

# University School Management — Phase 3: Data Modelling & Relationships

**Introduction:** Define and implement the data structure of **University Management System** to link **students, courses, enrollments, and grades**. Configure record types, page layouts, navigation tabs, and security so that each role (**Admin, Teacher, Registrar, Student**) can perform its tasks. **Standard & Custom Objects**

- **Contact (Students)** – standard object used to store student information (Roll No, DOB, Department).
- **Course\_\_c (Custom)** – stores course information such as Course Code, Credits, and Department.
- **Enrollment\_\_c (Custom)** – junction object linking Students and Courses, with fields for Semester, Enrollment Date, and Type (Regular/Audit).
- **Grade\_\_c (Custom)** – captures academic performance, including Marks, Grade, and Comments, linked to Enrollment.

## Field Student (Contact)

- Roll Number (Text)
- Email (Email)
- Phone (Phone)
- Department (Picklist)
- Date of Birth (Date)
- Admission Date (Date)

## Course\_\_c

- Course Code (Text)
- Course Name (Text)
- Credits (Number)
- Department (Picklist)
- Semester Offered (Picklist)

## Enrollment\_\_c

- Student (Lookup → Contact)
- Course (Lookup → Course\_\_c)
- Semester (Picklist)
- Enrollment Date (Date)
- Enrollment Type (Picklist: Regular, Audit, Special)

## Grade\_\_c

- Enrollment (Lookup → Enrollment\_\_c)
- Marks (Number)
- Grade (Picklist: A, B, C, D, F)
- Comments (Text Area)

The screenshot shows the 'Fields & Relationships' section for the 'Student' object. The table lists various fields with their labels, names, data types, and whether they are indexed or controlled.

| FIELD LABEL      | FIELD NAME        | DATA TYPE          | CONTROLLING FIELD | INDEXED |
|------------------|-------------------|--------------------|-------------------|---------|
| Created By       | CreatedBy         | Lookup(Star)       |                   |         |
| Department       | Department__c     | Lookup(Department) |                   | ✓       |
| Enrollment Date  | EnrollmentDate__c | Date               |                   |         |
| First Name       | FirstName         | Text(50)           |                   |         |
| Last Modified By | LastModifiedBy    | Lookup(Star)       |                   |         |
| Last Name        | LastName          | Text(50)           |                   |         |
| Class            | Class             | Lookup(Class)      | ✓                 |         |
| Student Email    | StudentEmail__c   | Email              |                   |         |
| Student ID       | StudentID         | Text(50)           | ✓                 |         |
| Student Phone    | StudentPhone__c   | Phone              |                   |         |

Fig.1 Student\_Fields

The screenshot shows the 'Fields & Relationships' section for the 'Grade' object. The table lists various fields with their labels, names, data types, and whether they are indexed or controlled.

| FIELD LABEL      | FIELD NAME     | DATA TYPE       | CONTROLLING FIELD | INDEXED |
|------------------|----------------|-----------------|-------------------|---------|
| Created By       | CreatedBy      | Lookup(Star)    |                   |         |
| Exam             | Exam__c        | Lookup(Exam)    |                   | ✓       |
| Grade            | Grade__c       | Text(50)        |                   |         |
| Grade Name       | GradeName      | Text(50)        |                   | ✓       |
| Last Modified By | LastModifiedBy | Lookup(Star)    |                   |         |
| Class            | Class          | Lookup(Class)   | ✓                 |         |
| Student          | Student__c     | Lookup(Student) |                   |         |
| Student ID       | StudentID      | Text(50)        |                   | ✓       |

Fig.2 Grade\_Fields

## Record Types

- **Course\_\_c:** Undergraduate, Postgraduate.
- **Enrollment\_\_c:** Regular, Audit, Special.
- **Grade\_\_c:** Internal, Final.

The screenshot shows the 'Record Types' section for the 'Course' object. The table lists record types with their labels, descriptions, active status, and the user who modified them.

| RECORD TYPE LABEL | DESCRIPTION | ACTIVE | MODIFIED BY                              |
|-------------------|-------------|--------|--|
| Postgraduate      |             | ✓      | Suryamurthy K V N S, 21/06/2025, 7:55 pm |
| Undergraduate     |             | ✓      | Suryamurthy K V N S, 21/06/2025, 7:55 pm |

Fig.3 Course record types

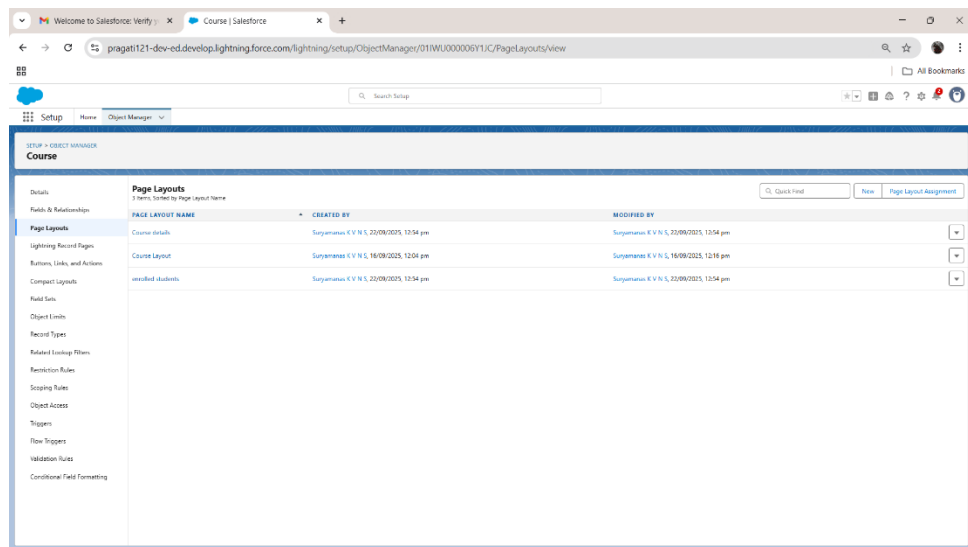


Fig.4 Course PageLayout Assignment

### Page Layouts & Related Lists

- **Student Layout:** Personal info, enrolled courses, grades.
- **Course Layout:** Course details, enrolled students.
- **Enrollment Layout:** Student, course, semester, enrollment type.
- **Grade Layout:** Marks, grade, comments.

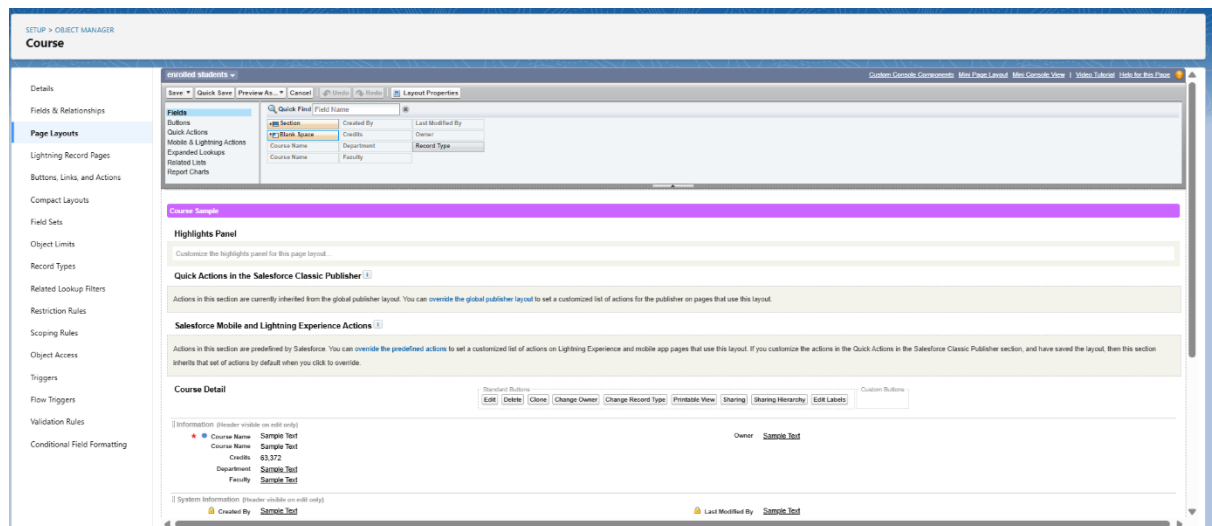


Fig.5 Course PageLayout RelatedLists

### Lightning Record Pages & Compact Layouts

- **Custom Lightning Record Pages** created for **Student, Course, and Enrollment** to give Admin, Faculty, and Dean.
- **Compact Layouts** show key fields at a glance:
  - **Student:** Name, Roll No, Department, Email.
  - **Course:** Course Code, Name, Credits.
  - **Enrollment:** Student, Course, Semester, Type.
  - **Grade:** Marks, Grade, Comments.

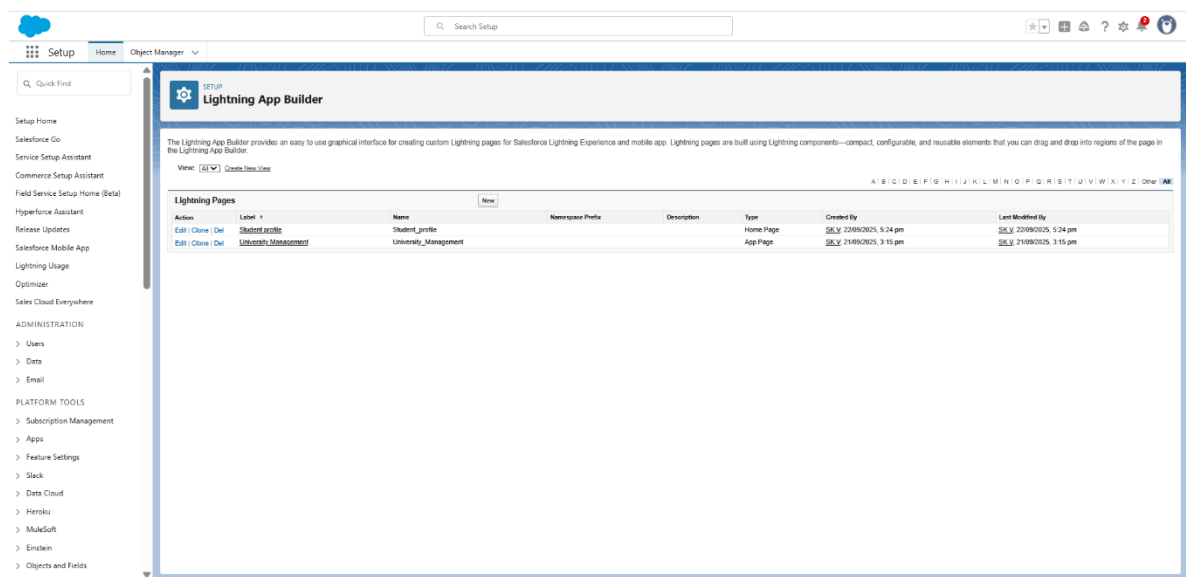


Fig.6 AppBuilder Views

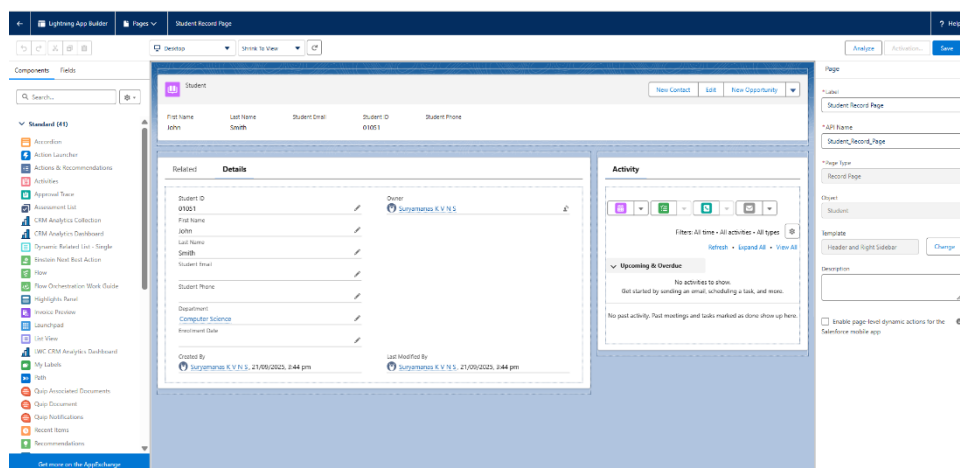


Fig.7 Student- View

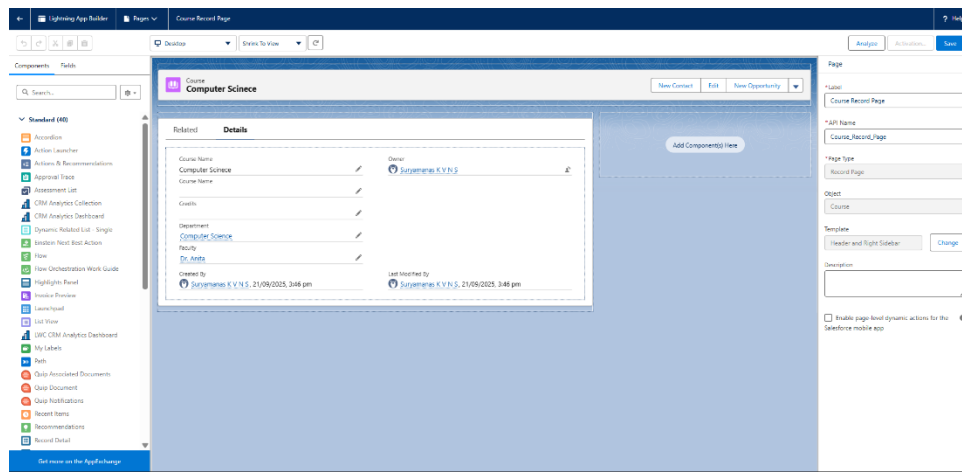


Fig.8 Course- View

## Tabs & App Navigation

University Management Lightning App navigation includes:

- Students (Contacts)
- Courses (Course\_\_c)
- Enrollments (Enrollment\_\_c)
- Grades (Grade\_\_c)
- Reports and Dashboards

Custom tabs added for Courses, Enrollments, and Grades to enable direct access and easy navigation for Teachers, Admins, and Registrars.

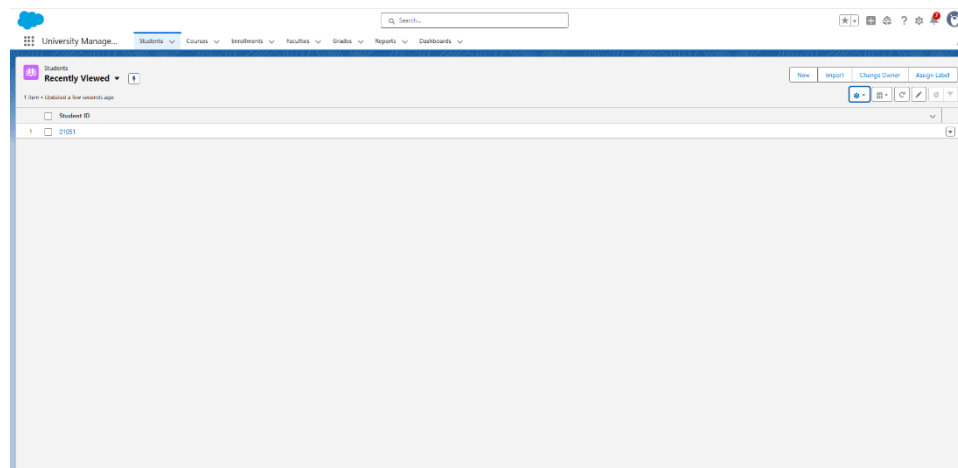
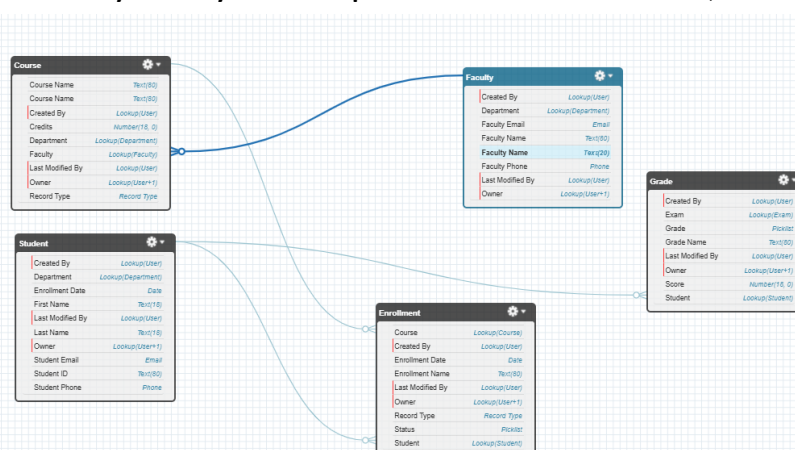


Fig.9 University Mangement App Custom Tabs View

## Schema Builder (ERD)

- **Schema Builder displays:** Student (Contact), Course\_\_c, Enrollment\_\_c, Grade\_\_c, and User objects with lookup/master-detail relationships.
- **Boxes arranged** to show **Student at the center**, linked to **Enrollments** → which link to **Courses** and **Grades**.
- Helps visualize the **many-to-many relationship** between Students and Courses, and the grading structure.



**Fig.10 Schema Builder ERD view**

#### **Security & Field-Level Visibility**

- **Faculty profile** has Read/Create/Edit on Enrollment and Grade.
- **Enrollment profile** has Read/Create/Edit on Student and Enrollment, but read-only on Grade.
- **Student profile** has read-only access to their own Student, Enrollment, and Grade records.
- **Sensitive fields** (e.g., Marks, Comments) hidden from Registrar and Student profiles where not required.

#### **Sample Data & Testing**

- **Sample Students (Contacts)** created with Roll No, Department, Email, and Admission Date.
- **Courses** created with Course Code, Name, Credits, and Department.
- **Enrollments** created by Registrar, linking Students to Courses with record types Regular, Audit, or Special.
- **Grades** created and linked to the same Enrollments.
- **Faculty login view** shows Enrollments and Grades; **Student login view** shows their own record with related Enrollments and Grades.

#### **Current System Behaviour**

- **Enrollments** link both **Student (Contact)** and **Course (Course\_\_c)** for tracking academic registration.
- **Grades** hold marks and performance information linked to the same **Enrollment**.
- **Record types** (Regular, Audit, Special) display appropriate page layouts.
- **Student records** show all related Enrollments and Grades.
- **Faculty** can view Enrollments and Grades assigned or shared to them.
- **Registrar** can create Enrollments and view limited Grade data.
- The **Schema Builder ERD** reflects the current relationships between Students, Courses, Enrollments, and Grades.