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:


```
trigger AppointmentTrigger on Appointment__c (before insert) {
    for (Appointment__c appt : Trigger.new) {
        if (String.isEmpty(appt.Reason__c)) {
            appt.addError('Reason is required for the appointment.');
        }
    }
}
```

Testing the Trigger

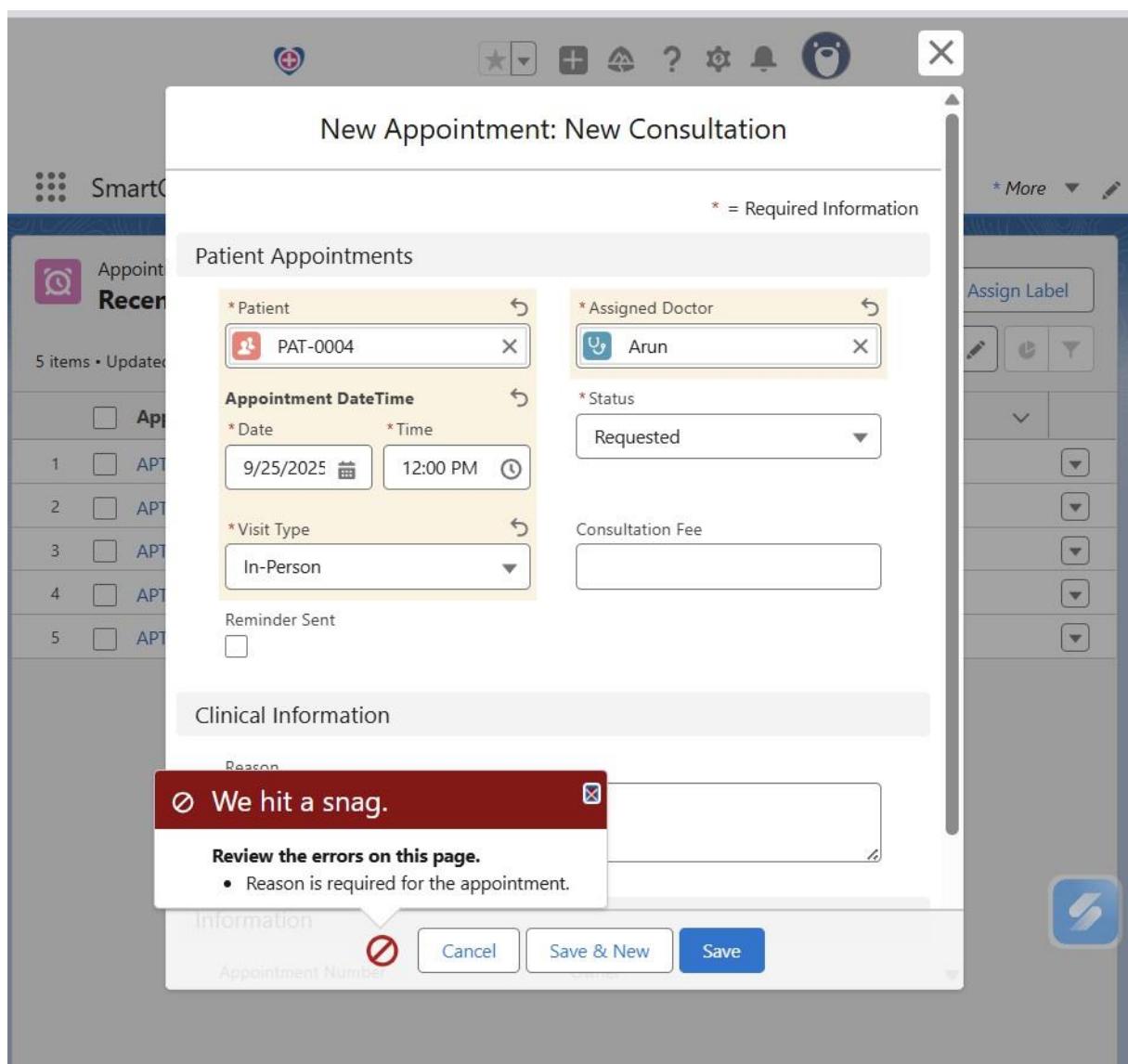### 1. While Creating the Appointment

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.

3. After giving a reason

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

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.