AgriTrust Connect- Phase 6: Lightning Web Components (LWC) (Developer UI) Report

Project Title: AgriTrust Connect - Sustainable Agriculture CRM
Phase: 6 - Lightning Web Components (Developer UI)
Date: 24 September 2025
Prepared By: SRI VAISHNAVI B

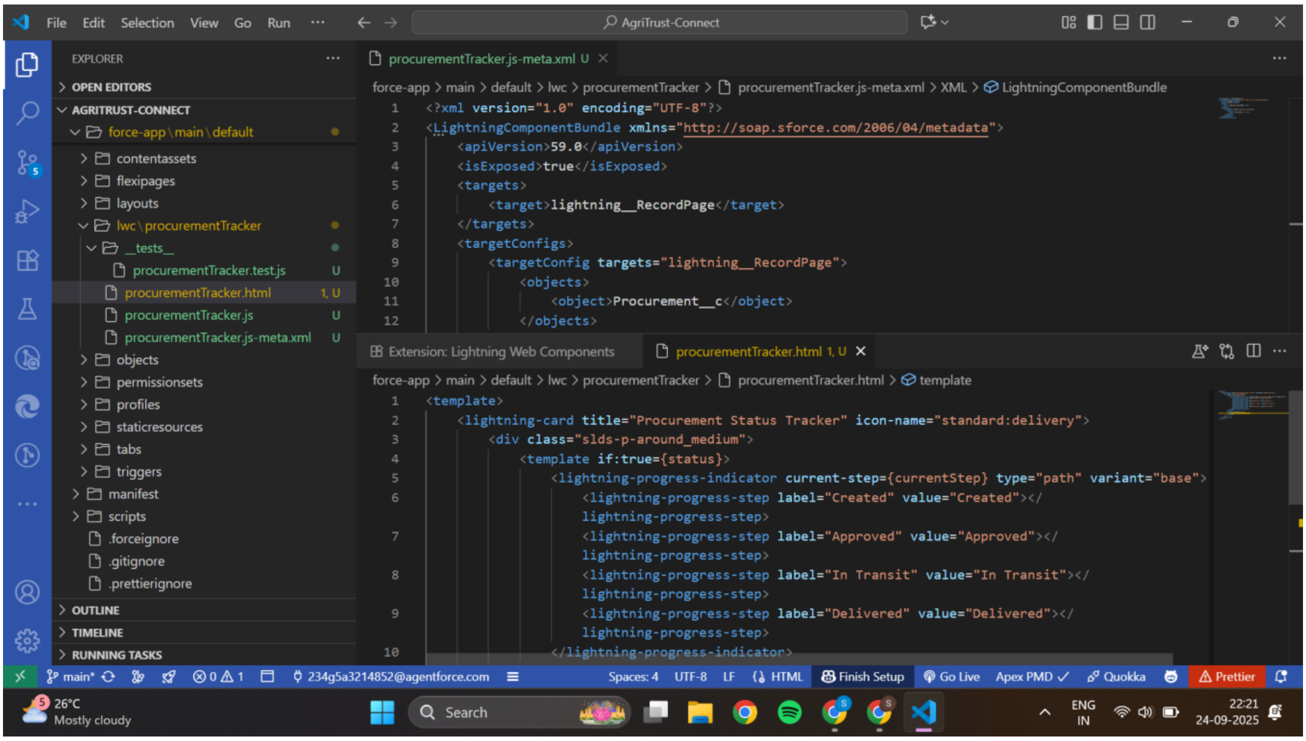
1. Introduction

Phase 6 was dedicated to building a rich, responsive, and interactive user interface using **Lightning Web Components (LWC)**. The primary goal was to move beyond standard page layouts to create custom components that present complex information intuitively and streamline user workflows. This phase directly leverages the Apex backend developed in Phase 5 to provide a dynamic front-end experience for all users of AgriTrust Connect. All components were built using modern JavaScript and followed Salesforce's best practices for LWC development.

2. Lightning Web Components (LWC) Created

Purpose: To create reusable UI components that provide enhanced functionality and interactivity beyond the standard Salesforce UI.

Component Name	Description
procurementTracker	Placed on the Procurement record page, this component visually displays the current stage of the procurement process (Created, Approved, In Transit, Delivered) using a progress indicator. It is wired to the
farmDetailMap	This component displays a farm's location on an interactive map using the lightning-map base component. It is placed on the Farm record page and pulls address data from the record.
relatedCropCycles	A custom component for the Farmer record page that displays a summary of all related Crop Cycles in a stylized data table, showing key fields like Crop Name, Season, and Status[2].
advisorySearch	A standalone utility component that allows users to perform a keyword search across all Advisory records using SOSL via the
weatherAlertPanel	A component for the Home Page that calls the



```xml
<?xml version="1.0" encoding="UTF-8"?>
<LightningComponentBundle xmlns="http://soap.sforce.com/2006/04/metadata">
    <apiVersion>59.0</apiVersion>
    <isExposed>true</isExposed>
    <targets>
        <target>lightning__RecordPage</target>
    </targets>
    <targetConfigs>
        <targetConfig targets="lightning__RecordPage">
            <objects>
                <object>Procurement__c</object>
            </objects>
```

```html
<template>
    <lightning-card title="Procurement Status Tracker" icon-name="standard:delivery">
        <div class="slds-p-around_medium">
            <template if:true={status}>
                <lightning-progress-indicator current-step={currentStep} type="path" variant="base">
                    <lightning-progress-step label="Created" value="Created"></lightning-progress-step>
                    <lightning-progress-step label="Approved" value="Approved"></lightning-progress-step>
                    <lightning-progress-step label="In Transit" value="In Transit"></lightning-progress-step>
                    <lightning-progress-step label="Delivered" value="Delivered"></lightning-progress-step>
                </lightning-progress-indicator>
```

3. LWC Communication & Events

Purpose: To enable seamless interaction between components and with the Salesforce backend.

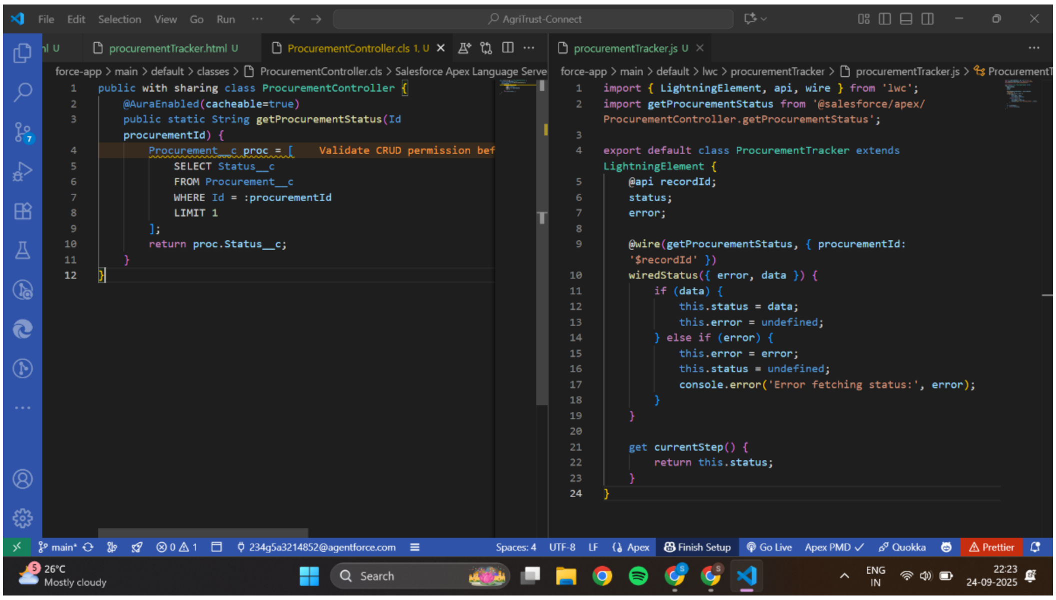
- **Apex Integration**: Components like procurementTracker and weatherAlertPanel use the @wire decorator to call cacheable=true Apex methods, ensuring efficient, read-only data fetching from the backend built in Phase 5.
- **Navigation Service**: Components used the NavigationMixin to programmatically navigate users to related record pages, such as clicking a Crop Cycle in the relatedCropCycles component to view its full record.
- **Custom Events**: A parent-child component relationship was established where selecting a record in one component could emit a CustomEvent with the record's ID, allowing a sibling component on the same page to listen for the event and display relevant data.

4. Component Placement & Activation

Purpose: To integrate the newly built components into the AgriTrust Connect application for end-user access.

Component Name	Placement Location	Activation
procurementTracker	Procurement Record Page, Main Column	Activated as App Default for AgriTrust Connect
farmDetailMap	Farm Record Page, Right Sidebar	Activated as App Default for AgriTrust Connect

Component Name	Placement Location	Activation
relatedCropCycles	Farmer Record Page, New "Crops" Tab	Activated as App Default for AgriTrust Connect
advisorySearch	App Utility Bar	Added via App Manager for persistent access
weatherAlertPanel	AgriTrust Connect Home Page Layout	Activated as App Default for AgriTrust Connect


File
Edit
Selection
View
Go
Run
AgriTrust-Connect
procurementTracker.html U
ProcurementController.cls 1, U
procurementTracker.js U
force-app > main > default > classes > ProcurementController.cls > Salesforce Apex Language Serve
force-app > main > default > lwc > procurementTracker > procurementTracker.js > ProcurementT
main*
234g5a3214852@agentforce.com
Spaces: 4
UTF-8
LF
Apex
Finish Setup
Go Live
Apex PMD ✓
Quokka
Prettier
26°C
Mostly cloudy
Search
ENG
IN
22:23
24-09-2025

```
public with sharing class ProcurementController {
    @AuraEnabled(cacheable=true)
    public static String getProcurementStatus(Id procurementId) {
        Procurement__c proc = [    Validate CRUD permission bef
            SELECT Status__c
            FROM Procurement__c
            WHERE Id = :procurementId
            LIMIT 1
        ];
        return proc.Status__c;
    }
}
```

```
import { LightningElement, api, wire } from 'lwc';
import getProcurementStatus from '@salesforce/apex/ProcurementController.getProcurementStatus';

export default class ProcurementTracker extends LightningElement {
    @api recordId;
    status;
    error;

    @wire(getProcurementStatus, { procurementId: '$recordId' })
    wiredStatus({ error, data }) {
        if (data) {
            this.status = data;
            this.error = undefined;
        } else if (error) {
            this.error = error;
            this.status = undefined;
            console.error('Error fetching status:', error);
        }
    }

    get currentStep() {
        return this.status;
    }
}
```

5. Test Classes (Jest)

Purpose: To ensure the JavaScript logic within each LWC functions as expected and to validate UI rendering based on mock data, complementing the Apex tests from Phase 5[6].

Test Suite Name	Coverage Focus
procurementTracker.test.js	Validates that the progress indicator correctly reflects the status passed from the Apex wire service mock.
farmDetailMap.test.js	Ensures map markers are correctly generated from mock record data.
relatedCropCycles.test.js	Confirms the data table renders the correct number of rows based on mock data and that events fire on row selection.

Test Suite Name	Coverage Focus
weatherAlertPanel.test.js	Verifies that the component correctly displays an alert message when the Apex mock returns data and a placeholder when it returns null.

6. Phase 6 Outcome

- Successfully developed and deployed five custom Lightning Web Components, significantly enhancing the user experience.
- The application UI is now more dynamic and context-aware, reducing clicks and surfacing important information more effectively.
- Established a strong front-end architecture that leverages the robust Apex services built in Phase 5[7].
- All components are mobile-responsive, providing a consistent experience for users on desktop and mobile devices.
- The user-facing portion of AgriTrust Connect is now complete, providing a powerful and intuitive interface for all users.

Phase 6 is complete and ready for inclusion in the final project report