Smart College CRM – Student Management System on Salesforce

Phase 7: Integration & External Access – Smart College CRM

**🔹 Objective**

To enable **Smart College CRM** to securely integrate with external systems such as **payment gateways, SMS/email services, e-learning platforms, and government portals**, ensuring smooth operations, real-time updates, and scalability across the student lifecycle.

**🔹 Integration Components**

**1. Named Credentials**

* Securely store authentication details for external systems.
* **Use Case:**
  + Payment Gateway API (Razorpay/Stripe/PayPal) for **fee collection**.
  + LMS API (Moodle/Google Classroom) for **course access**.

HttpRequest req = new HttpRequest();

req.setEndpoint('callout:FeePaymentAPI/charge');

req.setMethod('POST');

req.setHeader('Content-Type','application/json');

req.setBody(JSON.serialize(feeDetails));

Http http = new Http();

HttpResponse res = http.send(req);

**2. External Services**

* Import OpenAPI schema of external APIs into Salesforce.
* **Use Cases:**
  + Call **Digital Library API** for book availability.
  + Call **Online Exam API** after enrollment to auto-provision exam slots.

**3. REST/SOAP Web Services**

* **REST Example:** Send admission confirmation via SMS/email service.

HttpRequest req = new HttpRequest();

req.setEndpoint('https://sms-provider.com/api/send');

req.setMethod('POST');

req.setHeader('Content-Type','application/json');

req.setBody(JSON.serialize(smsObj));

Http http = new Http();

HttpResponse res = http.send(req);

* **SOAP Example:** Integration with legacy **University ERP** for accreditation and compliance records.

**4. Callouts**

* Used for:
  + Online fee verification
  + Course enrollment sync with LMS
  + Sending reminders via SMS/Email
  + Government scholarship verification
* Asynchronous callouts with @future(callout=true) for bulk student operations.

**5. Platform Events**

* Publish events such as:
  + **Student enrolled in a course**
  + **Fee payment completed**
  + **Exam results updated**
* External systems subscribe to receive **real-time updates**.

**6. Change Data Capture (CDC)**

* Enable CDC on: **Student\_\_c, Fee\_\_c, Course\_\_c, Exam\_\_c**.
* Keeps **external reporting dashboards** (Power BI/Tableau) updated with changes.

**7. Salesforce Connect**

* Connect with external data sources without storing in Salesforce.
* **Use Case:**
  + Display external **scholarship/loan data** for each student.
  + Access **government education datasets** directly inside CRM.

**8. API Limits**

* Monitor Salesforce API consumption.
* Optimize using:
  + **Batching** for fee processing.
  + **Platform Events** for high-volume student notifications.

**9. OAuth & Authentication**

* Use OAuth 2.0 for secure external connections.
* **Use Cases:**
  + Authenticate with **payment gateway**.
  + Login to **student portal using Google SSO**.
  + Secure access to **Moodle API**.

**10. Remote Site Settings**

* Whitelist trusted external URLs:
  + Razorpay/Stripe (fee payment)
  + SMS/Email APIs
  + LMS APIs
  + Govt. Scholarship APIs

**🔹 Example Workflow**

1. Student submits admission form → Callout to **Govt. ID Verification API**.
2. On success → Student\_\_c record created in Salesforce.
3. Fee payment initiated → Callout to Payment Gateway API.
4. On confirmation → Fee\_\_c record created + Receipt emailed.
5. Student auto-enrolled in courses via **LMS API integration**.
6. Exam details synced → Updates published via Platform Events.
7. Reports generated combining **Salesforce CRM data + external analytics**.

**🔹 Outcome of Phase 7 :**

Secure integrations with payment, SMS, email, LMS, and government systems.  
 Real-time student lifecycle updates using Platform Events & CDC.  
 External academic/financial data shown inside Salesforce using Salesforce Connect.  
 Strong security through OAuth 2.0 + Named Credentials.  
 Scalable integration model for future expansion (AI proctoring, online classes, etc.).