**Student Registration Portal - Phase 3: Data Modeling & Relationships**

**Custom Objects Design**

**1. Student\_\_c (Custom Object)**

* **API Name**: Student\_\_c
* **Fields**:
  + Student\_ID\_\_c (Text, External ID, Unique) - Auto-number format: STU-{0000}
  + First\_Name\_\_c (Text, 50 chars, Required)
  + Last\_Name\_\_c (Text, 50 chars, Required)
  + Email\_\_c (Email, Required, Unique)
  + Phone\_\_c (Phone)
  + Date\_of\_Birth\_\_c (Date, Required)
  + Address\_\_c (Text Area, 255 chars)
  + Emergency\_Contact\_\_c (Phone)
  + Guardian\_Name\_\_c (Text, 100 chars)
  + Guardian\_Phone\_\_c (Phone)
  + Previous\_Education\_\_c (Picklist: High School, Undergraduate, Graduate)
  + Application\_Status\_\_c (Picklist: Draft, Submitted, Under Review, Approved, Rejected, Enrolled)
  + Created\_Date\_\_c (DateTime, auto-populated)

**2. Course\_\_c (Custom Object)**

* **API Name**: Course\_\_c
* **Fields**:
  + Course\_Code\_\_c (Text, 10 chars, External ID, Unique) - e.g., CS101
  + Course\_Name\_\_c (Text, 100 chars, Required)
  + Course\_Description\_\_c (Long Text Area, 1000 chars)
  + Credits\_\_c (Number, 2 decimal places)
  + Department\_\_c (Picklist: Computer Science, Mathematics, Physics, Chemistry, Biology, English)
  + Semester\_\_c (Picklist: Fall, Spring, Summer)
  + Academic\_Year\_\_c (Text, 9 chars) - e.g., 2024-2025
  + Max\_Capacity\_\_c (Number, 0 decimal places)
  + Current\_Enrollment\_\_c (Number, 0 decimal places, default: 0)
  + Prerequisites\_\_c (Long Text Area, 500 chars)
  + Course\_Fee\_\_c (Currency, 2 decimal places)
  + Start\_Date\_\_c (Date, Required)
  + End\_Date\_\_c (Date, Required)
  + Status\_\_c (Picklist: Active, Inactive, Full)

**3. Faculty\_\_c (Custom Object)**

* **API Name**: Faculty\_\_c
* **Fields**:
  + Faculty\_ID\_\_c (Text, External ID, Unique) - Auto-number format: FAC-{0000}
  + First\_Name\_\_c (Text, 50 chars, Required)
  + Last\_Name\_\_c (Text, 50 chars, Required)
  + Email\_\_c (Email, Required, Unique)
  + Phone\_\_c (Phone)
  + Department\_\_c (Picklist: Computer Science, Mathematics, Physics, Chemistry, Biology, English)
  + Designation\_\_c (Picklist: Professor, Associate Professor, Assistant Professor, Lecturer)
  + Qualification\_\_c (Text, 100 chars)
  + Experience\_Years\_\_c (Number, 0 decimal places)
  + Office\_Location\_\_c (Text, 50 chars)

**4. Enrollment\_\_c (Custom Object - Junction Object)**

* **API Name**: Enrollment\_\_c
* **Purpose**: Many-to-many relationship between Student and Course
* **Fields**:
  + Student\_\_c (Master-Detail to Student\_\_c, Required)
  + Course\_\_c (Master-Detail to Course\_\_c, Required)
  + Enrollment\_Date\_\_c (Date, auto-populated with today's date)
  + Enrollment\_Status\_\_c (Picklist: Registered, Waitlisted, Dropped, Completed)
  + Grade\_\_c (Picklist: A+, A, B+, B, C+, C, D, F, Incomplete, Withdrawn)
  + Attendance\_Percentage\_\_c (Percent, 2 decimal places)
  + Payment\_Status\_\_c (Picklist: Pending, Partial, Paid, Overdue)
  + Payment\_Amount\_\_c (Currency, 2 decimal places)

**5. Application\_\_c (Custom Object)**

* **API Name**: Application\_\_c
* **Fields**:
  + Application\_Number\_\_c (Text, External ID, Unique) - Auto-number format: APP-{00000}
  + Student\_\_c (Lookup to Student\_\_c, Required)
  + Application\_Date\_\_c (Date, auto-populated)
  + Intended\_Program\_\_c (Picklist: Undergraduate, Graduate, Certificate)
  + Intended\_Major\_\_c (Picklist: Computer Science, Mathematics, Physics, Chemistry, Biology, English)
  + Previous\_GPA\_\_c (Number, 2 decimal places)
  + Test\_Scores\_\_c (Text, 50 chars)
  + Personal\_Statement\_\_c (Long Text Area, 2000 chars)
  + Recommendation\_Letters\_\_c (Number, 0 decimal places)
  + Application\_Fee\_Paid\_\_c (Checkbox, default: false)
  + Documents\_Submitted\_\_c (Multi-select Picklist: Transcript, Test Scores, Personal Statement, Recommendation Letters, Photo ID)
  + Review\_Status\_\_c (Picklist: Submitted, Under Review, Interview Scheduled, Approved, Rejected, Waitlisted)
  + Reviewer\_\_c (Lookup to User)
  + Review\_Comments\_\_c (Long Text Area, 1000 chars)
  + Decision\_Date\_\_c (Date)

**Relationships Design**

**Master-Detail Relationships**

1. **Enrollment\_\_c to Student\_\_c** (Master-Detail)
2. **Enrollment\_\_c to Course\_\_c** (Master-Detail)

**Lookup Relationships**

1. **Application\_\_c to Student\_\_c** (Lookup)
2. **Course\_\_c to Faculty\_\_c** (Lookup) - Course Instructor
3. **Application\_\_c to User** (Lookup) - Reviewer

**Record Types**

**Student\_\_c Record Types**

1. **Undergraduate Student**
   * Fields: Previous\_Education\_\_c limited to "High School"
2. **Graduate Student**
   * Fields: Previous\_Education\_\_c limited to "Undergraduate", "Graduate"

**Application\_\_c Record Types**

1. **Undergraduate Application**
2. **Graduate Application**
3. **Certificate Application**

**Page Layouts**

**Student\_\_c Page Layouts**

* **Student Information Layout**
  + Sections: Personal Information, Contact Details, Academic Background, Application Status
* **Admin View Layout**
  + Sections: All fields + System Information

**Course\_\_c Page Layouts**

* **Course Information Layout**
  + Sections: Course Details, Schedule, Enrollment, Prerequisites
* **Faculty View Layout**
  + Sections: Course Details, Enrollment Statistics

**Application\_\_c Page Layouts**

* **Application Review Layout**
  + Sections: Applicant Information, Academic History, Documents, Review Details

**Validation Rules**

**Student\_\_c Validation Rules**

1. **Email\_Domain\_Validation**: Email must end with university domain
2. **Age\_Validation**: Date of birth must indicate age >= 16
3. **Phone\_Format**: Phone number format validation

**Course\_\_c Validation Rules**

1. **Date\_Validation**: End date must be after start date
2. **Capacity\_Validation**: Max capacity must be greater than 0
3. **Enrollment\_Limit**: Current enrollment cannot exceed max capacity

**Enrollment\_\_c Validation Rules**

1. **Duplicate\_Enrollment**: Student cannot enroll in same course twice
2. **Prerequisites\_Check**: Validation for prerequisite courses

**Security & Sharing**

**Organization-Wide Defaults (OWD)**

* Student\_\_c: Private
* Course\_\_c: Public Read Only
* Faculty\_\_c: Public Read Only
* Enrollment\_\_c: Controlled by Parent (inherits from Student and Course)
* Application\_\_c: Private

**Sharing Rules**

1. **Course Sharing**: Faculty can read/edit courses in their department
2. **Student Sharing**: Admissions team can access all student records
3. **Application Sharing**: Reviewers can access applications assigned to them