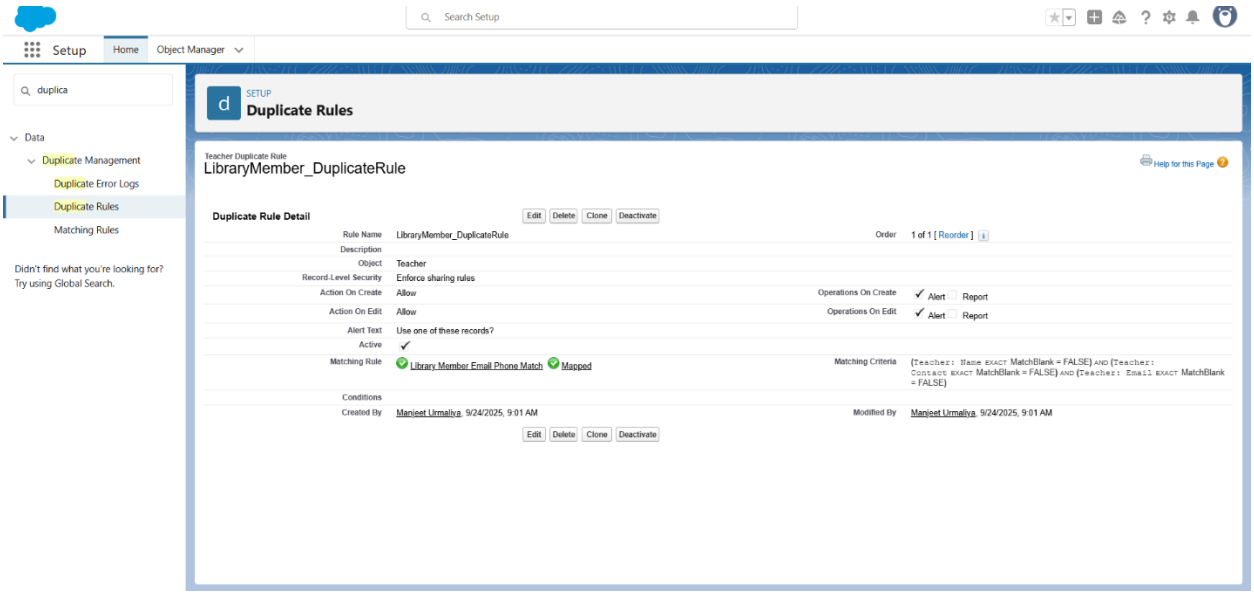
- Click Save
- Click Activate



2.Create the Duplicate Rule

- Setup → Quick Find → Duplicate Rules → New Rule
- Object: Teacher
- Rule Label: LibraryMember_DuplicateRule
- Under Matching Rules: click Add and select the LibraryMember_Email_Phone_Match matching rule you activated in the previous step.
- Action on Create: choose Alert (recommended while testing so users are warned but not blocked).

- Action on Edit: choose Alert.



Step 2: Data Backup – Library Management

Goal: Regularly back up all key Library Management data (Teachers, Students, Books, Borrow Requests, etc.) for safety and compliance.

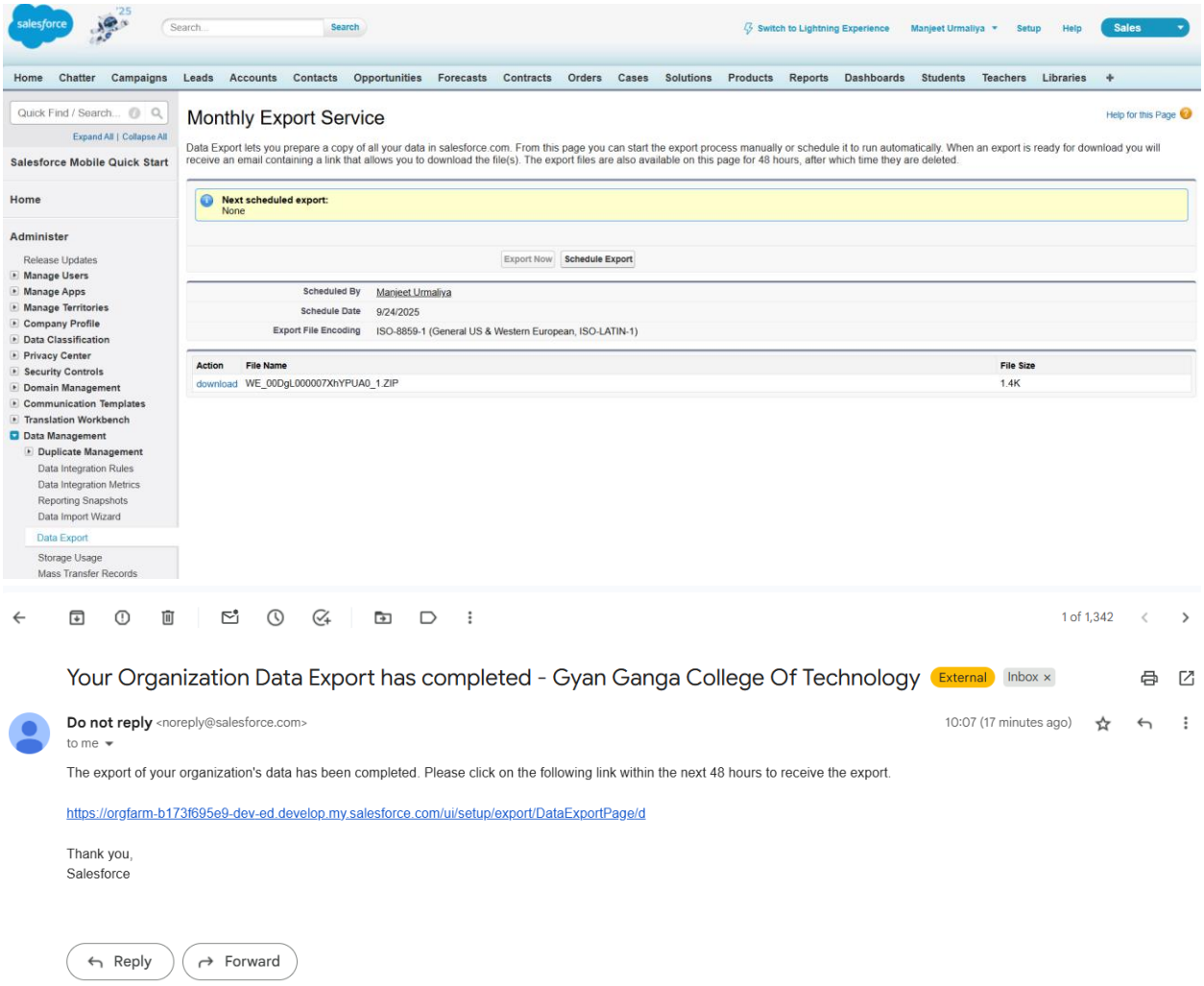
_____

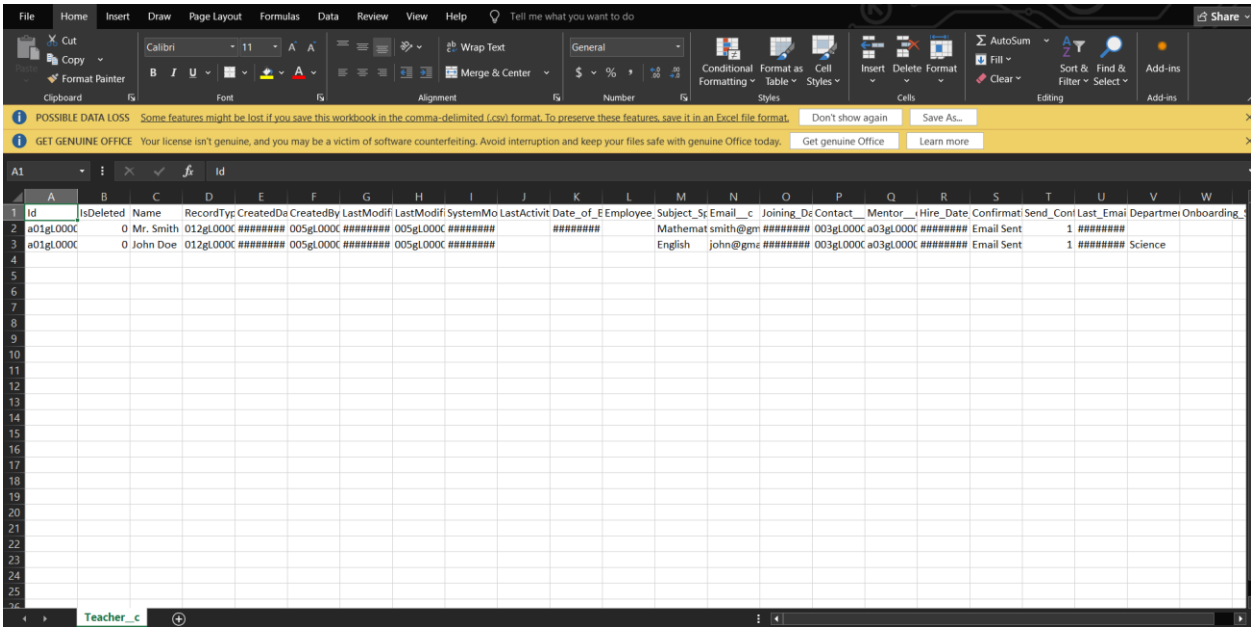
Steps

- Go to Setup.
- In Quick Find, type Data Export → click Data Export.
- Choose one:
    - Export Now → run a one-time backup.
    - Schedule Export → set weekly or monthly backups.
- Select the objects you want:
    - Library Members (Teachers/Students)
    - Books/Resources
    - Borrow Requests / Returns
    - Classes / Courses
    - Librarians (Users)

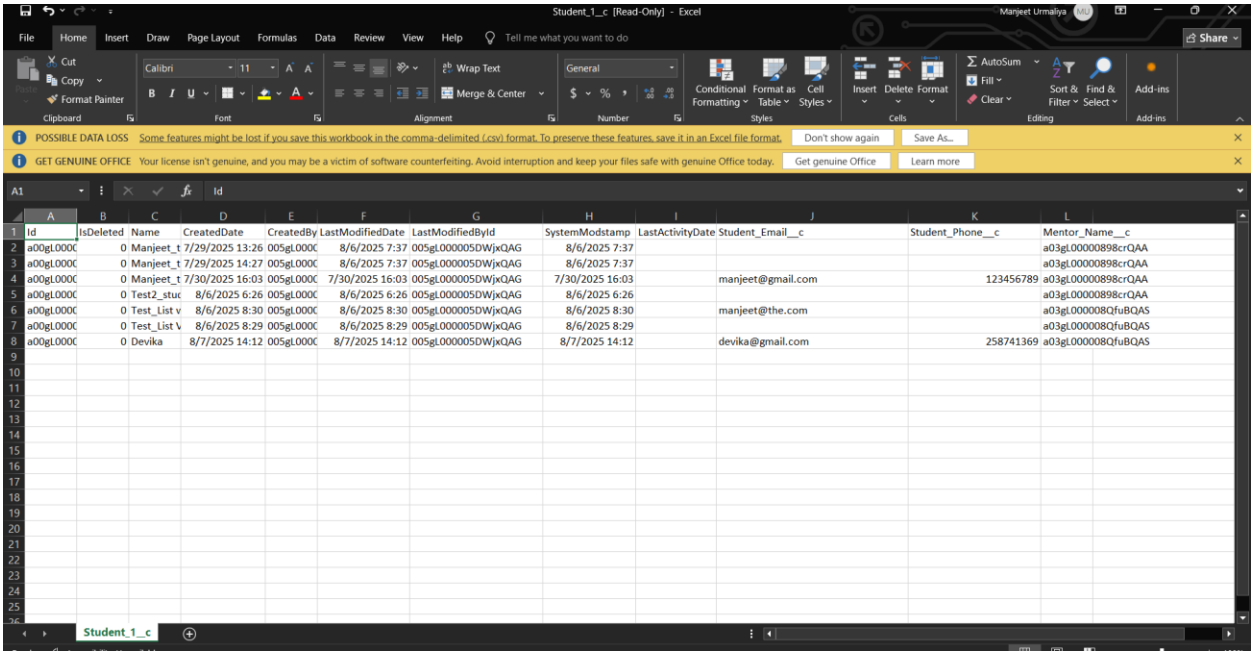
  Any other standard objects you use (e.g., Users, Attachments).
- Click Start Export (for immediate) or Save (for scheduled).
- Wait — Salesforce will email you when the backup is ready.

- Download the .zip file from the export page → extract CSV files.
- Store the backup securely (encrypted drive, secure server, or trusted cloud storage).

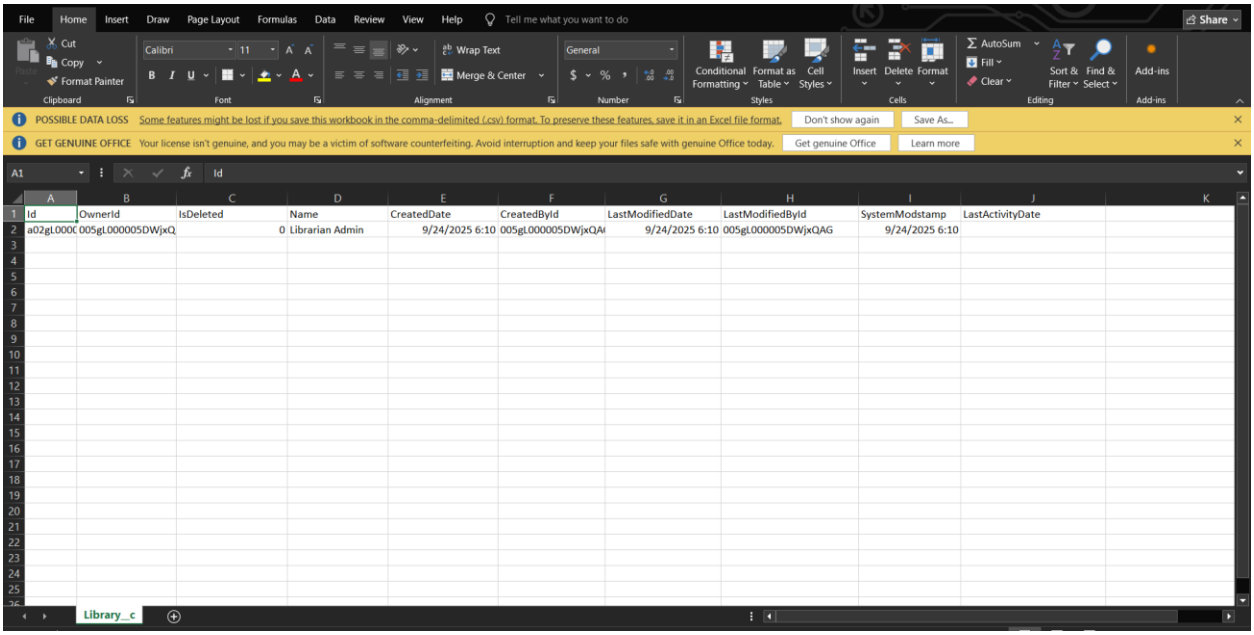




Id	IsDeleted	Name	RecordTyp	CreatedDa	CreatedBy	LastModifi	LastModifi	SystemMo	LastActivit	Date_of_E	Employee_	Subject_Sc	Email__c	Joining_Da	Contact__	Mentor__(	Hire_Date	Confirmati	Send_Conf	Last_Emai	Departmei	Onboarding_
a01gL0000(	0	Mr. Smith	012gL000(	########	005gL000(	########	005gL000(	########		########		Mathemat	smith@gm	########	003gL000(	a03gL000(	########	Email Sent	1	########		
a01gL0000(	0	John Doe	012gL000(	########	005gL000(	########	005gL000(	########				English	john@gma	########	003gL000(	a03gL000(	########	Email Sent	1	########	Science	



Id	IsDeleted	Name	CreatedDate	CreatedBy	LastModifiedDate	LastModifiedById	SystemModstamp	LastActivityDate	Student_Email__c	Student_Phone__c	Mentor_Name__c
a00gL0000(	0	Manjeet_t	7/29/2025 13:26	005gL000(	8/6/2025 7:37	005gL000005DWjxQAG	8/6/2025 7:37				a03gL00000898crQAA
a00gL0000(	0	Manjeet_t	7/29/2025 14:27	005gL000(	8/6/2025 7:37	005gL000005DWjxQAG	8/6/2025 7:37				a03gL00000898crQAA
a00gL0000(	0	Manjeet_t	7/30/2025 16:03	005gL000(	7/30/2025 16:03	005gL000005DWjxQAG	7/30/2025 16:03		manjeet@gmail.com	123456789	a03gL00000898crQAA
a00gL0000(	0	Test2_stuc	8/6/2025 6:26	005gL000(	8/6/2025 6:26	005gL000005DWjxQAG	8/6/2025 6:26				a03gL00000898crQAA
a00gL0000(	0	Test_List v	8/6/2025 8:30	005gL000(	8/6/2025 8:30	005gL000005DWjxQAG	8/6/2025 8:30		manjeet@the.com		a03gL000008QfuBQAS
a00gL0000(	0	Test_List V	8/6/2025 8:29	005gL000(	8/6/2025 8:29	005gL000005DWjxQAG	8/6/2025 8:29				a03gL000008QfuBQAS
a00gL0000(	0	Devika	8/7/2025 14:12	005gL000(	8/7/2025 14:12	005gL000005DWjxQAG	8/7/2025 14:12		devika@gmail.com	258741369	a03gL000008QfuBQAS



Phase 9: Reporting, Dashboards & Security Review

Step 1: Reporting

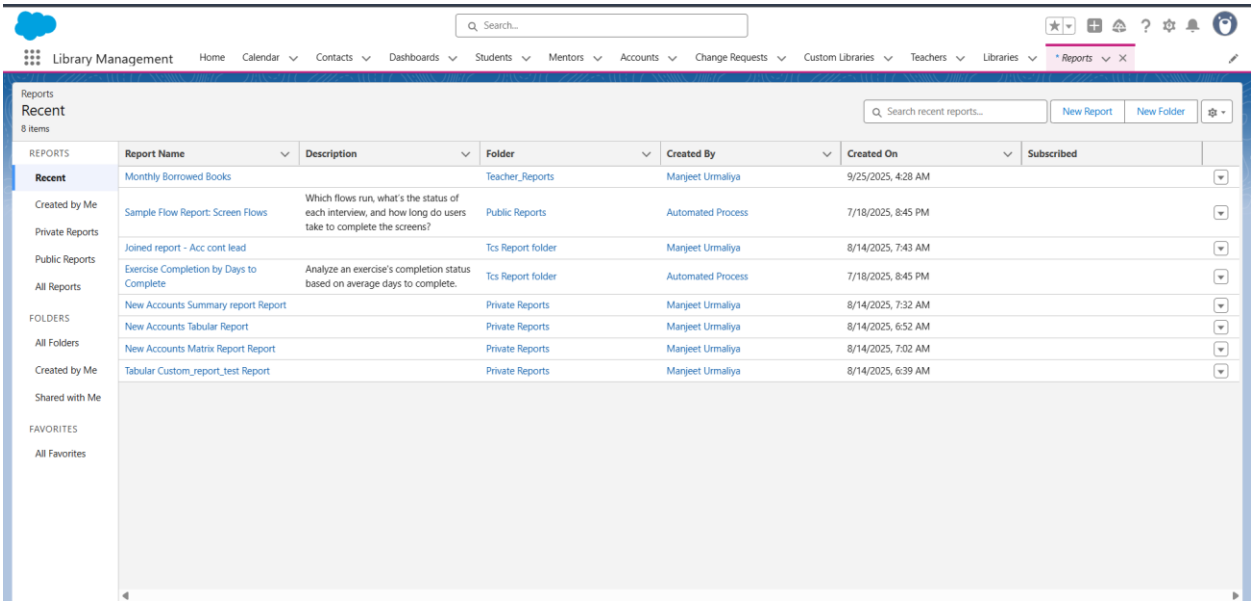
A Report is a list or summary of records in Salesforce that helps you analyze library data.

- Reports let you filter, sort, group, and summarize your Library Management data.
- Example: You can create a report to see all books borrowed this month or the top books borrowed by Teachers vs. Students.

Steps

- Go to the App Launcher → search “Reports” → click Reports.
- Click “New Report” - Monthly Borrowed Books.
- Click “New Report”.
- Select the Report Type - Teacher
- Click Continue.

- Add Filters
- Add Columns
- Group Data (optional)
    - Example: Group Borrow Requests by Book or by Member (Teacher/Student).
- Summarize (optional)
    - Add totals, averages, or counts (like total borrowed books per Teacher).
- Click Save & Run → Give the report a name→ Choose a folder to save it in.



Step 2: Dashboards

What it is:

A Dashboard is a visual board that displays charts, numbers, and tables built from your Reports. It helps Teachers, Librarians and Management instantly see performance trends (for example: most borrowed books, top students, pending returns).

Dashboard Components You Can Add

Charts – Bar, Pie, Line charts to show trends.

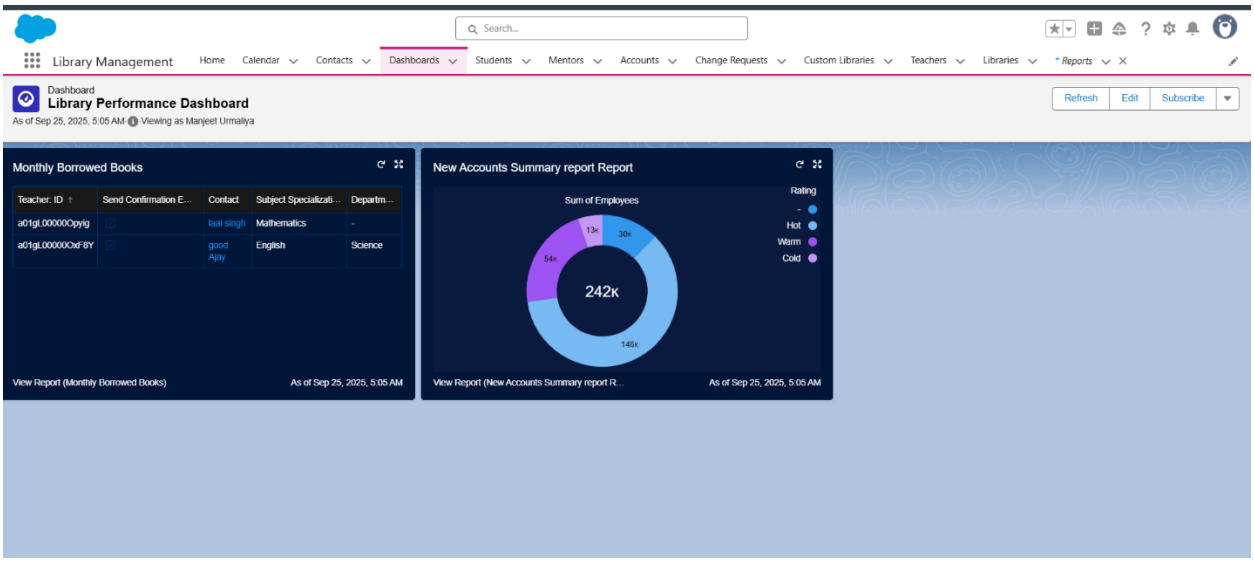
Gauges – Show progress toward a target (e.g. % of books returned on time).

Metrics – One key number (e.g. total borrowings this month).

Tables – Raw report data in a grid.

Steps (Click by Click)

- Go to the App Launcher → type “Dashboards” → click Dashboards.
- Click “New Dashboard”.
- Enter Dashboard Name – e.g. Library Performance Dashboard or Teacher Engagement Dashboard.
- Choose a Folder (select the folder you created earlier for Reports/Dashboards).
- Click “Create”.
- Click “+ Component” (to add your first chart, metric or table).
- Select a Report you already built (for example: “Books Borrowed This Month” or “Top Students”).
- Choose Visualization Type:
- Bar Chart
- Pie Chart
- Gauge
- Metric
- Table
- Configure Data Display:
- Choose which fields, groupings, and filters you want for this chart or metric.
- Click “Add”.
- Repeat “+ Component” for more charts/metrics if needed.
- Click “Save” → then “Done”.
- Click “Refresh” anytime to pull in the latest data.
- Result:
- Your dashboard now shows live numbers and visuals from your Salesforce reports for Teachers, Students and Librarians.



Step 3: Field-Level Security (Library Management)

What it is:

Field-Level Security controls who can see or edit individual fields on a record.

It protects sensitive data like Teacher Contact, Student DOB, Library Fines, Book Costs, etc., so only the right roles can view or update them.

Steps (Click by Click)

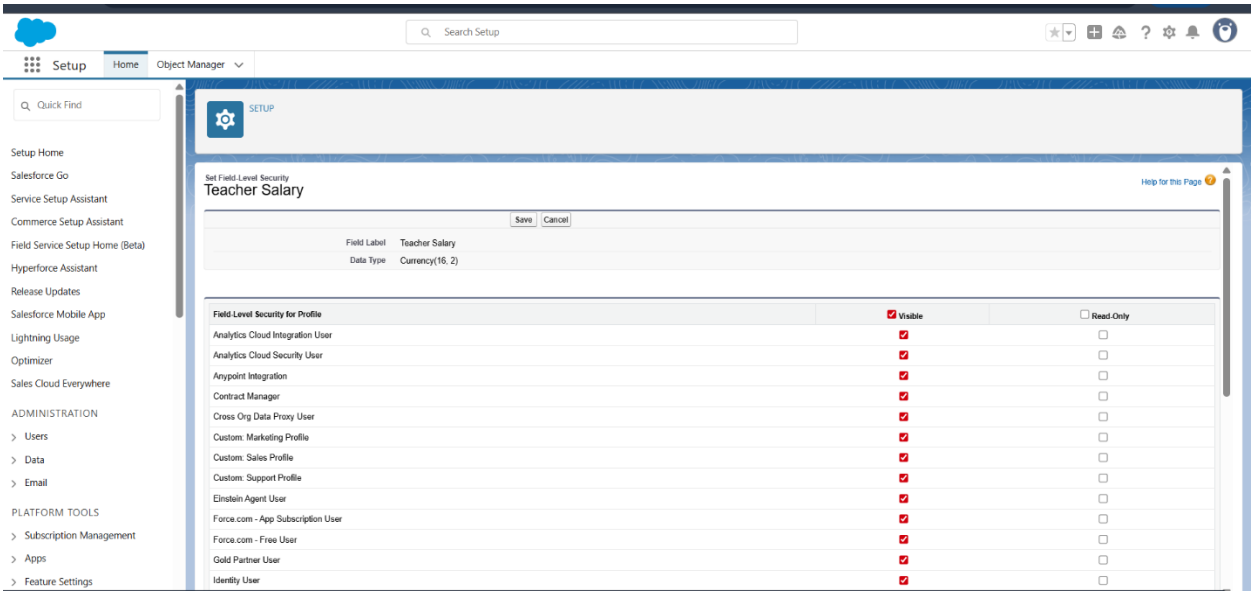
- Go to Setup → Object Manager.
- Select your Object (example: Student or Teacher or Book).
- Click “Fields & Relationships”.
- Click the field you want to protect (example: Student DOB).
- Click “Set Field-Level Security”.
- For each Profile:
- Visible → can see the field.
- Read-Only → can see but cannot edit.
- Hidden → cannot see at all.

- (Example: For Student DOB → Visible to Teacher & Librarian profiles, Hidden for Student profile.)
- Click “Save”.
- Repeat steps 4–7 for other sensitive fields like Teacher Salary, Book Purchase Price, Library Fine Amount, etc.

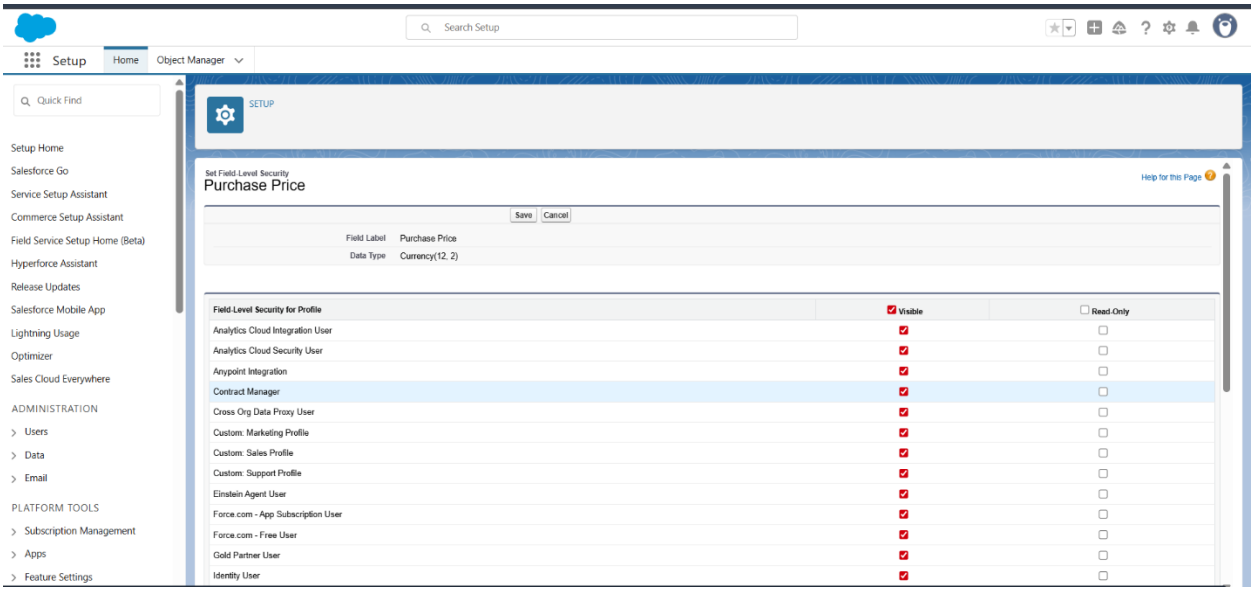
Result:

Only authorized roles (Teacher, Librarian, Admin) can view or edit those sensitive fields. Students or other profiles see nothing or read-only according to your settings.

- Setup → Object Manager → Teacher → Fields & Relationships → New.
- Choose Field Type = Currency → Next.
- Field details:
- Field Label: Teacher Salary
- Field Name: Teacher_Salary__c
- Length / Decimal Places: choose e.g. 16,2 (or your org standard)
- Help Text: Annual salary in local currency. Visible to Admin only.
- Description: Stores salary for payroll/audit
- Set Field-Level Security (during creation)
- On the Set Field-Level Security screen (shown while creating), pick visibility per profile:
- visible for all
- Save.



- Setup → Object Manager → Student → Fields & Relationships → New.
- Field Type = Currency → Next.
- Field Label: Purchase Price
- Field Name: Purchase_Price__c
- Length/Decimals: e.g., 12,2
- Help Text: Cost price of the book — visible to Librarians & Admins. Read-only for Teachers.
- Set Field-Level Security (during creation)
- Choose visibility: all
- Save



- Setup → Object Manager → Mentor → Fields & Relationships → New.
- Field Type = Currency → Next.
- Field Label: Fine Amount
- Field Name: Fine_Amount__c
- Help Text: Fine charged for overdue returns — visible to Librarians only.
- Set Field-Level Security
- Visibility choices: for all →Save.