

Library Management:- 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

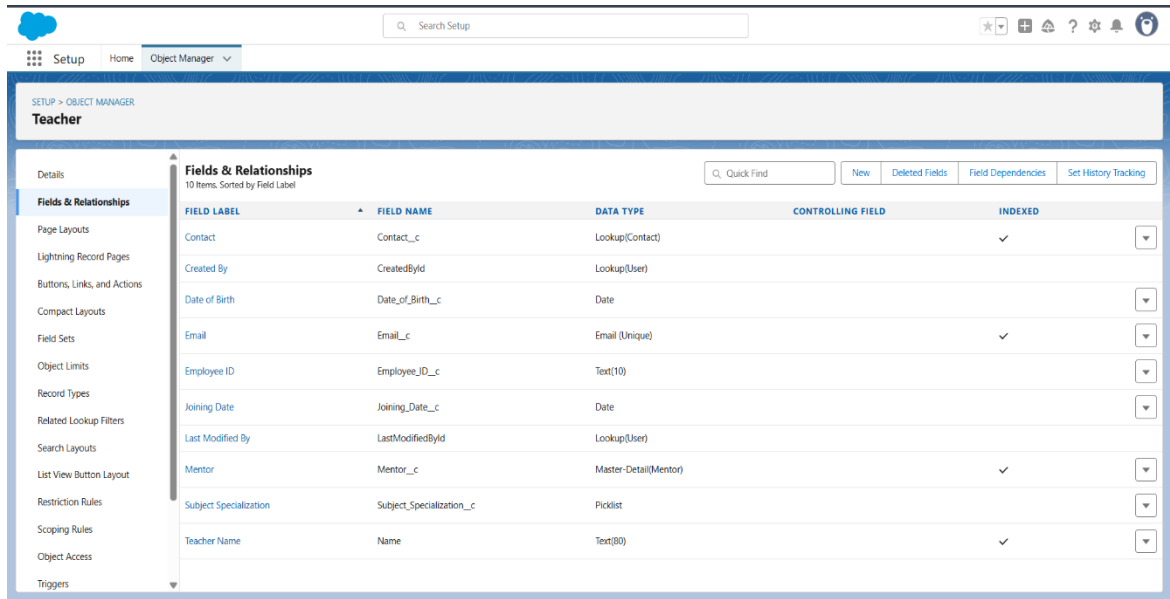
- **Contact (Student):** Used to store student information such as **Date of Birth, Roll Number/Student ID, Contact Details**.
- **Teacher (Custom):** Captures teacher information and tracks their classes/sessions. Includes fields for **Subjects Taught, Qualifications, Availability/Timings**, and **lookup 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.

The screenshot shows the Salesforce Setup interface for the 'Student' object. The 'Fields & Relationships' section is active, displaying a table of fields. The table has the following columns: FIELD LABEL, FIELD NAME, DATA TYPE, CONTROLLING FIELD, and INDEXED. The fields listed are:

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Created By	CreatedById	Lookup(User)		
Last Modified By	LastModifiedById	Lookup(User)		
Mentor Name	Mentor_Name__c	Master-Detail(Mentor)		✓
Student Email	Student_Email__c	Email		
Student Phone	Student_Phone__c	Phone		
Students Name	Name	Text(80)		✓



SETUP > OBJECT MANAGER
Teacher

Details

Fields & Relationships
10 Items. Sorted by Field Label

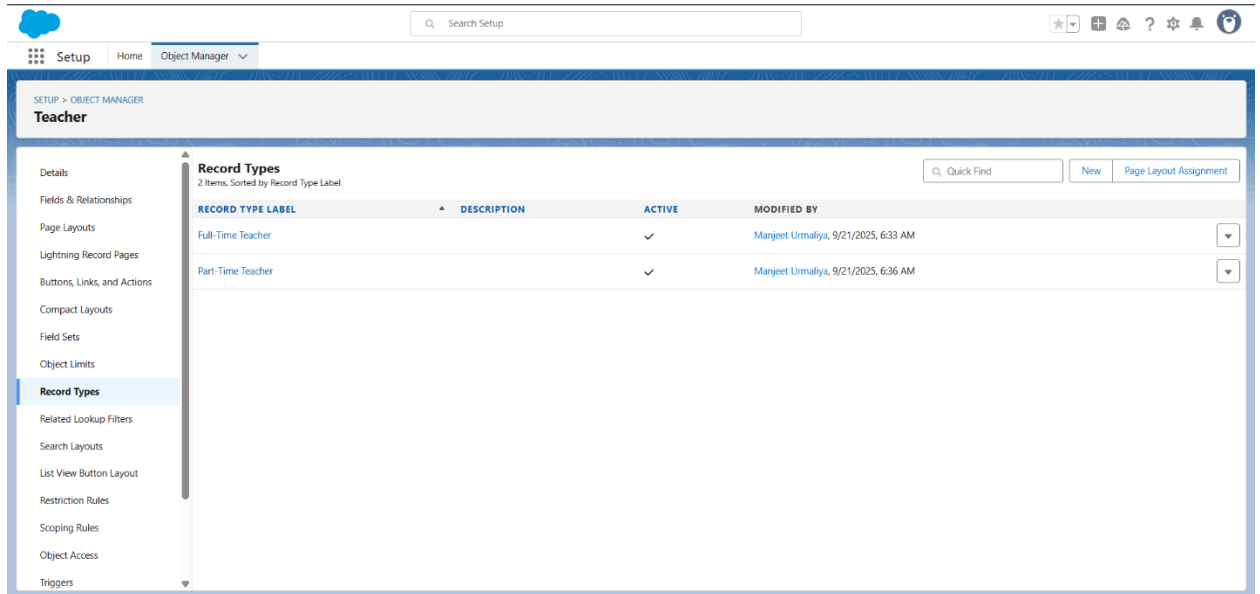
Q, Quick Find New Deleted Fields Field Dependencies Set History Tracking

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED	
Contact	Contact__c	Lookup(Contact)		✓	▼
Created By	CreatedById	Lookup(User)			
Date of Birth	Date_of_Birth__c	Date			▼
Email	Email__c	Email (Unique)		✓	▼
Employee ID	Employee_ID__c	Text(10)			▼
Joining Date	Joining_Date__c	Date			▼
Last Modified By	LastModifiedById	Lookup(User)			
Mentor	Mentor__c	Master-Detail(Mentor)		✓	▼
Subject Specialization	Subject_Specialization__c	Picklist			▼
Teacher Name	Name	Text(80)		✓	▼

Page Layouts
Lightning Record Pages
Buttons, Links, and Actions
Compact Layouts
Field Sets
Object Limits
Record Types
Related Lookup Filters
Search Layouts
List View Button Layout
Restriction Rules
Scoping Rules
Object Access
Triggers

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.



SETUP > OBJECT MANAGER
Teacher

Details

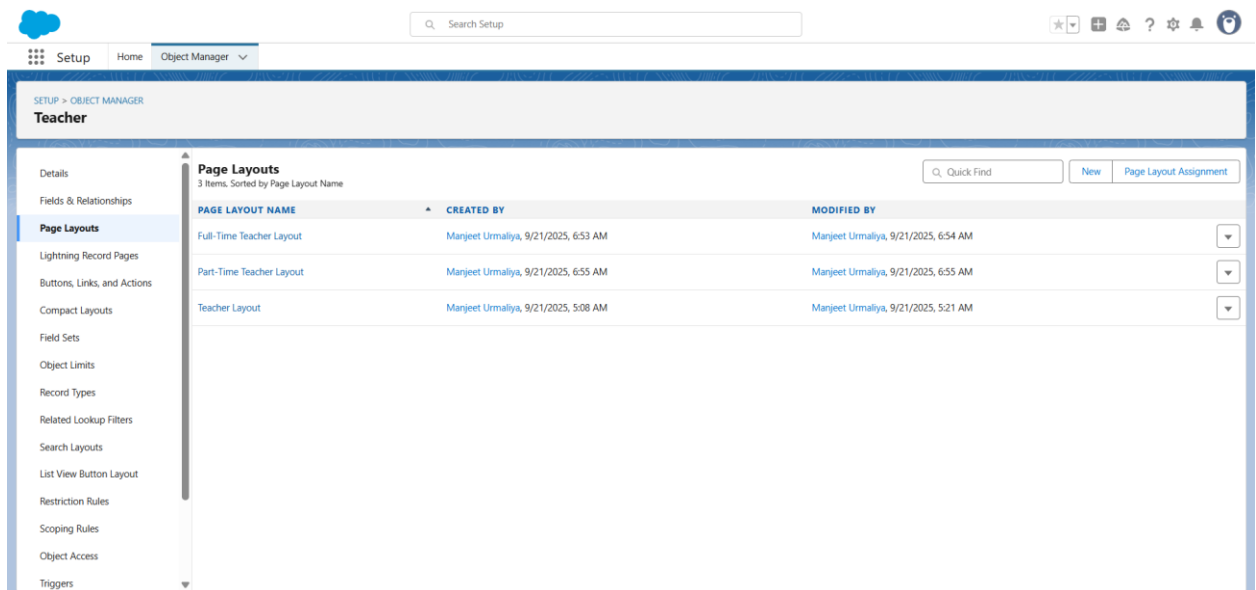
Record Types
2 Items. Sorted by Record Type Label

Q, Quick Find New Page Layout Assignment

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY	
Full-Time Teacher		✓	Manjeet Urmaliya, 9/21/2025, 6:33 AM	▼
Part-Time Teacher		✓	Manjeet Urmaliya, 9/21/2025, 6:36 AM	▼

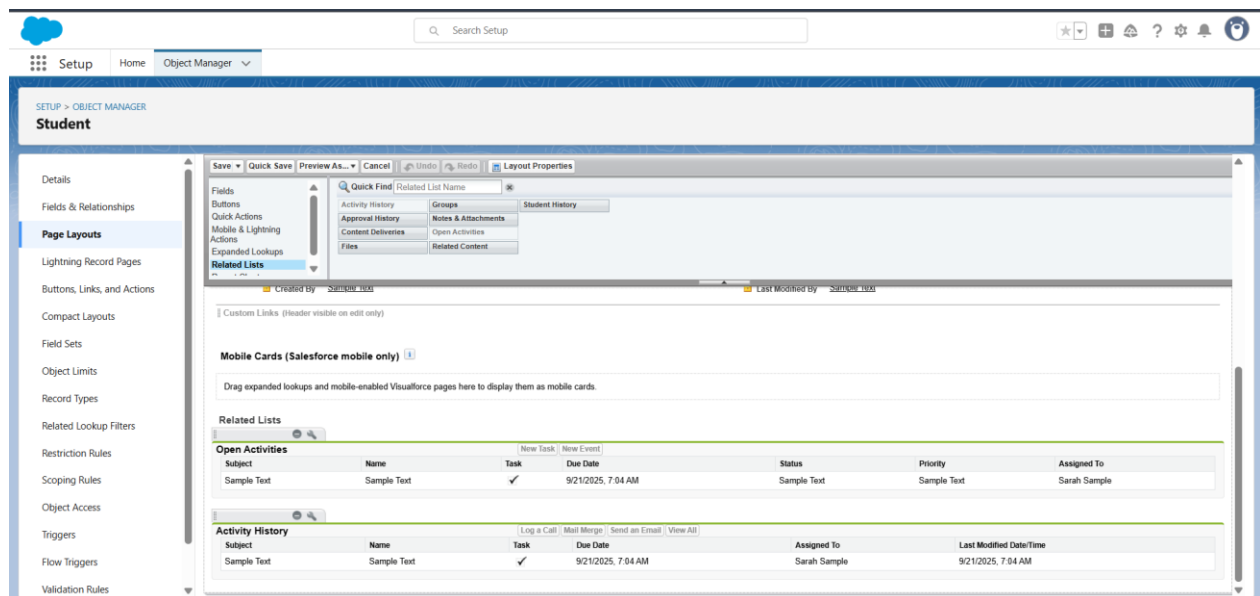
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Teacher Record Types

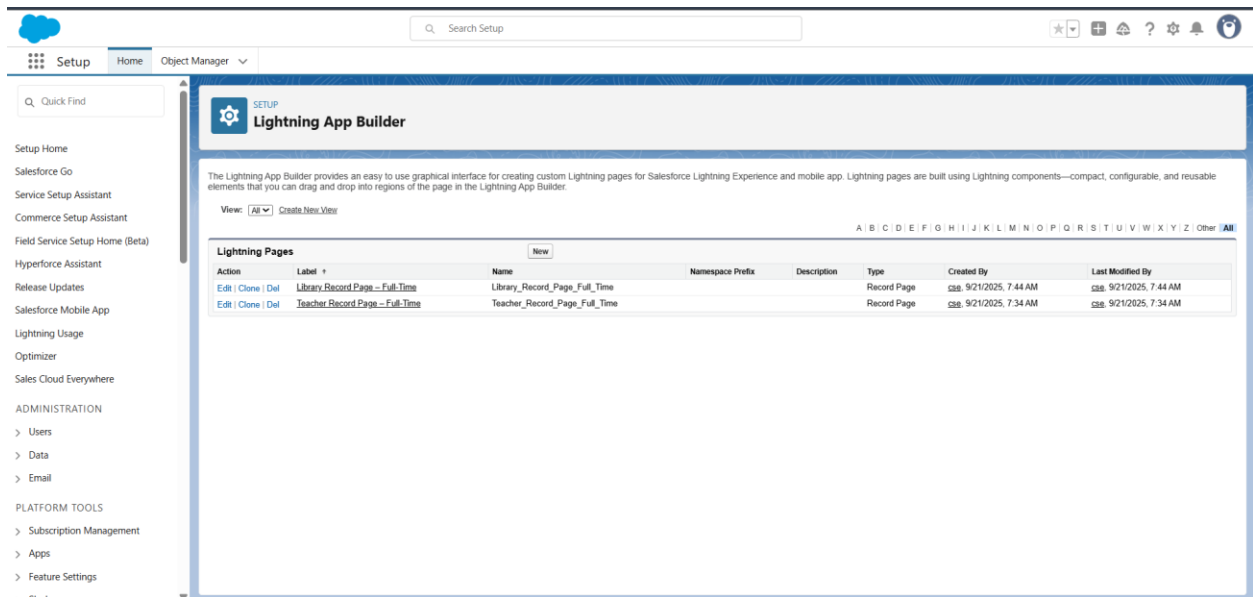


Teacher Page Layouts

4. Page Layouts & Related Lists



5.Lightning Record Pages & Compact Layouts



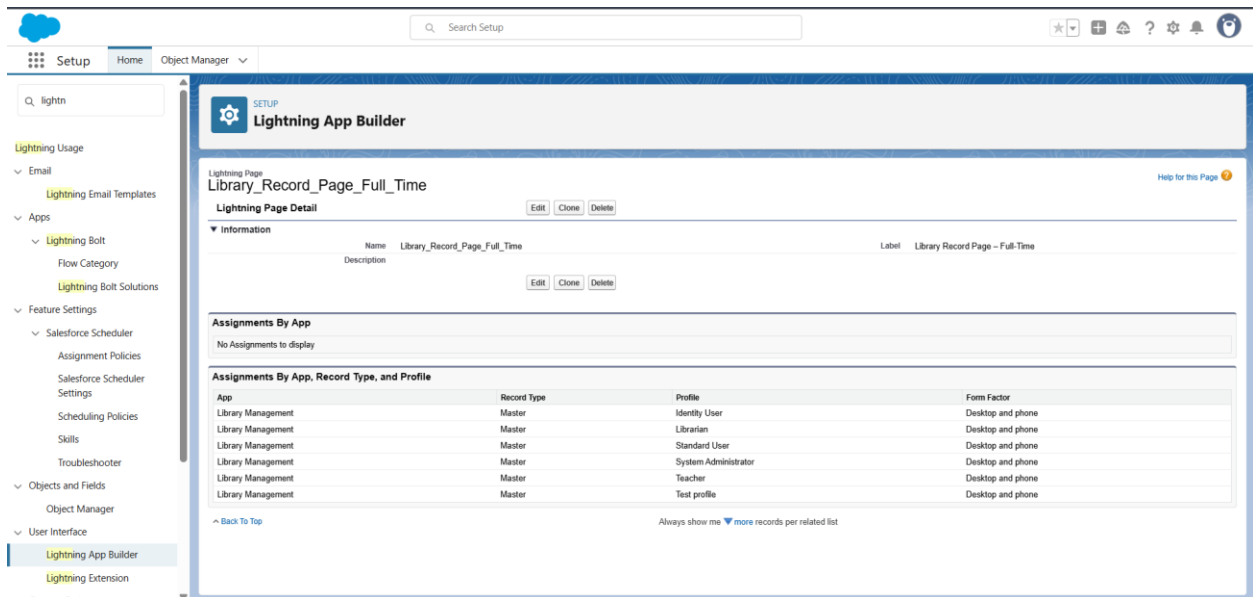
The screenshot shows the Lightning App Builder interface. The left sidebar contains navigation links for Setup, Home, Object Manager, and various tools. The main content area displays the Lightning Pages list. The table below shows the details of the Lightning Pages.

Action	Label	Name	Namespace Prefix	Description	Type	Created By	Last Modified By
Edit Clone Del	Library_Record_Page - Full-Time	Library_Record_Page_Full_Time			Record Page	csa: 9/21/2025, 7:44 AM	csa: 9/21/2025, 7:44 AM
Edit Clone Del	Teacher_Record_Page - Full-Time	Teacher_Record_Page_Full_Time			Record Page	csa: 9/21/2025, 7:34 AM	csa: 9/21/2025, 7:34 AM

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.



The screenshot shows the Lightning App Builder interface with the Lightning Page detail for Library_Record_Page_Full_Time. The page displays the Lightning Page Detail, Information, Assignments By App, and Assignments By App, Record Type, and Profile.

Lightning Page Detail

Name	Label
Library_Record_Page_Full_Time	Library Record Page - Full-Time

Assignments By App

No Assignments to display

Assignments By App, Record Type, and Profile

App	Record Type	Profile	Form Factor
Library Management	Master	Identity User	Desktop and phone
Library Management	Master	Librarian	Desktop and phone
Library Management	Master	Standard User	Desktop and phone
Library Management	Master	System Administrator	Desktop and phone
Library Management	Master	Teacher	Desktop and phone
Library Management	Master	Test profile	Desktop and phone

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.

The screenshot shows the Salesforce Lightning App Builder interface. The left sidebar contains a navigation menu with options like Setup, Home, Object Manager, and User Interface. The main content area displays the configuration for a Lightning Page titled 'Teacher_Record_Page_Full_Time'. The page is currently in 'Information' mode, showing details like Name, Description, and Label. Below this, there are sections for 'Assignments By App' and 'Assignments By App, Record Type, and Profile'. The 'Assignments By App, Record Type, and Profile' section contains a table with columns for App, Record Type, Profile, and Form Factor.

App	Record Type	Profile	Form Factor
Library Management	Full-Time Teacher	Librarian	Desktop and phone
Library Management	Full-Time Teacher	Standard User	Desktop and phone
Library Management	Full-Time Teacher	System Administrator	Desktop and phone
Library Management	Full-Time Teacher	Teacher	Desktop and phone
Library Management	Full-Time Teacher	Test profile	Desktop and phone

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.

The screenshot shows the Salesforce Lightning App Builder interface for configuring Custom Tabs. The left sidebar contains a navigation menu with options like Setup, Home, Object Manager, and User Interface. The main content area displays the 'Custom Tabs' configuration page. It includes a section for 'Custom Object Tabs' with a table showing columns for Action, Label, Tab Style, and Description. Below this, there are sections for 'Web Tabs', 'Visualforce Tabs', and 'Lightning Component Tabs', each with a 'New' button and a 'What Is This?' link.

Action	Label	Tab Style	Description
Edit Del	Libraries	Books	
Edit Del	Monitors	Monitors	
Edit Del	Students	Students	
Edit Del	Teachers	Teachers	

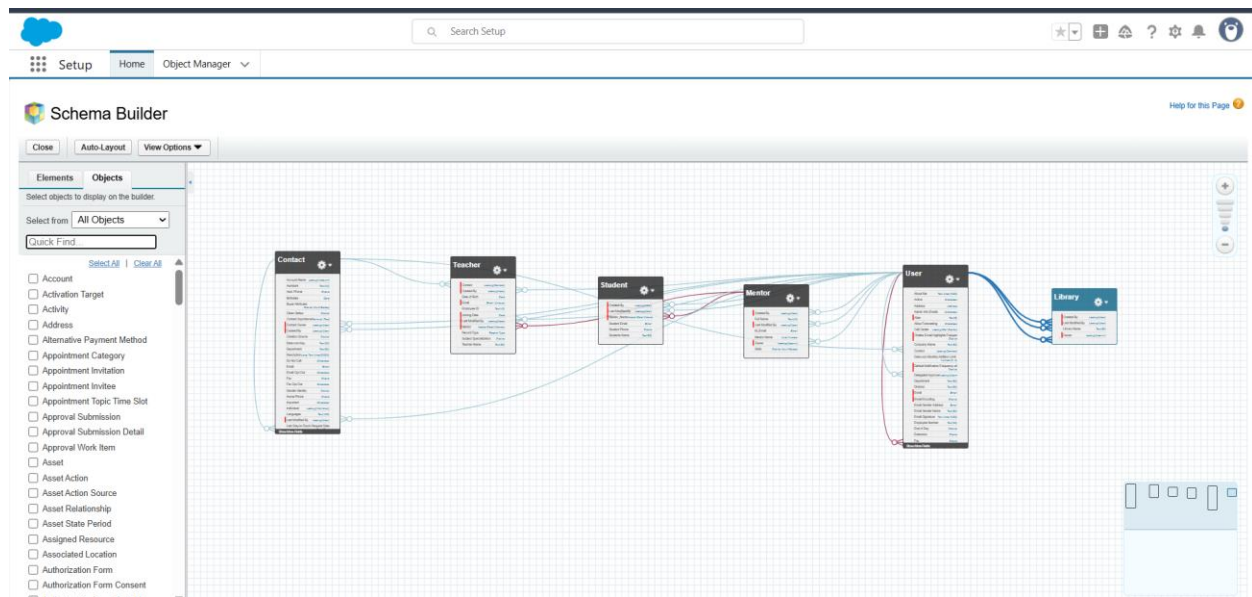
7.Schema Builder (ERD)

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.