

PHASE – 5 Apex Programming (Developer)

1.Classes & Objects

- Create a utility Apex class to hold shared methods
- Developer Console → File → New → Apex Class → name SH_Utils

```
public class SH_Utils {  
    public static Datetime stripMillis(Datetime dt) {  
        if (dt == null) return null;  
        return Datetime.newInstance(dt.year(), dt.month(), dt.day(), dt.hour(),  
dt.minute(), 0);  
    }  
}
```

2. Apex Triggers (before/after insert/update/delete)

- We create triggers for Appointment (validate times, set defaults) and Patient (Apex-managed sharing).
- Developer Console → New → Apex Trigger → name AppointmentTrigger
-

```
trigger AppointmentTrigger on Appointment__c (before insert, before update) {  
    if (Trigger.isBefore) {  
        if (Trigger.isInsert || Trigger.isUpdate) {  
            SH_AppointmentTriggerHandler.beforeUpsert(Trigger.new, Trigger.oldMap);  
        }  
    }  
}
```

3.Trigger Design Pattern

- A design pattern structures triggers to keep code efficient and maintainable. Best practice: use one trigger per object and delegate logic to a handler class. This prevents recursion and makes future changes easier.

4. SOQL & SOSL

- SOQL (Salesforce Object Query Language) is used to query records from Salesforce objects.
- **SOSL (Salesforce Object Search Language)** searches across multiple objects. Example: Fetch all upcoming appointments for a doctor using SOQL.

5. Collections: List, Set, Map

- Collections store multiple records or values.
- **List**: Ordered collection, allows duplicates
- **Set**: Unique values only
- **Map**: Key-value pairs

6. Control Statements

- Control statements (IF, ELSE, FOR loops, WHILE loops, SWITCH) manage logic flow. Example: Loop through all appointments and send notifications only to doctors who have new patients assigned.

7. Batch Apex

- Batch Apex processes large volumes of records asynchronously in manageable chunks. Example: Update the status of thousands of past appointments without hitting governor limits.

The screenshot shows the Salesforce Developer Console with the following components:

- Code Editor:** Displays Apex code for a test class `Test_SH_AppointmentProcesses`. The code creates test data (a doctor and a patient), creates an appointment for tomorrow, and inserts it. The code is as follows:

```
1 @IsTest
2 private class Test_SH_AppointmentProcesses {
3     @IsTest static void testBatchAndScheduled() {
4         // Create test data
5         Doctor__c doc = new Doctor__c(Name='Dr Test'); insert doc;
6         Patient__c p = new Patient__c(Name='PT Test', Email__c = 'test@example.com'); insert
7         // Create appointment for tomorrow
8         Appointment__c a = new Appointment__c(Patient__c = p.Id, Doctor__c = doc.Id,
9         Appointment_Start__c = Datetime.now().addDays(1),
10         Status__c = 'Scheduled');
11         insert a;
12
13         Test.startTest();
14     }
15 }
```
- Logs Table:** A table showing the execution results of the test. The table has columns: User, Application, Operation, Time, Status, Read, and Size.

User	Application	Operation	Time	Status	Read	Size
Ojaswini Yadari	Unknown	/services/data/v65.0/to...	12/10/2025, 11:34:46 ...	Insert failed. First exce...	Unread	14.12 KB
Ojaswini Yadari	Unknown	ApexTestHandler	12/10/2025, 11:32:58 ...	Success	Unread	523 bytes
Ojaswini Yadari	Unknown	ApexTestHandler	12/10/2025, 11:32:44 ...	Insert failed. First exce...	Unread	14.18 KB
Ojaswini Yadari	Unknown	ApexTestHandler	12/10/2025, 11:32:44 ...	Insert failed. First exce...	Unread	11.23 KB
Ojaswini Yadari	Unknown	ApexTestHandler	12/10/2025, 11:32:43 ...	Success	Unread	2.2 KB
Ojaswini Yadari	Unknown	FutureHandler	12/10/2025, 11:30:12 ...	Success	Unread	4.61 KB

8. Queueable Apex

- Queueable Apex allows running asynchronous jobs in sequence. Example: Send custom notifications to doctors for multiple patients without slowing down user interactions.

9. Scheduled Apex

- Scheduled Apex runs code at specified times. Example: Automatically send daily appointment summaries to hospital admins at 8 AM.

10. Future Methods

- Future methods execute long-running processes asynchronously. Example: Send external API calls for appointment reminders without delaying the user interface.

11.Exception Handling

- Exception handling manages errors in Apex using try-catch blocks. Example: Catch errors when sending emails to patients and log them for review.

12.Test Classes

- Test classes verify that Apex code works as expected. Salesforce requires at least 75% code coverage for deployment. Example: Test appointment creation, status updates, and notifications.

Developer Console - Profile 1 - Microsoft Edge

https://orgfarm-a83c17176c-dev-ed.develop.my.salesforce.com/_ui/common/apex/debug/ApexCSIPage

File Edit Debug Test Workspace Help < >

SH_ExternalPush.apxc Log executeAnonymous @12/10/2025, 11:30:10 pm Test_SH_AppointmentProcesses.apxc

Execution Log

Timestamp	Event	Details
23:30:10:002	USER_INFO	[EXTERNAL]]005gK0000090BwP ojaswiniyadari891@agentforce.com [(GMT-07:00) Pacific Daylight Time (America/Los_Angeles)](GMT-07:00
23:30:10:002	EXECUTION_ST...	
23:30:10:002	CODE_UNIT_ST...	[EXTERNAL]]execute_anonymous_apex
23:30:10:002	HEAP_ALLOCATE	[95]]Bytes:3
23:30:10:002	HEAP_ALLOCATE	[100]]Bytes:152
23:30:10:002	HEAP_ALLOCATE	[417]]Bytes:408
23:30:10:002	HEAP_ALLOCATE	[430]]Bytes:408
23:30:10:002	HEAP_ALLOCATE	[317]]Bytes:6
23:30:10:002	HEAP_ALLOCATE	[EXTERNAL]]Bytes:1
23:30:10:002	STATEMENT_EX...	[1]]
23:30:10:002	STATEMENT_EX...	[1]]
23:30:10:002	HEAP_ALLOCATE	[1]]Bytes:15
23:30:10:002	HEAP_ALLOCATE	[1]]Bytes:11
23:30:10:002	HEAP_ALLOCATE	[1]]Bytes:4

☐ This Frame ☐ Executable ☐ Debug Only ☐ Filter [Click here to filter the log](#)

Logs Tests Checkpoints Query Editor View State Progress Problems

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13. Asynchronous Processing

- Combines Batch, Queueable, Future, and Scheduled Apex to handle tasks in the background. Example: Automatically update appointment records, notify doctors, and generate reports without impacting system performance.