# Phase 7: Integration & External Access – Student Accommodation Finder

## 1. Named Credentials

**Purpose:** Securely store authentication details to call external systems (e.g., payment gateway API).
**Implementation:**

- Setup → Named Credentials → New Named Credential

- URL: Payment Gateway or external service

- Authentication: OAuth 2.0 or password authentication

- Example: PaymentGateway_NC for calling Stripe/PayPal APIs

## 2. External Services

**Purpose:** Integrate external APIs declaratively without writing Apex.
**Implementation:**

- Register API schema (OpenAPI/Swagger) in Salesforce → External Services

- Example: Fetch available hostels or accommodation reviews from external partner websites

## 3. Web Services (REST/SOAP)

**Purpose:** Exchange data with external applications.
**Implementation:**

- Expose Booking or Payment services as REST API:

```
@RestResource(urlMapping='/BookingService/*')

global with sharing class BookingRESTService {

  @HttpPost

  global static String createBooking(String studentId, String accommodationId) {

    // Logic to create booking

    return 'Booking Created';

  }

}
```

## 4. Callouts

**Purpose:** Make outbound requests to external APIs.
**Implementation:**

- Use HttpRequest in Apex:

HttpRequest req = new HttpRequest();

req.setEndpoint('callout:PaymentGateway_NC/process');

req.setMethod('POST');

req.setBody('{"bookingId":"001...","amount":1200}');

HttpResponse res = new Http().send(req);

## 5. Platform Events

**Purpose:** Event-driven communication within Salesforce.
**Implementation:**

- Create Platform Event Booking_Event__e

- Example: Fire event when new booking is created → notify landlord

## 6. Change Data Capture (CDC)

**Purpose:** Track real-time changes in Salesforce objects.
**Implementation:**

- Enable CDC on Booking/Payment objects

- Subscribe via LWC, Apex Trigger, or external system (Streaming API)

- Example: Notify external analytics system whenever a booking is updated

## 7. Salesforce Connect

**Purpose:** Access external data as Salesforce objects without storing locally
**Implementation:**

- Setup → External Data Source → Connect to external database (OData/SQL)

- Example: Show real-time hostel availability from partner database in Salesforce

## 8. API Limits

**Purpose:** Ensure system doesn't exceed Salesforce governor limits on API calls
**Implementation:**

- Monitor via Setup → System Overview → API Usage

- Optimize callouts using batch or caching

## 9. OAuth & Authentication

**Purpose:** Secure integration with external services
**Implementation:**

- Configure OAuth 2.0 in Named Credentials

- Example: Student payment authorization via Stripe OAuth

## 10. Remote Site Settings

**Purpose:** Allow Salesforce to call external endpoints
**Implementation:**

- Setup → Remote Site Settings → New

- Enter external URL (e.g., https://api.paymentgateway.com)