Phase 5 - Apex Programming (Developer)

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1. Objective

To implement **business logic, validations, and automation** in Salesforce for the Smart Lost & Found system using **Apex classes, triggers, batch, and scheduled jobs**.

This phase ensures:

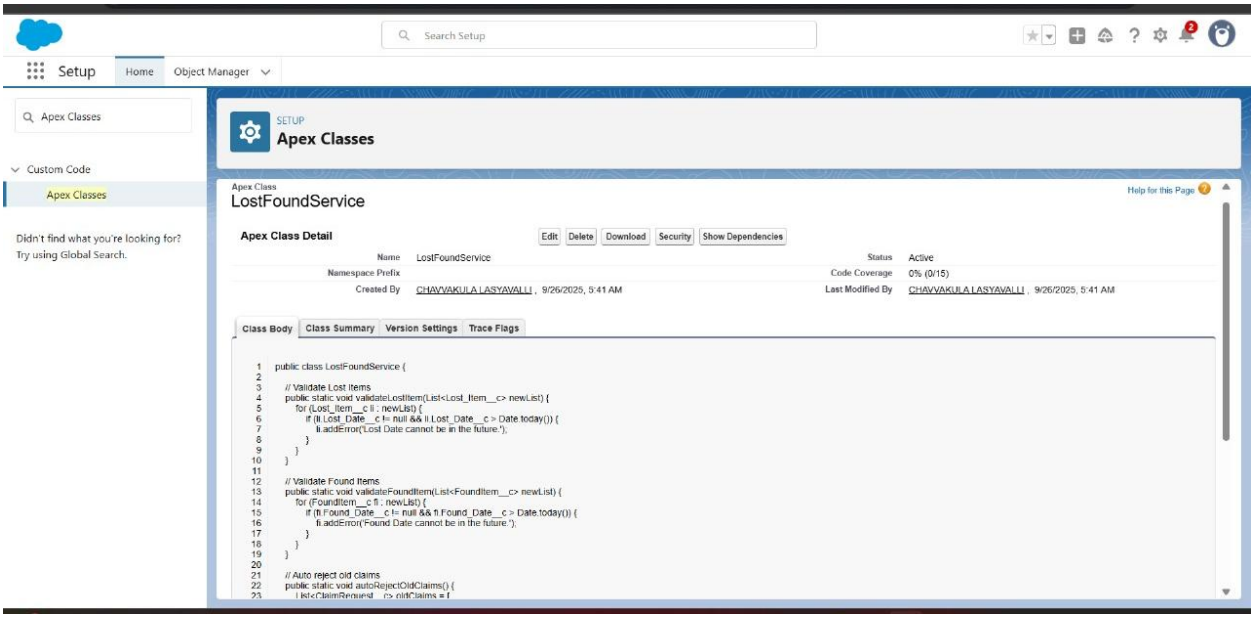
- Lost and Found items have valid dates.
- Old pending claim requests are automatically rejected.
- Notifications are triggered for new claim requests.
- Full test coverage is achieved for deployment.

2. Apex Class — LostFoundService

Description:
Centralized service class containing all Apex methods for validating items and auto-rejecting old claims.

Key Methods:

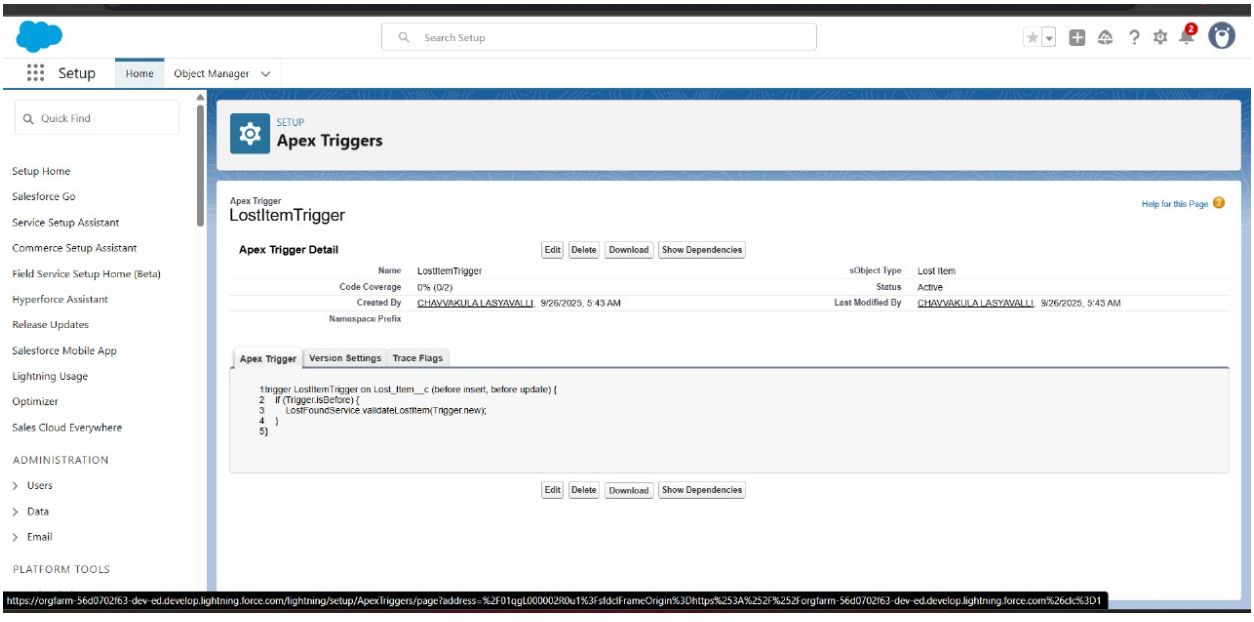
- **validateLostItem(List<Lost_Item__c> newList)**
    - Ensures *Lost_Date__c* is not a future date.
    - Adds an error if validation fails.
- **validateFoundItem(List<FoundItem__c> newList)**
    - Ensures *Found_Date__c* is not a future date.
    - Adds an error if validation fails.
- **autoRejectOldClaims()**
    - Finds all pending *ClaimRequest__c* records older than 14 days.
    - Updates their *Approval_Status__c* to **Rejected**.



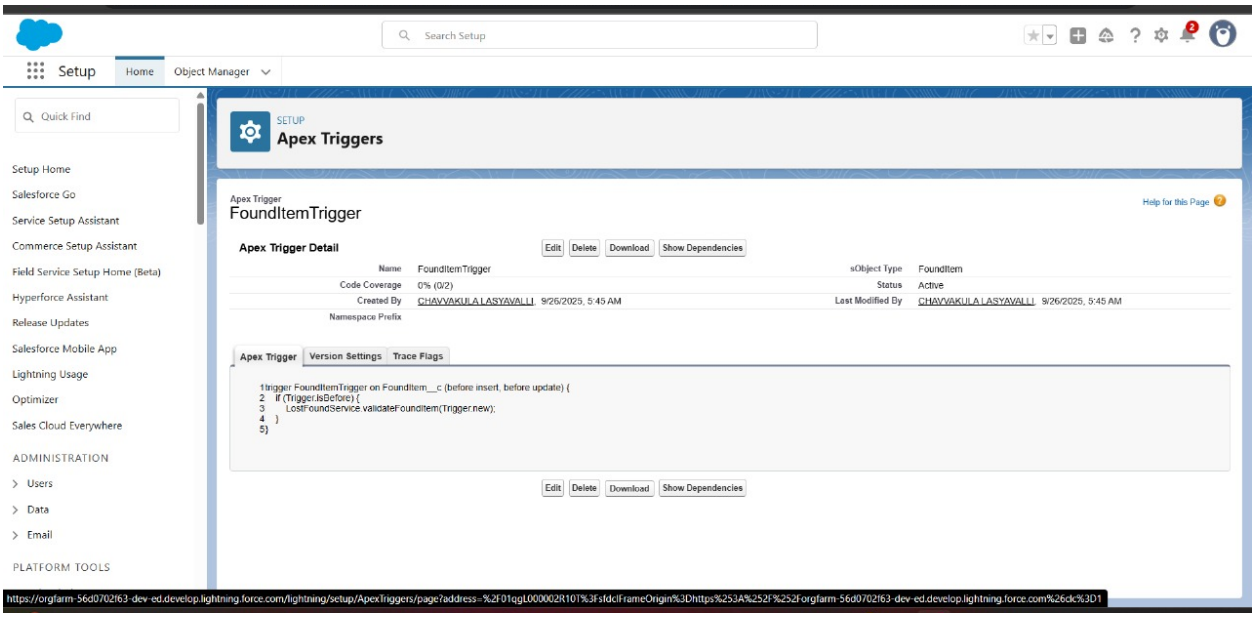
3. Triggers

Purpose: Execute Apex logic automatically on object operations.

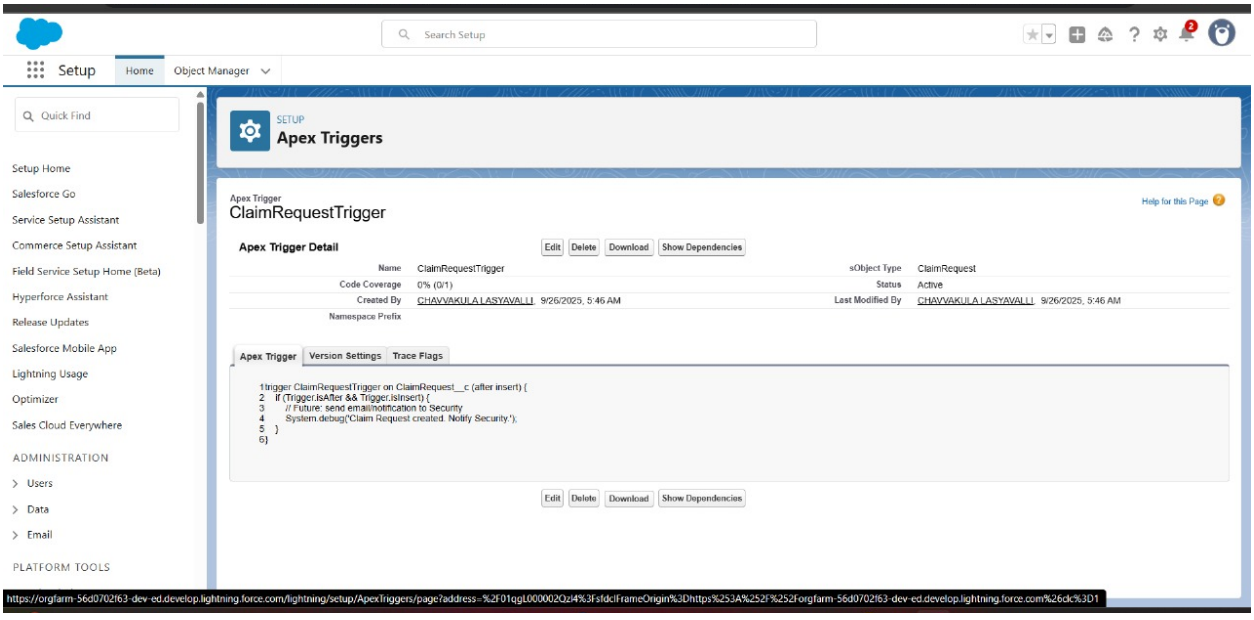
Lost Item Trigger



Found Item Trigger

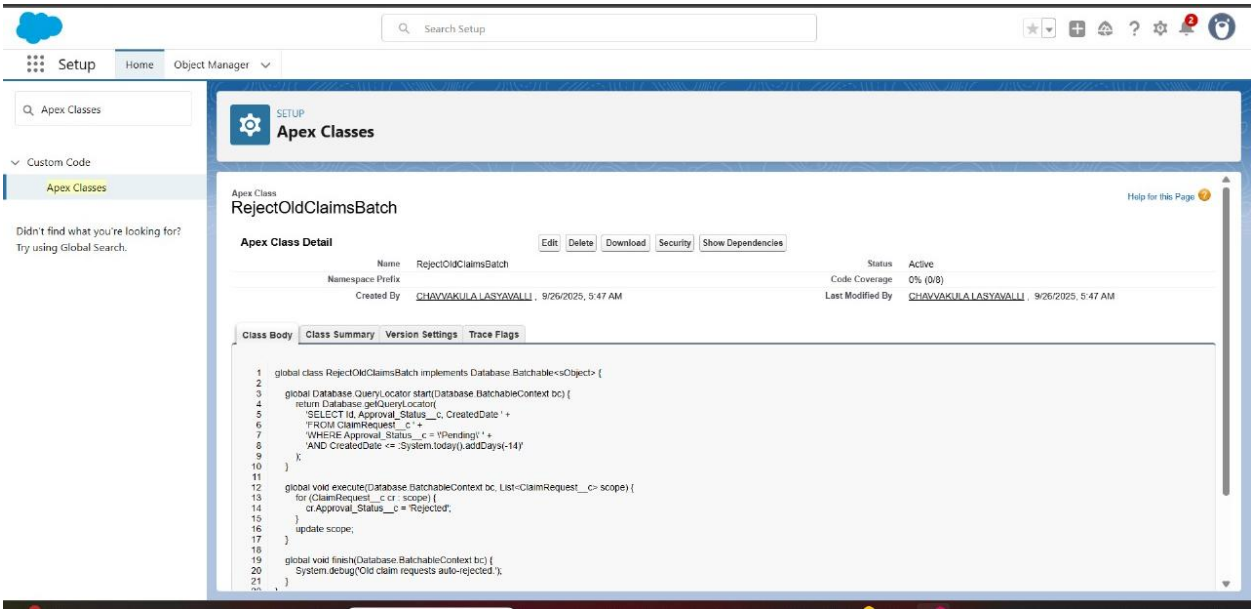


Claim Request Trigger



4. Batch Apex — RejectOldClaimsBatch

Purpose: Automatically reject pending claims older than 14 days.



5. Scheduled Apex — RejectOldClaimsScheduler

Purpose: Runs the batch job daily to maintain data consistency.

Setup:

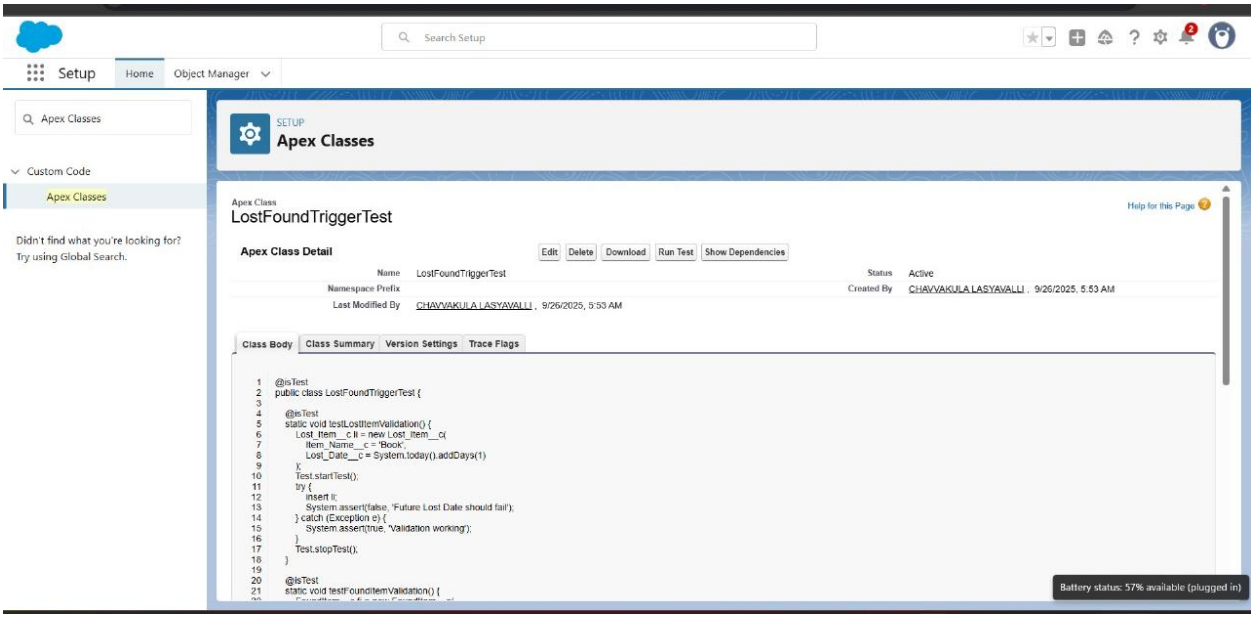
- Setup → Apex Classes → Schedule Apex
- Run daily (e.g., 12:00 AM IST)

6. Test Class — LostFoundTriggerTest

Purpose: Validate all Apex logic and ensure **75%+ code coverage**.

Key Points Tested:

- Future *Lost_Date__c* triggers validation error.
- Future *Found_Date__c* triggers validation error.
- Old pending claims are auto-rejected using LostFoundService.autoRejectOldClaims().



7. Verification in Org

- Create a **Lost Item** with a future date → Should throw error.
- Create a **Found Item** with a future date → Should throw error.
- Create a **Claim Request** → Check debug logs (simulate notification).
- Run batch manually:
- Database.executeBatch(new RejectOldClaimsBatch());

→ Old pending claims updated to **Rejected**.

8. Outcomes

- All future dates for Lost/Found items are blocked.
- Old pending claim requests are automatically rejected.
- Notifications for new claims are simulated (can integrate email later).
- Apex programming enforces **business rules** beyond declarative automation.
- Full test coverage achieved (**>75%**).