Phase 7: Integration & External Access

Goal: To connect the Salesforce-based Parking Slot Reservation System with external systems (such as security/gate entry systems or facility management databases) so that reservations are automatically synchronized and accessible outside Salesforce.

Step 1: Setting Up Named Credentials

- Went to **Setup → Named Credentials**.
- Created a new Named Credential to securely store the **API endpoint, username, password, and authentication details** of the external gate/entry system.
- Selected **"Password Authentication"** for basic testing.

Outcome: External API login details are stored securely without hardcoding in Apex.

Step 2: Configuring External Services

- Used **External Services wizard** in Salesforce to import the schema (OpenAPI/Swagger file) of the gate system.
- Defined **operations** like:
  - validateEntry(reservationId) → Verify employee entry at the gate.
  - notifySecurity(slotId) → Inform security staff when a slot is booked.

Outcome: External operations become available as invocable actions inside Salesforce Flows and Apex.

Step 3: REST API Callouts

- Developed **Apex callouts** to send reservation data to the gate/entry system.
- Example: When a reservation is created, the system sends a POST request to the **Security System API**.

- Handled **JSON serialization/deserialization** for request/response.

Outcome: Real-time communication between Salesforce and security systems.

Step 4: Trigger-Based Callouts

- Created an **Apex Trigger on Reservation**:
    - When a new reservation is confirmed, call the external gate API.
    - Send reservation details like employee ID, slot number, and time.
- Used **@future(callout = true)** to make callouts asynchronously without delaying Salesforce transactions.

Outcome: Security gate system is automatically updated whenever a reservation is made.

Step 5: Using Platform Events

- Created a **Platform Event: SlotMaintenanceEvent**.
- When a slot is under maintenance or breakdown is reported, the event is published.
- External systems subscribed to this event get notified instantly.

Outcome: Maintenance or breakdown updates are broadcast in real-time.

Step 6: Change Data Capture (CDC)

- Enabled **Change Data Capture** for the Reservation object.
- Subscribed external system to CDC channel so that any change (create/update/delete) in reservations is captured.

Outcome: External facility system is always in sync with Salesforce data.

Step 7: Salesforce Connect (Optional)

- Configured **Salesforce Connect** to connect with an external facility management database.

- Used **OData connector** to display external slot records inside Salesforce without storing duplicate data.

Outcome: External DB data is visible in Salesforce as if it were native records.

Step 8: API Limits Monitoring

- Monitored **daily API call usage** under **Setup → System Overview**.
- Implemented **Governor Limit handling** in Apex to avoid exceeding callouts/day.

Outcome: Ensures system scalability without hitting API limits.

Step 9: Authentication & Security (OAuth)

- Set up **OAuth 2.0 Authentication** for secure access to the employee self-service portal.
- Configured **Remote Site Settings** to whitelist external API domains.

Outcome: Only authorized systems and employees can access Salesforce APIs.

Final Output of Phase 7

✓ Secure **integration with external gate/entry system**.
✓ Real-time **reservation updates synced** with security staff.
✓ **Platform Events & CDC** keep external systems updated automatically.
✓ **OAuth & Named Credentials** ensure security and scalability.
✓ System ready for **enterprise-level integrations**.