

Phase 5: Apex Programming

Project Title: SmartCare CRM – Salesforce-Powered Healthcare Management & Patient Engagement Suite

This phase introduces server-side automation using **Apex**, Salesforce's native programming language. The goal is to create a simple Apex Trigger that enforces data integrity on new appointment records, ensuring every appointment has a valid reason before it can be saved. This demonstrates how developer tools enhance the application's functionality.

1. Apex Trigger: Appointment Reason Validation

Purpose:

To ensure that every new appointment record includes a reason for the visit. This prevents users from creating incomplete records and improves data quality for doctors and administrators.

How it Works:

This is a **before insert trigger**, which runs just before a new Appointment__c record is saved to the database. The trigger checks each new appointment, and if the Reason__c field is empty, it throws an error message to the user, stopping the save operation.

Implementation and Testing

A. The Apex Code

The following trigger was created using the Developer Console and saved in Salesforce:



```
Developer Console - Google Chrome
orgfarm-b14977b716-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage
File Edit Debug Test Workspace Help < >
AppointmentTrigger.apxt
Code Coverage: None API Version: 64 Go To
1 trigger AppointmentTrigger on Appointment__c (before insert) {
2   for (Appointment__c appt : Trigger.new) {
3     if (String.isEmpty(appt.Reason__c)) {
4       appt.addError('Reason is required for the appointment.');
```

Testing the Trigger

1. While Creating the Appointment

A new appointment record was created without entering a value in the **Reason** field.

2. After Clicking Save

The trigger fired successfully. Salesforce displayed the error message:

“Reason is required for the appointment.”

The record was not saved until a valid reason was entered.

The screenshot displays the 'New Appointment: New Consultation' form in Salesforce. The form is divided into sections: 'Patient Appointments' and 'Clinical Information'. In the 'Patient Appointments' section, the following fields are visible: '* Patient' (PAT-0004), '* Assigned Doctor' (Arun), 'Appointment DateTime' (Date: 9/25/2025, Time: 12:00 PM), '* Status' (Requested), '* Visit Type' (In-Person), and 'Consultation Fee'. In the 'Clinical Information' section, the 'Reason' field is empty. A red error message box is overlaid on the form, stating: 'We hit a snag. Review the errors on this page. Reason is required for the appointment.' The form also includes a 'Reminder Sent' checkbox and buttons for 'Cancel', 'Save & New', and 'Save' at the bottom.

3. After giving a reason

The trigger is not fired and new appointment record is created with reason.

SmartCare Hospital

Patients

Appointments

Doctors

Prescriptions

Reports

Dashboards

Appointment

APT-0009

New Contact

Edit

New Opportunity

Related

Details

Patient Appointments

Patient	PAT-0004	Assigned Doctor	Arun
Appointment DateTime	9/25/2025, 12:00 PM	Status	Requested
Visit Type	In-Person	Consultation Fee	
Reminder Sent	<input type="checkbox"/>		

Clinical Information

Reason	For Slight Pain in the left side of chest
Appointment Number	APT-0009
Created By	Hospital Admin, 9/25/2025, 11:27 AM
Owner	Hospital Admin
Last Modified By	Hospital Admin, 9/25/2025, 11:27 AM

Activity

Calendar

Feed

Tasks

Chats

Notes

Filters: All time • All activities • All types

Refresh • Expand All • View All

Upcoming & Overdue

No activities to show.

Get started by sending an email, scheduling a task, and more.

No past activity. Past meetings and tasks marked as done show up here.

Conclusion

The Apex Trigger was successfully created, tested, and deployed. This enforces business rules at the database level and ensures data quality. With this, the SmartCare CRM project meets the Phase 5 requirement for introducing developer-level customizations using Apex.