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.

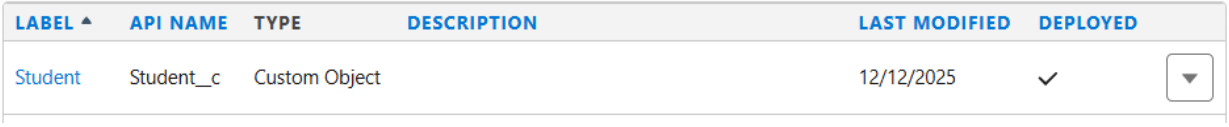
Objects Implemented

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
Course	Course__c	Custom Object		12/12/2025	✓

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Enrollment	ENROLLMENT__c	Custom Object		19/12/2025	✓

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Exam	Exam__c	Custom Object		12/12/2025	✓

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
Attendance	Attendance__c	Custom Object		18/12/2025	✓

LABEL	API NAME	TYPE	DESCRIPTION	LAST MODIFIED	DEPLOYED
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

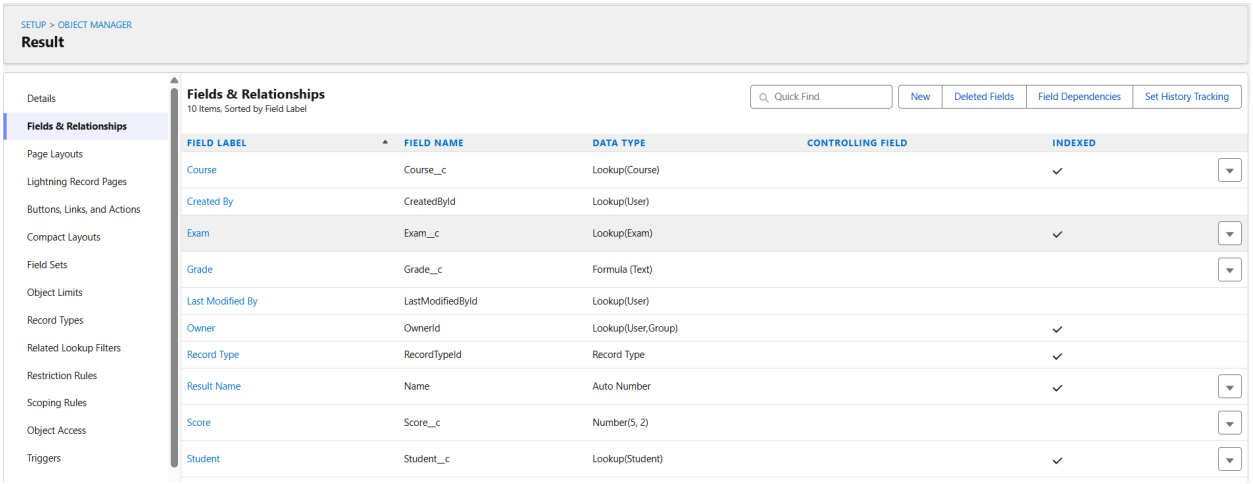
Standard Fields

- 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)



3.3 Record Types

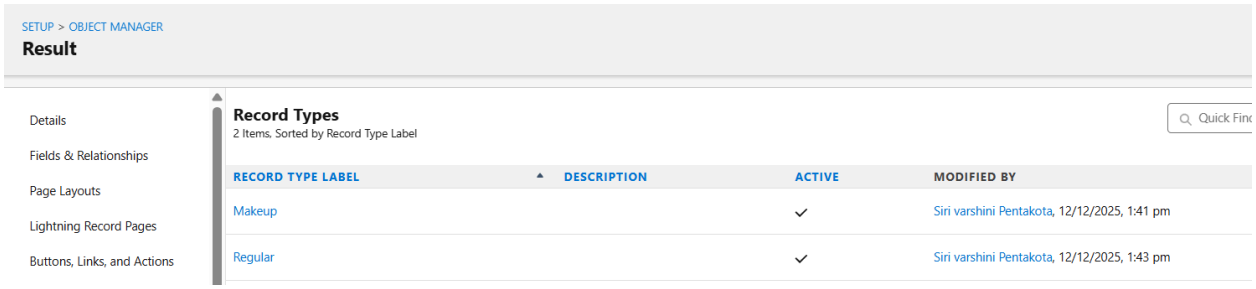
Use Case Explanation

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.



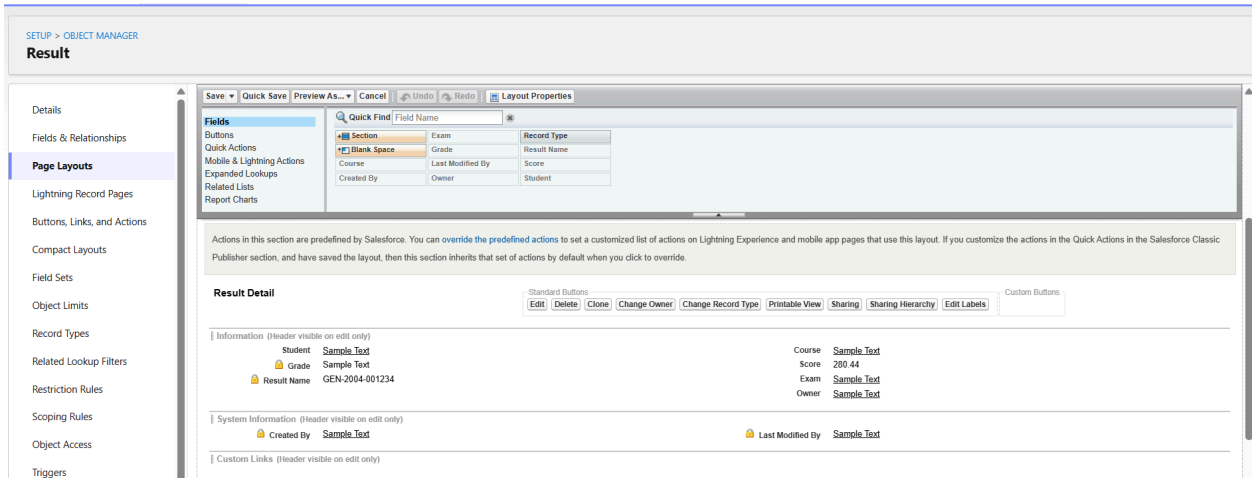
3.4 Page Layouts

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



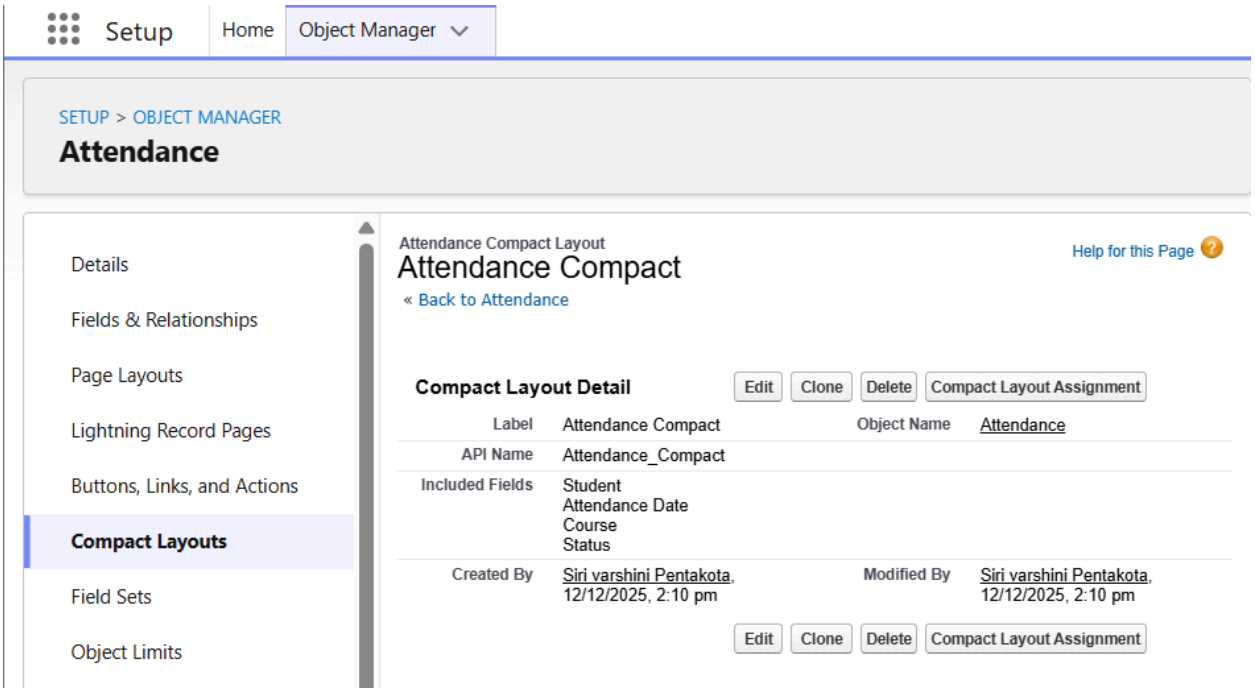
3.5 Compact Layouts

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



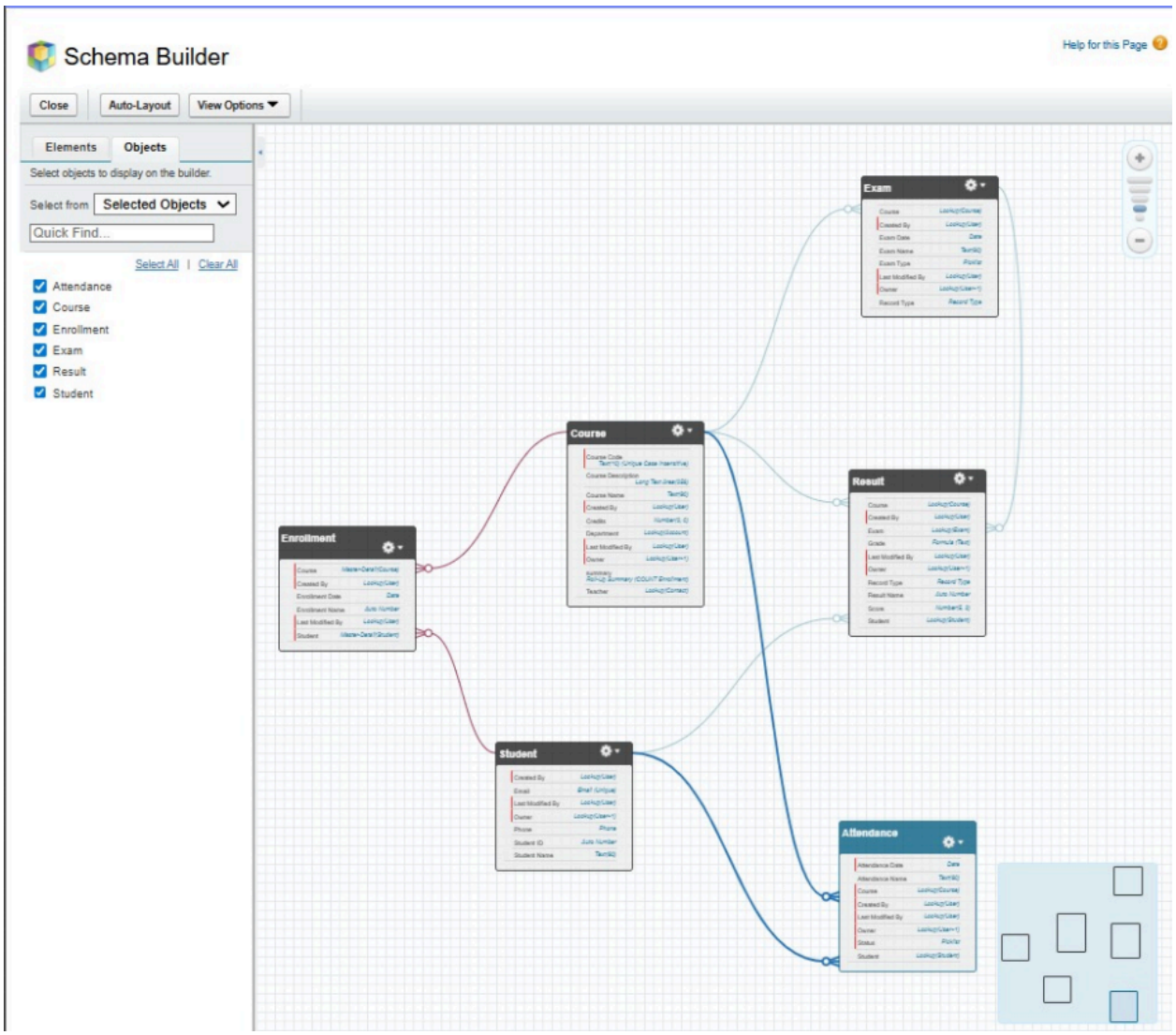
3.6 Schema Builder

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

---

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

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.