Phase 5: Apex Programming (Developer) – Replastix Innovation

Classes & Objects

Apex classes encapsulate business logic and operations. Objects in Apex hold data and allow manipulation through methods. Example: A Recycled Product class to calculate inventory and update stock automatically.

Apex Triggers

Triggers automate actions before or after a record is inserted, updated, deleted, or undeleted. Example: Automatically update Recycled Product quantity after Plastic Waste is marked as recycled.

Trigger Design Patterns

Best practices include creating one trigger per object, using handler classes, and separating business logic from trigger logic to ensure maintainability.

SOQL & SOSL

- **SOQL (Salesforce Object Query Language)**: Retrieve records based on specific criteria.
- **SOSL (Salesforce Object Search Language)**: Search for records across multiple objects. Example: Query all Plastic Waste records of type PET collected this month.

Collections: List, Set, Map

- **List**: Ordered collection of records.
- **Set**: Unique collection without duplicates.
- **Map**: Key-value pairs for fast lookups. Used to efficiently process large data sets in Apex.

Control Statements

Use if, switch, loops (for, while) to control the flow of Apex logic.

Batch Apex

Process large volumes of records asynchronously in batches. Example: Update status of thousands of Plastic Waste records automatically.

Queueable Apex

Execute flexible asynchronous operations. Example: Queue multiple inventory updates without impacting user experience.

Scheduled Apex

Schedule Apex classes to run at specific times, such as nightly calculations or weekly summaries.

Future Methods

Handle long-running operations asynchronously without blocking users, such as sending bulk email notifications.

Exception Handling

Catch and manage runtime errors to ensure smooth execution and maintain system stability.

Test Classes

Ensure code coverage and functionality to meet Salesforce deployment requirements. Example: Test Recycled Product quantity update logic.

Asynchronous Processing

Manage background operations like batch jobs, queueable tasks, or future methods to maintain performance and efficiency.