Phase 5 – Apex Programming (Ashok Motors Capstone)

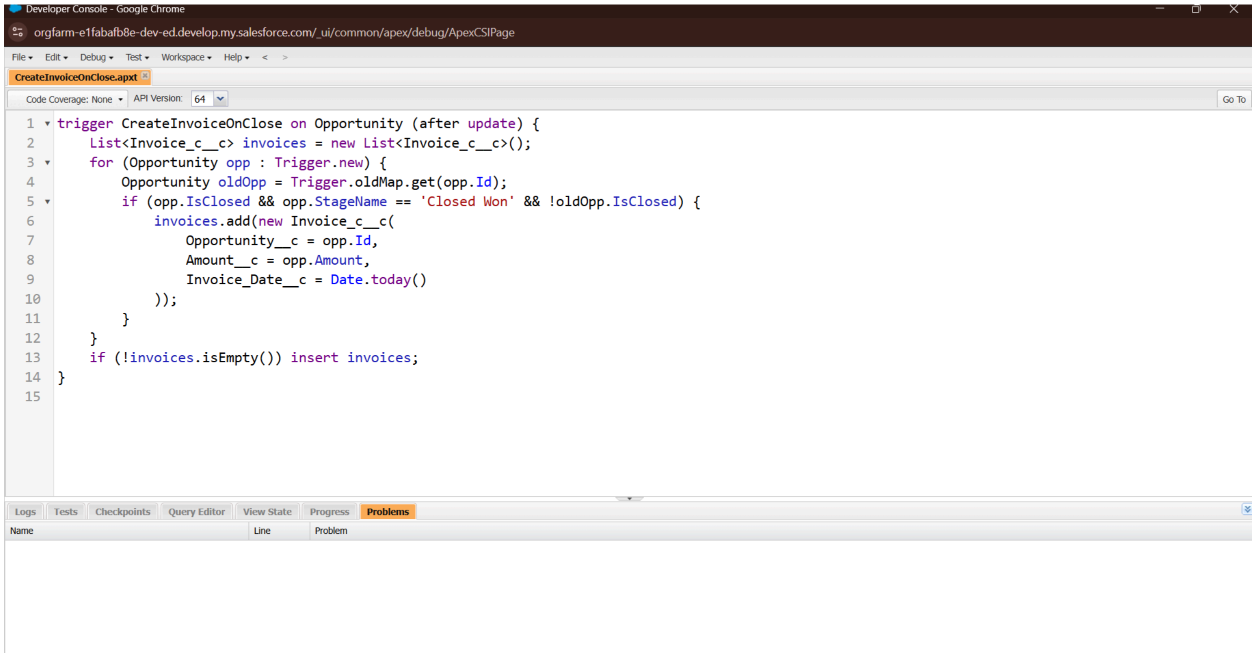
Objective:

Develop server-side logic in Salesforce using Apex to implement complex business rules, automation, and integration that cannot be handled by declarative tools.

1. Apex Triggers

- **Purpose:** Execute logic before or after database operations (insert, update, delete).
- **Examples:**
    1. `TestDriveTrigger` (after insert) – Updates Vehicle__c status to "Booked"
    2. `InvoiceTrigger` (before insert) – Validates Amount__c and applies automatic discount if applicable
- **Trigger Design Pattern:** Used **one trigger per object**, handler class for logic separation
- **Screenshot:**

- **CreateInvoiceOnClose (Trigger):** Automatically creates an Invoice record when an Opportunity is marked Closed Won.
- **Test_CreateInvoice (Class):** Verifies the trigger works correctly and ensures at least 75% code coverage for deployment

- 

Developer Console - Google Chrome

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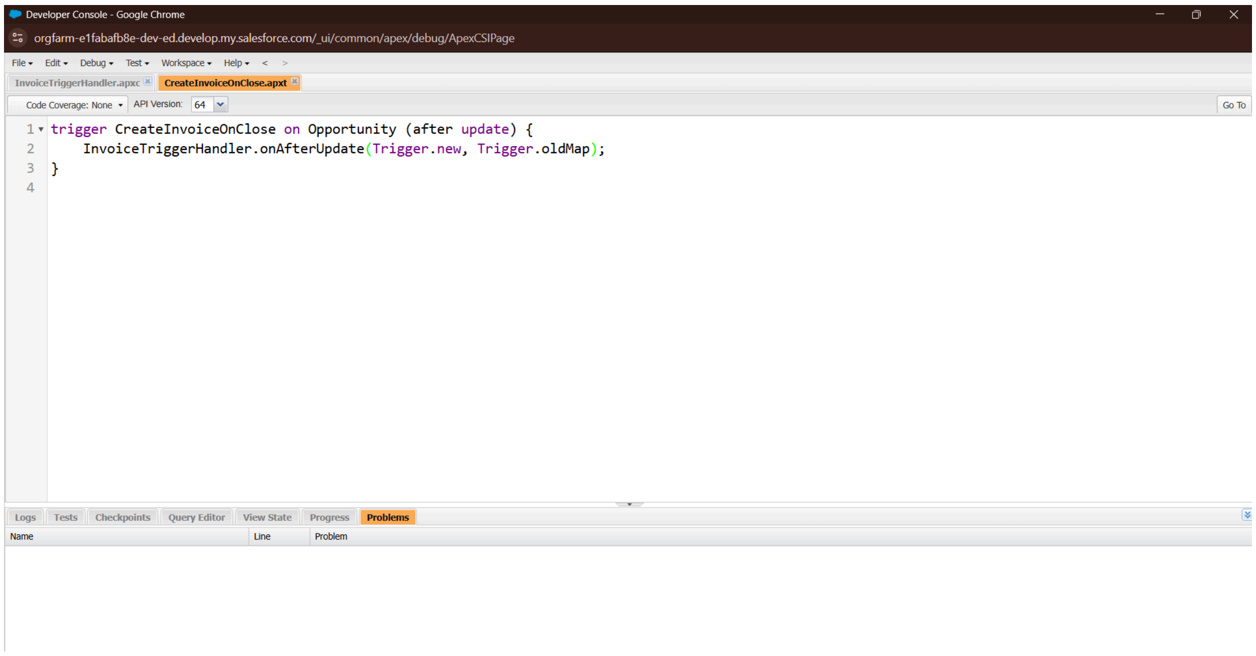
CreateInvoiceOnClose.apxt

Code Coverage: None · API Version: 64

```
trigger CreateInvoiceOnClose on Opportunity (after update) {
    List<Invoice_c__c> invoices = new List<Invoice_c__c>();
    for (Opportunity opp : Trigger.new) {
        Opportunity oldOpp = Trigger.oldMap.get(opp.Id);
        if (opp.IsClosed && opp.StageName == 'Closed Won' && !oldOpp.IsClosed) {
            invoices.add(new Invoice_c__c(
                Opportunity__c = opp.Id,
                Amount__c = opp.Amount,
                Invoice_Date__c = Date.today()
            ));
        }
    }
    if (!invoices.isEmpty()) insert invoices;
}
```

- 

Developer Console - Google Chrome

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InvoiceTriggerHandler.apxc · CreateInvoiceOnClose.apxt

Code Coverage: None · API Version: 64

```
trigger CreateInvoiceOnClose on Opportunity (after update) {
    InvoiceTriggerHandler.onAfterUpdate(Trigger.new, Trigger.oldMap);
}
```

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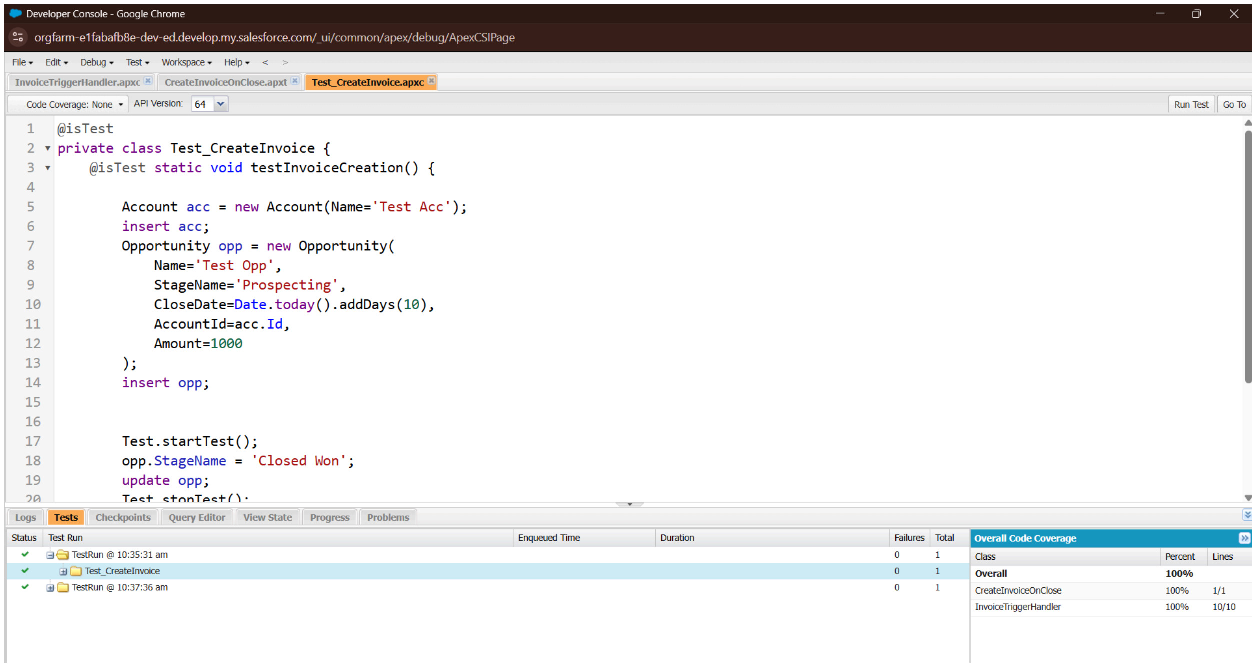
2. Test Classes

- **Purpose:** Ensure at least 75% code coverage for deployment and validate logic

- **Examples:**

    1. `TestVehicleManager` – Inserts sample Vehicle__c records and validates status updates
    2. `TestInvoiceProcessor` – Tests invoice creation and discount logic

- **Screenshot:**


Developer Console - Google Chrome
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File
Edit
Debug
Test
Workspace
Help
InvoiceTriggerHandler.apxc
CreateInvoiceOnClose.apxt
Test_CreateInvoice.apxc
Code Coverage: None
API Version: 64
Run Test
Go To
Logs
Tests
Checkpoints
Query Editor
View State
Progress
Problems

```
@isTest
private class Test_CreateInvoice {
    @isTest static void testInvoiceCreation() {

        Account acc = new Account(Name='Test Acc');
        insert acc;
        Opportunity opp = new Opportunity(
            Name='Test Opp',
            StageName='Prospecting',
            CloseDate=Date.today().addDays(10),
            AccountId=acc.Id,
            Amount=1000
        );
        insert opp;


        Test.startTest();
        opp.StageName = 'Closed Won';
        update opp;
        Test.stopTest();
```

Status	Test Run	Enqueued Time	Duration	Failures	Total
✓	TestRun @ 10:35:31 am			0	1
✓	Test_CreateInvoice			0	1
✓	TestRun @ 10:37:36 am			0	1

Overall Code Coverage

Class	Percent	Lines
Overall	**100%**	
CreateInvoiceOnClose	100%	1/1
InvoiceTriggerHandler	100%	10/10

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