

Phase 3: Data Modeling & Relationships

– CampusConnect

Project Goal:

The goal of Phase 3 was to design and implement the complete **data structure** for CampusConnect, enabling effective tracking of students, faculty, courses, lectures, attendance, and events. This phase focused on **custom and standard objects, fields, relationships, record types, page layouts, compact layouts, junction objects, and schema design** to ensure a robust foundation for the application.

1. Standard and Custom Objects

CampusConnect leverages both standard and custom Salesforce objects to capture all relevant academic data.

Standard Object:

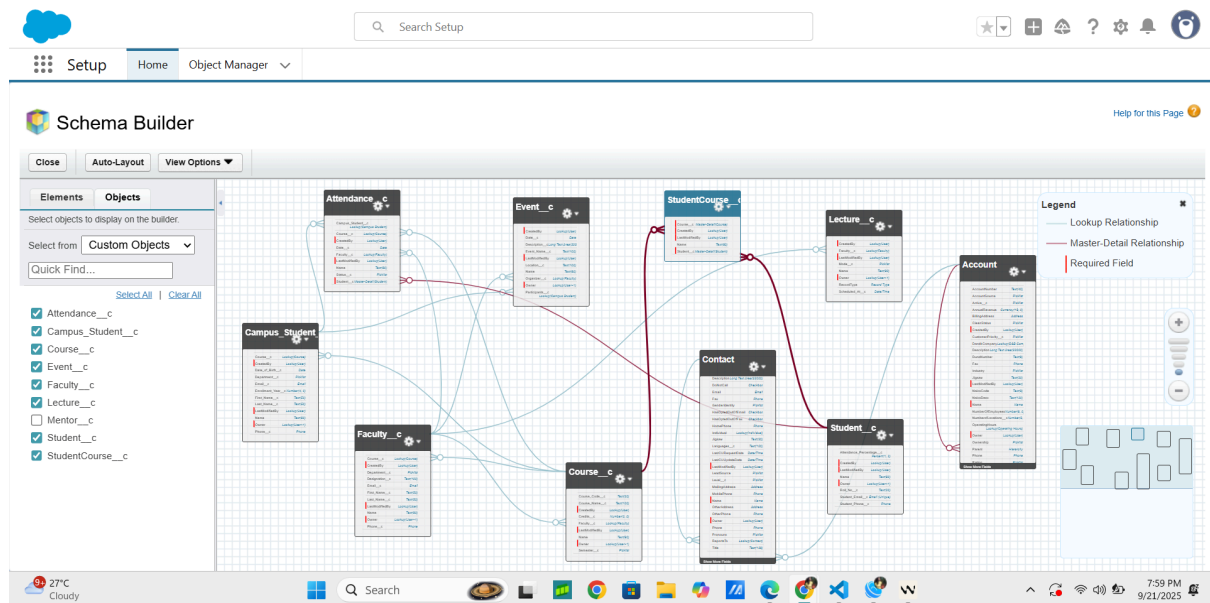
- **User:** Represents students, faculty, and administrative users, enhanced with custom fields (**Campus_Role__c**, **Supervisor__c**) to support role-based layouts and hierarchical reporting.

Custom Objects:

Object	Purpose	Key Fields
Campus Student__c	Stores student details	Name, Roll Number, Email, Phone, Department, Year
Faculty__c	Stores faculty details	Name, Faculty ID, Email, Phone, Department
Course__c	Represents academic courses	Name, Course Code, Credits, Department
Attendance__c	Tracks student attendance	Date, Status (Present/Absent/Late), Student (Master-Detail), Course (Lookup)
Lecture__c	Captures lectures conducted	Name, Mode (Online/Offline), Date/Time, Faculty (Lookup)
Event__c	Tracks events, workshops, and seminars	Name, Event Type, Date, Venue, Organized By (Lookup)

StudentCourse__c	Junction object linking students to courses (many-to-many)	Student (Master-Detail), Course (Master-Detail)
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This combination of objects provides a flexible yet structured data model capable of supporting all functional requirements of CampusConnect.



2. Fields & Relationships

Each object includes carefully chosen fields to capture relevant information while supporting automation and reporting.

Relationship Types Implemented:

Relationship	Example	Notes
Master-Detail	Attendance → Student	Attendance inherits ownership and sharing from Student
Lookup	Lecture → Faculty	Lectures reference faculty but are not deleted if faculty is removed
Hierarchical	User → Supervisor	Enables reporting hierarchy for administrative and faculty oversight
Junction Object	StudentCourse → Student & Course	Enables many-to-many mapping between students and courses

This design ensures data integrity, easy navigation, and effective automation, such as alerts for low attendance.

Setup

Home

Object Manager

Search Setup

SETUP > OBJECT MANAGER

Campus Student

Details

Fields & Relationships

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

Fields & Relationships

12 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
Course	Course__c	Lookup(Course)		✓
Created By	CreatedById	Lookup(User)		
Date of Birth	Date_of_Birth__c	Date		
Department	Department__c	Picklist		
Email	Email__c	Email		
Enrollment Year	Enrollment_Year__c	Number(4, 0)		
First Name	First_Name__c	Text(50)		
Last Modified By	LastModifiedById	Lookup(User)		

Setup

Home

Object Manager

Search Setup

SETUP > OBJECT MANAGER

Faculty

Details

Fields & Relationships

Page Layouts

Lightning Record Pages

Buttons, Links, and Actions

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Field Sets

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Fields & Relationships

11 Items, Sorted by Field Label

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Field Dependencies

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FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Course	Course__c	Lookup(Course)		✓
Created By	CreatedById	Lookup(User)		
Department	Department__c	Picklist		
Designation	Designation__c	Text(100)		
Email	Email__c	Email		
Faculty ID	Name	Text(80)		✓
First Name	First_Name__c	Text(50)		
Last Modified By	LastModifiedById	Lookup(User)		

These fields and relationships allow real-time tracking of attendance, course participation, and faculty lectures, providing a comprehensive view of student engagement and academic activities.

The screenshot shows the Salesforce Setup interface for the 'Attendance' object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, and List View Button Layout. The main content area is titled 'Attendance' and 'Fields & Relationships', showing 9 items sorted by Field Label. A table lists the fields with columns for Field Label, Field Name, Data Type, Controlling Field, and Indexed status.

FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
Attendance ID	Name	Text(80)		✓
Campus Student	Campus_Student__c	Lookup(Campus Student)		✓
Course	Course__c	Lookup(Course)		✓
Created By	CreatedById	Lookup(User)		
Date	Date__c	Date		
Faculty	Faculty__c	Lookup(Faculty)		✓
Last Modified By	LastModifiedById	Lookup(User)		
Status	Status__c	Picklist		

3. Record Types

Record types allow different business processes within a single object. In Phase 3:

- **Lecture__c** object has two record types:
 - **Online Lecture**
 - **Offline Lecture**

These record types allow faculty and administrators to manage lectures differently depending on the mode of delivery while maintaining consistent field structure.

The screenshot shows the Salesforce Setup interface for the 'Lecture' object. The left sidebar contains a navigation menu with options like Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, Compact Layouts, Field Sets, Object Limits, Record Types, Related Lookup Filters, Search Layouts, and List View Button Layout. The main content area is titled 'Lecture' and 'Record Types', showing 2 items sorted by Record Type Label. A table lists the record types with columns for Record Type Label, Description, Active status, and Modified By.

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Offline Lecture		✓	Gauri Garole, 9/21/2025, 5:18 AM
Online Lecture		✓	Gauri Garole, 9/21/2025, 5:18 AM

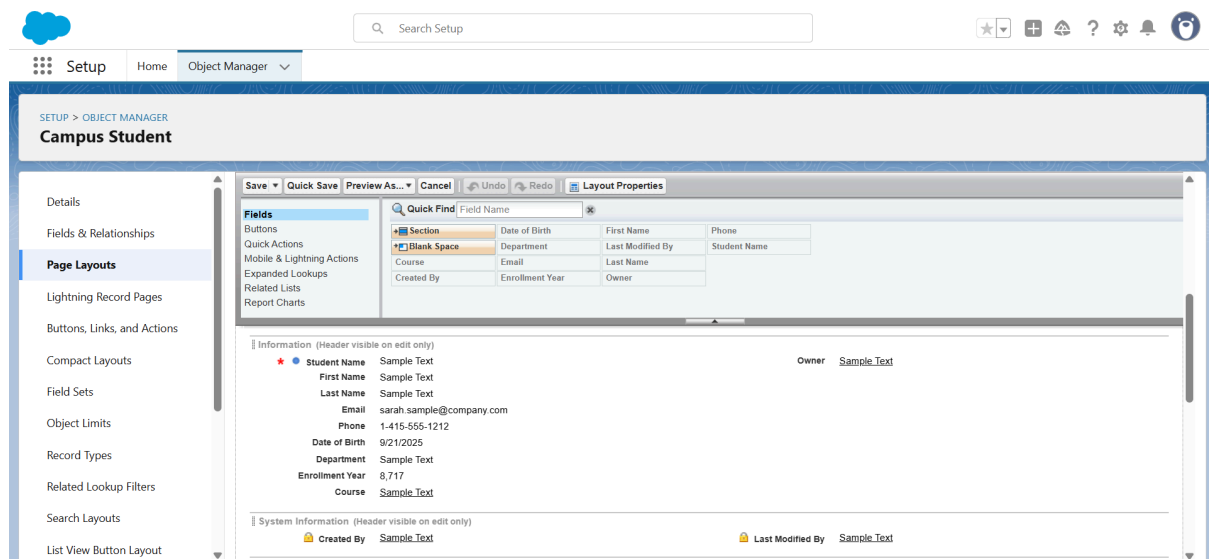
4. Page Layouts

Page layouts were updated to include related lists, ensure clarity, and provide role-specific views.

Highlights:

Object	Key Features
Campus Student	Related lists: Attendance, StudentCourse
Faculty	Related list: Lectures
Course	Related list: StudentCourse
Lecture	Faculty lookup, Mode picklist, Date/Time
User	Campus_Role__c and Supervisor__c fields

This ensures that users can easily access related data from a single record view.



These layouts ensure that users see the most relevant data and related lists at a glance, improving efficiency and usability.

The screenshot shows the Salesforce Setup interface with the 'Object Manager' tab selected. The 'Faculty' object is chosen, and the 'Page Layouts' section is active. A 'Layout Properties' window is open, showing a list of fields to be added to the layout. The fields include: Section, Department, First Name, Phone, Blank Space, Designation, Last Modified By, Course, Email, Last Name, and Created By, Faculty ID, and Owner. Below the layout configuration, the 'Faculty Detail' section is visible, showing standard buttons (Edit, Delete, Clone, Change Owner, Change Record Type, Printable View, Sharing, Sharing Hierarchy, Submit for Approval, Edit Labels) and custom buttons. The 'Faculty Information' section displays fields like Faculty ID, Department, Sample Text, Email (sarah.sample@company.com), and Phone (1-415-555-1212). The 'Custom Links' section is also visible, with a header note that it is visible only on detail pages. The 'Mobile Cards (Salesforce mobile only)' section is at the bottom.

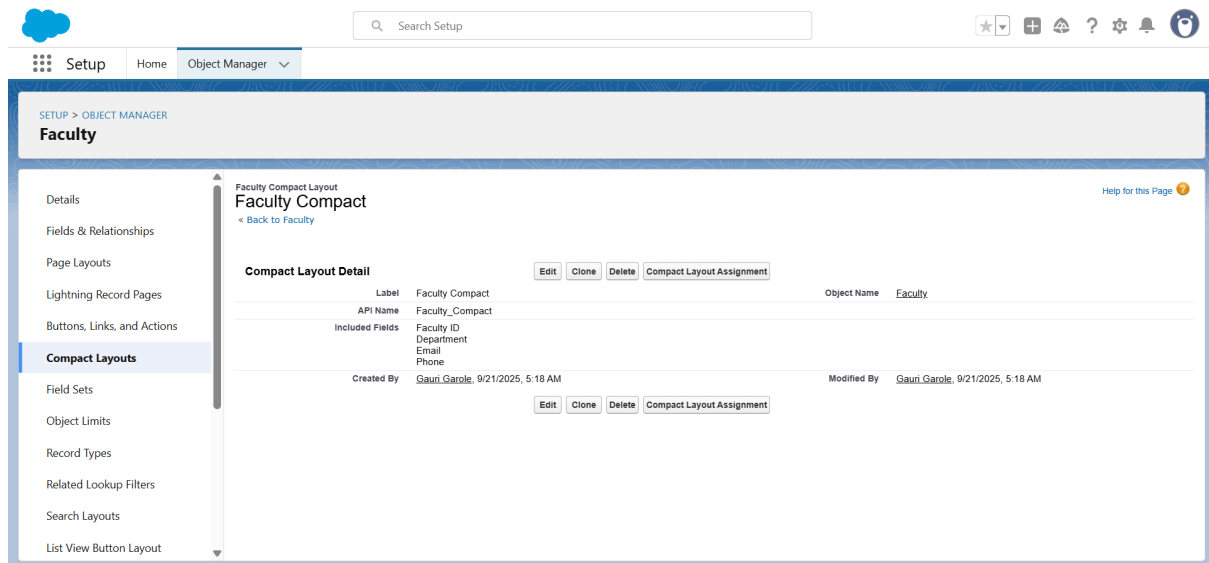
5. Compact Layouts

Compact layouts were created to optimize mobile and Lightning previews:

- **Student_Compact:** Name, Roll Number, Department, Year
- **Faculty_Compact:** Name, Email, Department
- **Lecture_Compact:** Name, Mode, Date/Time

These layouts provide quick access to key information for users in mobile apps or Lightning pages.

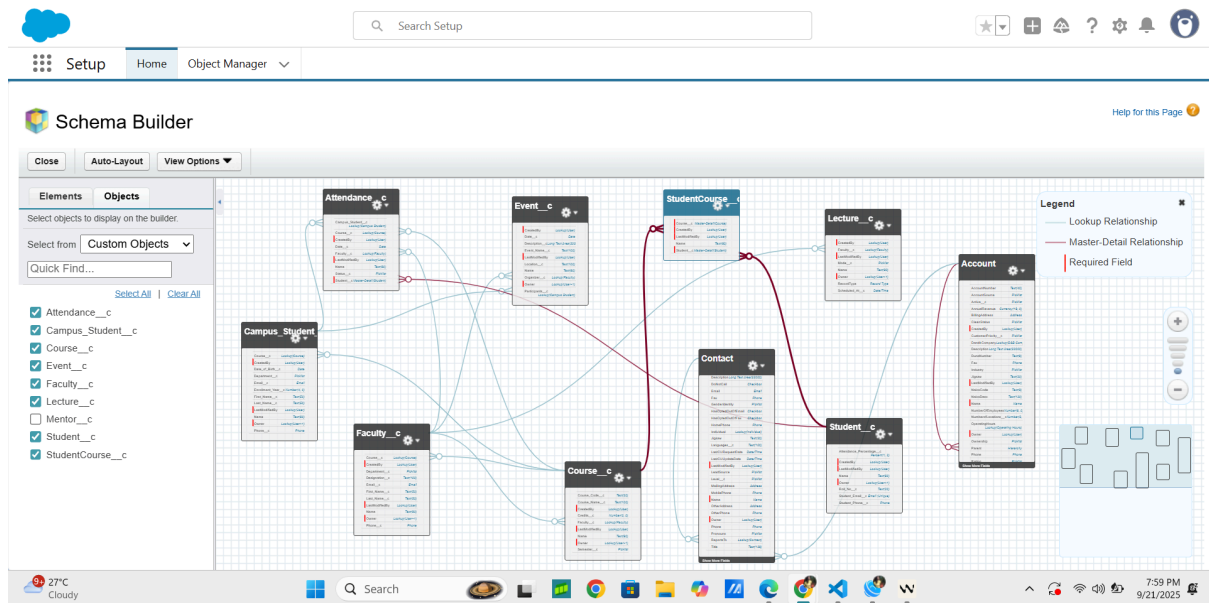
The screenshot shows the Salesforce Setup interface with the 'Object Manager' tab selected. The 'Lecture' object is chosen, and the 'Compact Layouts' section is active. The 'Lecture Compact Layout' is displayed, showing the 'Compact Layout Detail' section. This section includes fields for Label (Lecture Compact), API Name (Lecture_Compact), Object Name (Lecture), Included Fields (Lecture Name, Mode, Faculty, Scheduled At), Created By (Gauri Garole, 9/21/2025, 5:18 AM), and Modified By (Gauri Garole, 9/21/2025, 5:18 AM). The 'Compact Layout Assignment' button is also visible. The 'Lecture Compact Layout' is shown in a compact format, with a 'Back to Lecture' link and a 'Help for this Page' link.



6. Schema Builder

The Schema Builder in Salesforce provides a visual representation of all objects, fields, and relationships within the CampusConnect app. It helps to understand how data is structured and how different objects are connected.

- **Objects Included:** Campus Student, Faculty, Course, Lecture, Attendance, StudentCourse (junction object), Event, and User.
- **Relationships:**
 - **Master-Detail:** Attendance → Campus Student
 - **Lookup:** Lecture → Faculty, Event → Faculty
 - **Hierarchical:** User → Supervisor
 - **Junction Object:** StudentCourse links Students and Courses (many-to-many)
- **Usage:**
 - Quickly visualize object relationships
 - Confirm data model integrity
 - Identify key fields and connections for reporting and automation

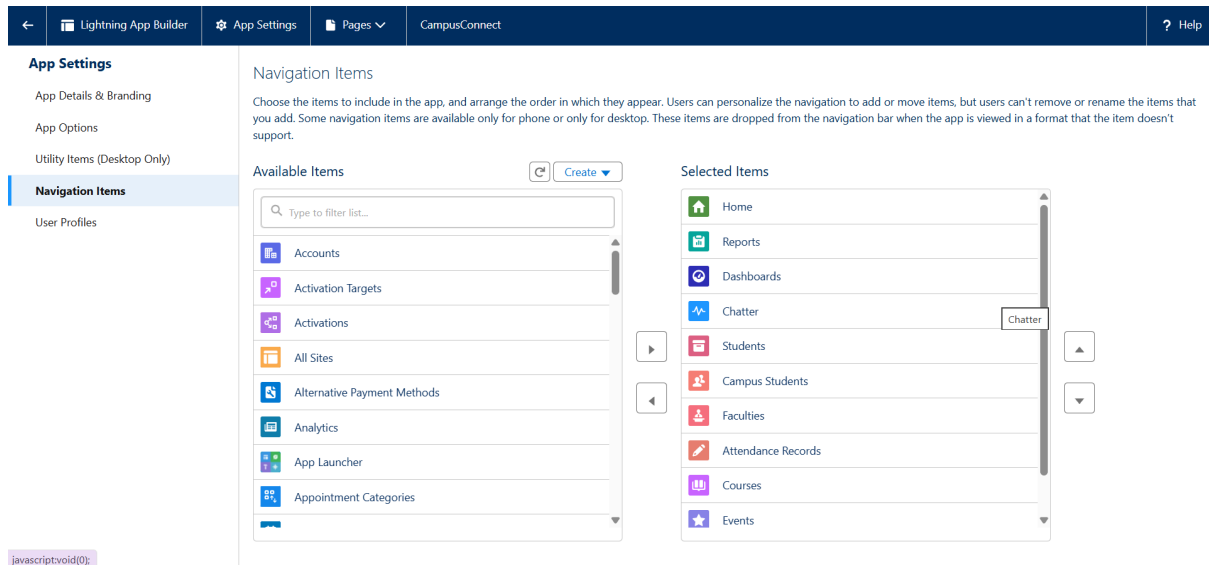


7. Tabs and Navigation

Custom tabs were created for each relevant object to ensure easy access within the CampusConnect Lightning App. Tabs include:

- Attendance Records
- Campus Students
- Courses
- Events
- Faculties
- Lectures
- Mentors
- Student Courses
- Students

These tabs were added to the app navigation to streamline workflow for different user roles.



8. Post-Deployment Verification

Phase 3 deployment was validated by creating sample records:

- **Student record:** Verified Attendance + StudentCourse related lists
- **Faculty record:** Verified Lectures related list
- **Course record:** Verified StudentCourse related list
- **Lecture record:** Verified Online/Offline record types and Faculty lookup
- **StudentCourse record:** Verified correct student-course linkage
- **Attendance record:** Verified correct student-course linkage

9. Achievements & Highlights

Phase 3 successfully established the foundational data model for CampusConnect:

- Lecture object with **record types** (Online/Offline)
- Master-detail relationship: **Attendance** → **Student**
- Junction object for **many-to-many mapping**: Student ↔ Course
- Lookup relationship: **Lecture** → **Faculty**

- Hierarchical relationship: **User** → **Supervisor__c**
- Role-based **page layouts** using Campus_Role__c
- Compact layouts for quick previews in mobile and Lightning
- Tabs and navigation updated for all key objects
- Schema Builder diagram shows all objects and relationships

This data model enables **automation, reporting, and scalable management of students, faculty, and courses**, laying the groundwork for future phases such as event management, analytics, and alerts.