

Student Attendance & Performance Tracker

Phase 3: Data Modeling & Relationships

Introduction

Phase 3 focuses on designing the data model required for the **Student Attendance & Performance Tracker**.

This phase defines how academic data is structured, related, and displayed within Salesforce to ensure accuracy, scalability, and efficient reporting.

3.1 Standard & Custom Objects

Use Case Explanation

Salesforce standard objects were evaluated; however, due to the academic-specific requirements, **custom objects** were created to accurately represent students, courses, attendance, and performance data.

Objects Implemented

Standard Objects

- User (for Admins, Faculty, Students, Parents)

Custom Objects

- **Student** – Stores student personal and academic details
- **Course** – Represents academic courses
- **Enrollment** – Links students with courses
- **Attendance** – Stores daily attendance records
- **Exam** – Defines exams such as Midterm and Final
- **Result** – Stores exam performance data

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Student	Student_c	Custom Object		12/12/2025	✓

Label	API Name	Type	Description	Last Modified	Deployed
Course	Course_c	Custom Object		12/12/2025	✓ ▼
Enrollment	ENROLLMENT_c	Custom Object		19/12/2025	✓ ▼
Exam	Exam_c	Custom Object		12/12/2025	✓ ▼
Attendance	Attendance_c	Custom Object		18/12/2025	✓ ▼
Result	Result_c	Custom Object		12/12/2025	✓ ▼

3.2 Fields

Use Case Explanation

Fields capture detailed academic information. Both standard and custom fields were created to store attendance, performance, and course-related data.

Field Configuration Performed

Standard Fields

- Record Name
- Created Date
- Last Modified Date

Custom Fields (Examples)

- Attendance Status (Picklist: Present, Absent)
- Attendance Date (Date)
- Exam Score (Number)
- Grade (Text)

- Course Code (Text)

Fields & Relationships 10 items. Sorted by Field Label					
	FIELD LABEL	FIELD NAME	DATA TYPE	CONTROLLING FIELD	INDEXED
	Course	Course__c	Lookup(Course)		▼
	Created By	CreatedById	Lookup(User)		▼
	Exam	Exam__c	Lookup(Exam)		▼
	Grade	Grade__c	Formula (Text)		▼
	Last Modified By	LastModifiedById	Lookup(User)		▼
	Owner	OwnerId	Lookup(User,Group)		▼
	Record Type	RecordTypeId	Record Type		▼
	Result Name	Name	Auto Number		▼
	Score	Score__c	Number(5, 2)		▼
	Student	Student__c	Lookup(Student)		▼

3.3 Record Types

Use Case Explanation

Record Types were created to support different academic processes within the same object.

Record Types Implemented

- Exam Object
 - Midterm
 - Final
- Result Object
 - Regular Exam
 - Makeup Exam

This allows tailored page layouts and processes for each exam type.

Record Types
2 Items. Sorted by Record Type Label

RECORD TYPE LABEL	DESCRIPTION	ACTIVE	MODIFIED BY
Makeup		✓	Siri varshini Pentakota, 12/12/2025, 1:41 pm
Regular		✓	Siri varshini Pentakota, 12/12/2025, 1:43 pm

3.4 Page Layouts

Use Case Explanation

Page layouts control how fields appear to users, ensuring clear and efficient data entry.

Layouts Designed

- Attendance Layout: Date, Status, Student, Course
- Result Layout: Exam Type, Marks, Grade
- Student Layout: Personal Info, Enrollment Details

Fields

Buttons	Exam	Record Type
Quick Actions	Grade	Result Name
Mobile & Lightning Actions	Course	Last Modified By
Expanded Lookups	Created By	Score
Related Lists	Owner	Student
Report Charts		

Result Detail

Standard Buttons	Edit	Delete	Clone	Change Owner	Change Record Type	Printable View	Sharing	Sharing Hierarchy	Edit Labels	Custom Buttons
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Information (Header visible on edit only)

Student	Sample Text	Course	Sample Text
Grade	Sample Text	Score	280.44
Result Name	GEN-2004-001234	Exam	Sample Text
		Owner	Sample Text

System Information (Header visible on edit only)

Created By	Sample Text	Last Modified By	Sample Text
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Custom Information (Header visible on edit only)

3.5 Compact Layouts

Use Case Explanation

Compact layouts define the key fields displayed in highlights panels and mobile views.

Compact Layout Configuration

- Attendance: Student Name, Date, Status
- Result: Exam Name, Score, Grade

The screenshot shows the Salesforce Object Manager interface for the 'Attendance' object. The top navigation bar includes 'Setup', 'Home', and 'Object Manager'. The main title is 'Attendance Compact Layout' under the 'Attendance' object. A sidebar on the left lists various configuration options: Details, Fields & Relationships, Page Layouts, Lightning Record Pages, Buttons, Links, and Actions, **Compact Layouts** (which is selected), Field Sets, and Object Limits. The 'Compact Layouts' section displays the 'Attendance Compact' layout with the following details:

Label	Attendance Compact	Object Name	Attendance
API Name	Attendance_Compact		
Included Fields	Student Attendance Date Course Status		
Created By	Siri varshini Pentakota, 12/12/2025, 2:10 pm	Modified By	Siri varshini Pentakota, 12/12/2025, 2:10 pm

Buttons for 'Edit', 'Clone', 'Delete', and 'Compact Layout Assignment' are available for each row.

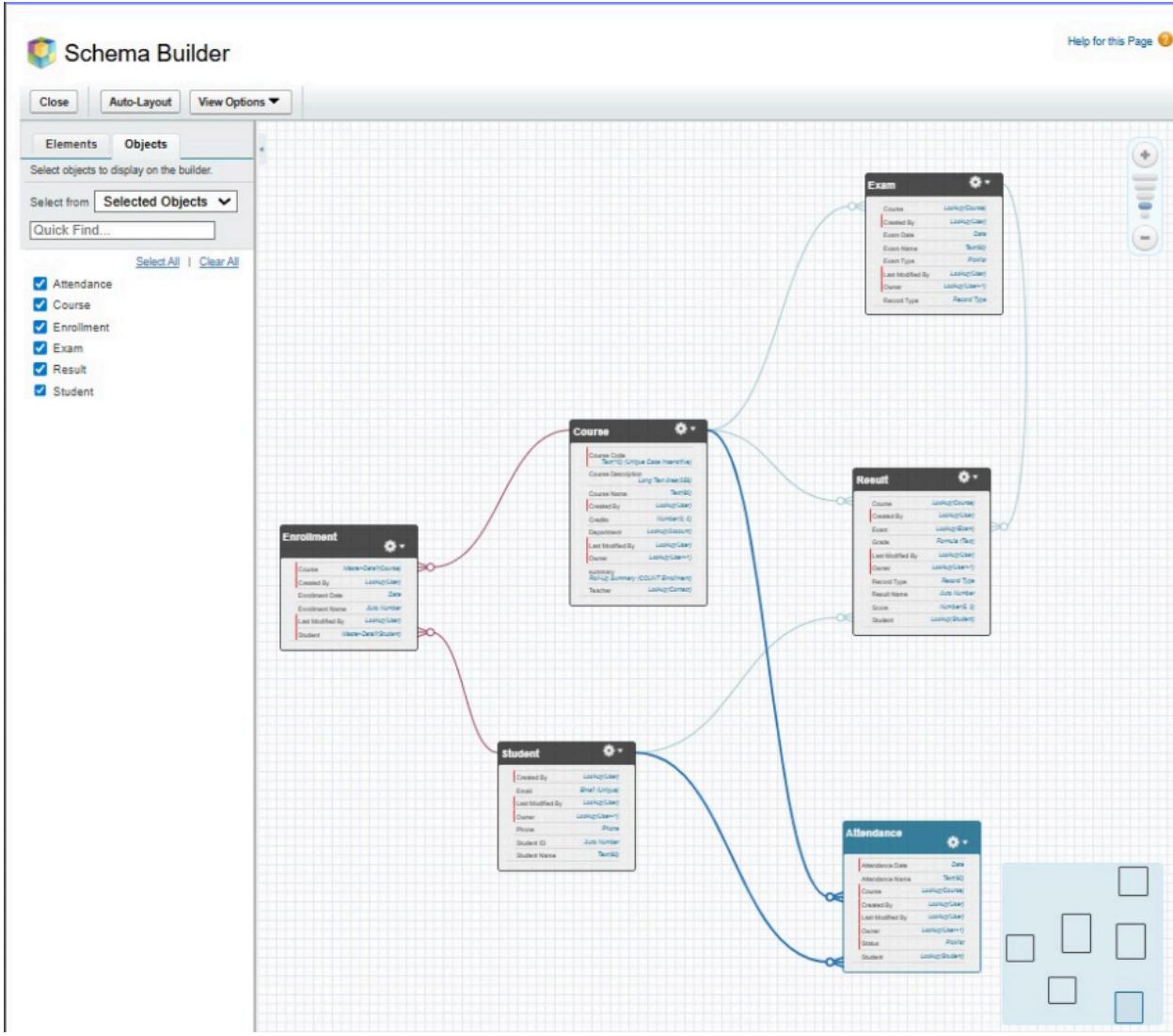
3.6 Schema Builder

Use Case Explanation

Schema Builder provides a visual representation of objects and their relationships, ensuring data integrity and clarity.

Usage

- Verified relationships between Student, Course, Enrollment, Attendance, and Result
- Confirmed correct relationship types



3.7 Lookup vs Master-Detail vs Hierarchical Relationships

Use Case Explanation

Different relationship types were chosen based on data dependency and reporting needs.

Relationships Implemented

- **Lookup Relationship**
 - Attendance → Student
 - Result → Exam
- **Master-Detail Relationship**

- Enrollment → Student
 - Enrollment → Course
 - **Hierarchical Relationship**
 - Evaluated for user hierarchy (Admin → Faculty), but not core to this project
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3.8 Junction Objects

Use Case Explanation

Educational systems require many-to-many relationships between students and courses.

Implementation

- **Enrollment Object** created as a junction object
- Uses Master-Detail relationships with:
 - Student
 - Course

This enables:

- One student to enroll in multiple courses
 - One course to have multiple students
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Conclusion

Phase 3 establishes a robust and scalable data foundation for the Student Attendance & Performance Tracker.

Well-defined objects, relationships, and layouts ensure accurate data capture, easy navigation, and meaningful reporting in later phases.