Phase 5 Report: Apex Programming (Developer)

1. Introduction

This phase focuses on implementing **custom business logic** using **Apex Classes and Triggers**.
While Flows handle standard automation, **Apex allows for advanced logic**, such as:

- Validating attendee registration rules
- Handling bulk operations efficiently
- Sending custom notifications or updates

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2. Purpose of Apex Programming

The main purpose of Apex in this project:

- Automatically check **event capacity** when new attendees register
- Prevent **overbooking** beyond the defined Event Capacity
- Maintain data integrity and handle complex business logic that Flow cannot handle

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3. Classes & Triggers Development

Apex Trigger Example:

- Object: **Attendee**
- Trigger Event: **before insert**

Logic:

- Count existing attendees for the event
- Compare with Event Capacity
- If capacity exceeded, throw error to prevent registration

Apex Class Example (Helper Class):

- Class Name: `EventCapacityChecker`
- Method: `checkCapacity(Id eventId)`
- Returns boolean / throws exception if capacity exceeded

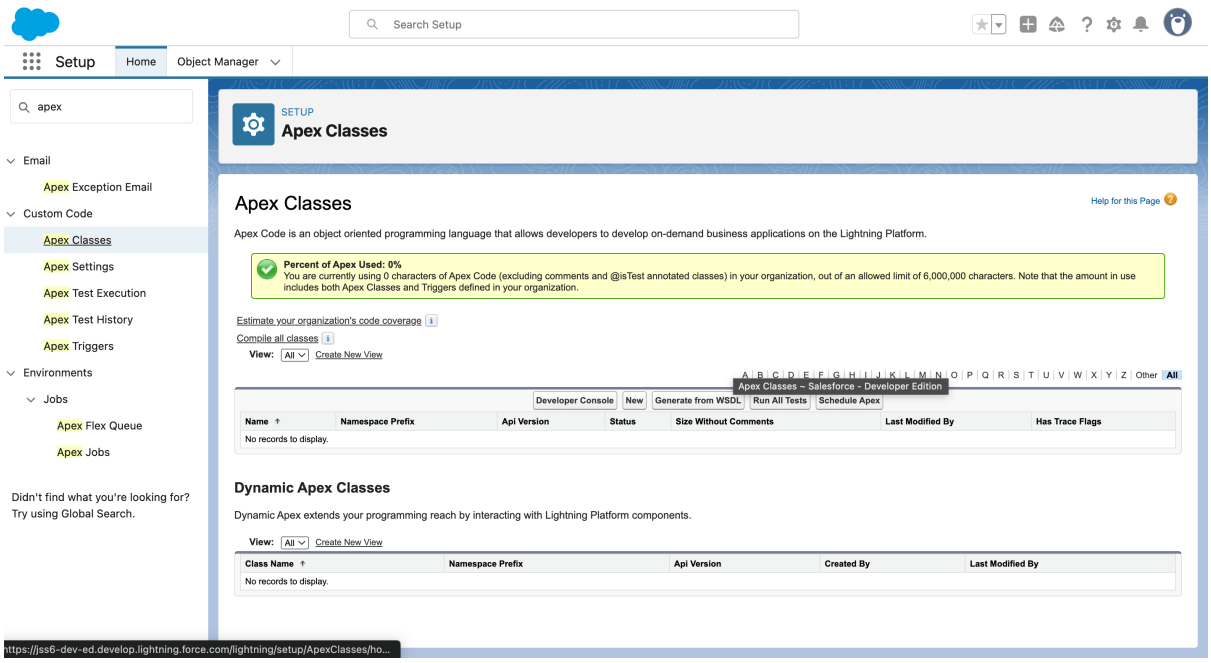
4. Sample Apex Code

```
trigger AttendeeTrigger on Attendee__c (before insert) {
    Set<Id> eventIds = new Set<Id>();
    for(Attendee__c a : Trigger.new){
        if(a.Event__c != null){
            eventIds.add(a.Event__c);
        }
    }
    Map<Id, Event__c> events = new Map<Id, Event__c>(
        [SELECT Id, Capacity__c,
        (SELECT Id FROM Attendees__r)
        FROM Event__c WHERE Id IN :eventIds]
    );

    for(Attendee__c a : Trigger.new){
        Event__c ev = events.get(a.Event__c);
        if(ev.Attendees__r.size() >= ev.Capacity__c){
            a.addError('Registration failed: Event capacity full.');
        }
    }
}
```

5. Testing & Debugging

- Used **Anonymous Apex** or **Test Classes** to simulate registrations
- Verified that **overbooking is blocked**
- Checked **system debug logs** to confirm logic execution



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6. Conclusion

- Apex programming ensures **advanced validations** that Flows cannot handle alone
- Maintains **data integrity** and enforces event capacity rules
- Lays foundation for further developer-level customization in the project