Revolutionizing Agriculture with AgriEdge Or-Mange Ltd: A Salesforce-Driven Order Management Solution

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Project Overview

The **AgriEdge Order Management System (OMS)** is a Salesforce-based CRM solution designed to empower agricultural organizations to manage and optimize their order processing, inventory tracking, and shipment management operations. AgriEdge Or-Mange Ltd, a prominent player in the agriculture and food production sector, is committed to transforming its order management processes through the implementation of this Salesforce-driven system.

The company operates in a dynamic industry where efficient order processing, precise inventory tracking, and exceptional customer service are crucial for maintaining a competitive edge and ensuring customer satisfaction. AgriEdge Or-Mange Ltd handles a wide range of products, from seeds and fertilizers to harvested crops and processed food items, necessitating a robust system to manage the complexities of its supply chain operations.

Built using Salesforce Experience Cloud, Apex, Flows, and Lightning Web Components (LWC), the application provides real-time visibility into order status, inventory levels, shipment tracking, and overall supply chain operations. It automates the management of orders, captures inventory metrics, and facilitates transparent communication between farmers, distributors, and customers.

The portal enhances operational efficiency and customer engagement by enabling users to place orders, track shipments, view product availability, and manage their accounts—all from a personalized dashboard. Sales and management teams can monitor orders, inventory, and shipment status through automated reports and dashboards.

By combining automation, real-time analytics, and secure access control, the AgriEdge Order Management System helps organizations maintain transparency, ensure order accuracy, and build a data-driven agricultural business culture that supports both efficiency and accountability.

Objectives

- **Centralized Order Management**: Provide a single platform to manage customer orders, inventory tracking, and shipment data.
- **Automation of Workflows**: Streamline order processing, inventory updates, and shipment scheduling using Flows and Apex.
- **Customer Empowerment**: Enable customers to place orders, track shipments, and view product availability through a self-service interface.
- **Real-Time Insights**: Equip sales and management teams with actionable dashboards for order analytics, inventory management, and performance analysis.
- **Inventory Management Monitoring**: Automatically track stock levels and alert managers about low inventory using Scheduled Apex and Flows.

- **Secure & Role-Based Access**: Ensure data privacy through Salesforce profiles, permission sets, and Experience Cloud login-based visibility.

Student Outcomes

- **Hands-On Salesforce Development**: Gain practical experience in building an agricultural order management solution using Apex, Flows, and LWC.
- **End-to-End Application Design**: Learn to design and integrate data models, automation, and UI for an agricultural order management system.
- **Automation Expertise**: Implement real-time process automation for order processing, inventory tracking, and shipment management.
- **Experience Cloud Implementation**: Understand how to build a customer-facing portal for agricultural order operations.
- **Analytical Thinking**: Create reports and dashboards for business insights, reinforcing data-driven decision-making.
- **Asynchronous Apex Skills**: Learn to use Queueable or Scheduled Apex for large-scale inventory calculations and order updates.

System Requirements

Hardware Requirements:

- Computer with minimum 4 GB RAM, Dual-core processor
- Stable internet connection

Software Requirements:

- Salesforce Developer Edition Org
- Modern Web Browser (e.g., Google Chrome, Firefox)

Skills Required:

- Salesforce Configuration and Data Modeling
- Security and Access Management

- Apex Triggers, Classes, and Asynchronous Apex (Queueable, Scheduled)
- Flow Builder (Record-Triggered & Scheduled Flows)
- Lightning Web Components (LWC) Development
- Experience Cloud Site Configuration
- Reports and Dashboard Creation

Phases Overview

Phase No.	Phase Name	Description	Page Numbers
1	Requirement Analysis & Planning	Define business goals, gather requirements, and plan the architecture	5-8
2	Salesforce Development - Backend & Configurations	Set up objects, fields, automation, and Apex logic	9-53
3	UI/UX Development & Customization	Design intuitive interfaces using Lightning Components and Flows	53-72
4	Data Migration, Testing & Security	Migrate data, test functionality, and enforce data security	72-80
5	Deployment, Documentation & Maintenance	Deploy the solution, train users, maintain system health, resolve issues, Documentation	80-86

Project Main Overview

The **AgriEdge Order Management System (OMS)** is a Salesforce-powered Experience Cloud application that streamlines agricultural business operations across the supply chain. It is designed to handle the complexities of managing orders, inventory, products, and shipments for agricultural enterprises that deal with seeds, fertilizers, crops, and processed food items.

The company currently faces challenges such as manual order processing errors, lack of real-time inventory visibility, and disjointed customer service channels, which can lead to delays, stockouts, and dissatisfied customers. To address these issues and enhance overall operational efficiency, AgriEdge Or-Mange Ltd has decided to leverage Salesforce's powerful platform to develop a customized OMS.

The system's data model consists of key objects such as **AgriEdge_Order__c**, **AgriEdge_OrderItem__c**, **AgriEdge_Inventory__c**, and **AgriEdge_Shipment__c**. These objects store and interlink information about customer orders, order line items, product inventory, and shipment tracking. Using Flows and Apex Triggers, the system automates tasks like order validation, inventory updates, shipment scheduling, and sending alerts for low stock or order confirmations.

Customers interact through LWC components embedded in an Experience Site, allowing them to browse products, place orders, track shipments, and view order history. Sales representatives and managers can monitor all activity from dashboards and reports that present real-time data on orders, inventory levels, sales performance, and shipment status.

The system also includes approval processes for bulk orders and validation rules to ensure data accuracy (e.g., preventing negative inventory, duplicate orders, ensuring sufficient stock). Email templates are used to send notifications about order confirmations, shipment updates, and inventory alerts.

Ultimately, the AgriEdge Order Management System enhances organizational productivity and customer satisfaction by creating an efficient yet transparent agricultural supply chain powered entirely by Salesforce.

Main Objectives

The primary goal of the AgriEdge Order Management System is to establish an automated, transparent, and secure framework for managing orders and supply chain operations in the agricultural sector.

- **Automated Order Processing**: Enable customers to browse products and place orders through Flows and LWCs, minimizing manual errors.
- **Inventory Tracking**: Capture real-time inventory levels using Apex logic and summarize them in dashboards to prevent stockouts and overstock situations.
- **Customer Profile Management**: Collect and manage customer information using standard and custom objects with validation rules.
- **Order Fulfillment**: Use Scheduled Apex to automatically verify order status and update shipment schedules.

- **Approval Process for Bulk Orders**: Automate multi-step approvals for large or high-value orders using Salesforce's approval process feature.
- **Real-Time Dashboards**: Provide sales and management teams with visual insights into orders, inventory, sales trends, and customer activity.
- **Data Security and Access Control**: Enforce field-level and role-based visibility using profiles, permission sets, and Experience Cloud login rules.
- **Email Notifications**: Notify customers and internal teams automatically about order confirmations, shipment updates, and inventory alerts.

Phase 1: Requirement Analysis & Planning

1. Understanding Business Requirements

Objective:

Understand how AgriEdge Or-Mange Ltd manages its agricultural order processing, inventory tracking, and shipment operations—where orders flow from customers through inventory checks to final delivery—and identify challenges in maintaining efficiency, accuracy, customer satisfaction, and supply chain visibility.

The goal is to build a Salesforce-based solution that provides centralized visibility, automation, and analytics for managing agricultural orders efficiently.

Approach:

- Gather and analyze requirements from sales managers, warehouse managers, customer service representatives, and IT administrators to understand order processing practices and operational pain points.
- Study how customer orders, inventory levels, and shipments are currently tracked, and how management monitors order fulfillment and inventory availability.
- Identify challenges such as lack of real-time order visibility, manual inventory tracking, no structured shipment monitoring, and limited data-driven insights.
- Conduct requirement study using multiple sources such as ChatGPT, Google, Salesforce Documentation, and Trailhead, to design a scalable and secure Order Management System on the Salesforce platform.

Key Business Requirements Identified:

- Provide a Salesforce-based application for managing customer orders, inventory, and shipments.
- Automate order processing, inventory updates, and shipment tracking using Apex and Flows.

- Enable customers to place orders, track shipments, and view product availability through a self-service portal.
- Allow sales teams and managers to monitor orders, inventory levels, and shipment status through dashboards.
- Collect and analyze order data to measure sales performance and inventory trends.
- Ensure secure, role-based visibility for customers, sales representatives, and management personnel.
- Generate analytical dashboards and reports for management to monitor order performance and inventory levels.

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2. Defining Project Scope & Objectives

Project Scope:

- Build a Salesforce-based AgriEdge Order Management System that automates order processing, inventory tracking, shipment management, and customer communication.
- Integrate automation (Flows, Apex), UI (LWC), and analytics (Reports & Dashboards) for real-time insights.

- Provide self-service capabilities for customers to place orders and track shipments via an Experience Cloud site.
- Implement role-based access controls and security measures to protect customer and business data.
- Enable sales and management teams to configure inventory policies and monitor order performance trends.

Objectives Summary:

- Simplify order operations through automation of order processing, inventory updates, and shipment workflows.
- Empower customers with a self-service platform for product browsing, order placement, and shipment tracking.
- Enhance visibility and accountability through real-time dashboards for sales teams and management.
- Improve inventory management and order accuracy using custom objects and flows.
- Ensure secure access and data privacy through profile-based and login-based visibility settings.

  Support data-driven decision-making through analytics and sales performance reports.

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3. Gathering & Analyzing User Needs

Users Involved:

- **Customers**: Browse products, place orders, track shipments, and view order history.
- **Sales Representatives**: Process orders, manage customer accounts, and track sales performance.
- **Warehouse Managers**: Monitor inventory levels, manage stock, and coordinate shipments.
- **Management Team**: Review sales analytics, monitor inventory trends, and approve bulk orders.
- **System Administrator**: Configure user access, maintain security, and oversee automation processes.

Key Functional Needs:

- Intuitive customer dashboard with product catalog and order placement capabilities.
- Ability for customers to select products, specify quantities, and submit orders.
- Order tracking interface for viewing order status and shipment progress.
- Sales representative dashboards for order management, customer interaction, and performance tracking.
- Automated inventory validation to ensure sufficient stock before order confirmation.
- Email alerts for order confirmations, low inventory, shipment updates, and bulk order approvals.
- Analytical dashboards to track sales trends, inventory levels, and order fulfillment performance.

Tools Used:

- **Google Forms**: To collect business and user requirements from sales teams and warehouse managers.
- **Miro Boards**: To visualize order processing workflows and inventory management processes.
- **User Personas**: To tailor experiences for customers, sales representatives, warehouse managers, and management teams.

Note: The tools used are mentioned considering real-time project implementation practices.

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4. Identifying Key Salesforce Features & Tools Required

Salesforce Features Planned:

Custom Objects:

- **AgriEdge_Order__c** → Stores customer orders, order dates, total amounts, and order status.
- **AgriEdge_OrderItem__c** → Tracks individual line items within an order, including product, quantity, and price.
- **AgriEdge_Inventory__c** → Manages product inventory, stock levels, and reorder points.
- **AgriEdge_Shipment__c** → Tracks shipment details, delivery dates, and tracking numbers.

Standard Objects:

- **Account** → Represents customer organizations and agricultural businesses.
- **Contact** → Represents individual customers and points of contact.
- **Product2** → Represents agricultural products (seeds, fertilizers, crops).
- **User** → Represents sales representatives, warehouse managers, and administrators.

Automations:

- Record-Triggered Flows, Approval Processes, and Scheduled Flows for inventory checks and order validations.

Apex:

- Triggers for order validation, asynchronous classes for inventory calculations, and Apex controllers for LWC.

UI:

- Lightning App Pages, Dynamic Forms, and Lightning Web Components for order placement, product catalogs, and dashboards.

Email Services:

- Email Templates and Alerts for order confirmations, shipment notifications, and inventory alerts.

Security:

- Profiles, Permission Sets, Role Hierarchy, Field-Level Security, and Login-Based Component Visibility.

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5. Designing Data Model and Security Model

Data Model Includes:

AgriEdge_Order__c (Custom Object)

1. Stores customer order information including order date, total amount, and order status.
2. Linked to Account and Contact for customer identification.
3. Includes fields like Order_Date__c, Total_Amount__c, Order_Status__c, and Payment_Status__c.

AgriEdge_OrderItem__c (Custom Object)

1. Records individual line items within each order.
2. Linked to AgriEdge_Order__c (Master-Detail) and Product2 (Lookup) for product details.
3. Contains fields like Quantity__c, Unit_Price__c, Total_Price__c, and Product_Name__c.

AgriEdge_Inventory__c (Custom Object)

1. Manages product inventory levels and stock availability.

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2. Linked to Product2 for product identification.
3. Includes fields like Stock_Quantity__c, Reorder_Level__c, Warehouse_Location__c, and Last_Updated__c.
4. Triggers email alerts when stock falls below reorder level.

AgriEdge_Shipment__c (Custom Object)

1. Tracks shipment details for delivered orders.
2. Linked to AgriEdge_Order__c for order tracking.
3. Contains fields like Shipment_Date__c, Delivery_Date__c, Tracking_Number__c, Carrier__c, and Shipment_Status__c.

Product2 (Standard Object)

1. Represents agricultural products available for ordering.
2. Contains product details like name, description, category, and pricing.

Account & Contact (Standard Objects)

1. Represent customer organizations and individual contacts.
2. Used for relationship management and order ownership.

User (Standard Object)

1. Represents sales representatives, warehouse managers, and administrators.
2. Used for role-based access, ownership, and lookups.

Security Model Design:

- **Role Hierarchy**: Admin → Sales Manager → Sales Representative → Customer
- **Profiles**: System Administrator, Sales Manager Profile, Sales Representative Profile, Customer Community Profile
- **Record-Level Security**: Implemented using Sharing Rules and Owner-based Access
- **Field-Level Security**: Protects sensitive information such as pricing, inventory costs, and customer payment details
- **Component Visibility**: Managed in Experience Builder using login-based component visibility for dashboards and order forms

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Summary:

This phase established a comprehensive understanding of agricultural order management needs, challenges, and goals. Through detailed requirement analysis and user mapping, a clear project scope and feature set were defined. The data model and security framework were designed to ensure scalability, automation readiness, and compliance with organizational data privacy standards.

Phase 2: Salesforce Development – Backend & Configurations

The Backend & Configuration phase established the functional foundation of the AgriEdge Order Management System.

This phase focused on configuring data models, creating automation through Flows and Apex, and ensuring secure handling of orders, inventory tracking, and shipment management.

Using Salesforce declarative tools (Flows, Approval Processes, Validation Rules) alongside programmatic logic (Apex Classes, Triggers, and Async Apex), the system enables seamless coordination between customers, sales teams, warehouse operations, and management while maintaining visibility and order accuracy.

Milestone 1: Salesforce Account

Introduction:

Are you new to Salesforce? Not sure exactly what it is, or how to use it? Don't know where you should start on your learning journey? If you've answered yes to any of these questions, then you're in the right place. This module is for you.

Welcome to Salesforce! Salesforce is game-changing technology, with a host of productivity-boosting features, that will help you sell smarter and faster. As you work toward your badge for this module, we'll take you through these features and answer the question, "What is Salesforce, anyway?".

What Is Salesforce?

Salesforce is your customer success platform, designed to help you sell, service, market, analyze, and connect with your customers.

Activity 1: Creating Developer Account

Creating a developer org in Salesforce:

1. Go to https://developer.salesforce.com/signup
2. On the sign-up form, enter the following details:

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1. First name & Last name
2. Email
3. Job Title: Developer
4. Company: College Name
5. Country: India

Click on "Sign me up" after filling these.

Activity 2: Account Activation

1. Go to the inbox of the email that you used while signing up. Click on the verify account to activate your account. The email may take 10-30 mins and sometimes 2 hours.

Click on Verify Account

2. Give a password and answer a security question and click on change password.
3. Then you will redirect to your Salesforce setup page.

Milestone 2: Objects Creation

Activity 1: Creating an AgriEdge Order Object

To create an object:

1. From the setup page

2. Click on Object Manager
3. Click on Create >> Click on Custom Object.
4. Enter the label name as **AgriEdge Order**
5. Enter Plural label name as **AgriEdge Orders**
6. Enter Record Name as **Order Number**
7. Select Data Type as **Auto Number: ORD-{0000}**, Starting with '1'.
8. Select Allow reports.
9. Select Allow search.
10. Allow Track Field History
11. Click on Save and New

Activity 2: Creating an AgriEdge OrderItem Object

To create an object:

1. From the setup page
2. Click on Object Manager

3. Click on Create >> Click on Custom Object.
4. Enter the label name as **AgriEdge OrderItem**
5. Enter Plural label name as **AgriEdge OrderItems**
6. Enter Record Name as **OrderItem Number**
7. Select Data Type as **Auto Number: OI-{0000}**, Starting with '1'.
8. Select Allow reports.
9. Select Allow search.
10. Allow Track Field History
11. Click on Save and New

Activity 3: Creating an AgriEdge Inventory Object

To create an object:

1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.
4. Enter the label name as **AgriEdge Inventory**
5. Enter Plural label name as **AgriEdge Inventory**
6. Enter Record Name as **Inventory ID**
7. Select Data Type as **Auto Number: INV-{0000}**, Starting with 1.
8. Select Allow reports.
9. Select Allow search.
10. Allow Track Field History
11. Click on Save and New

Activity 4: Creating an AgriEdge Shipment Object

To create an object:

1. From the setup page
2. Click on Object Manager
3. Click on Create >> Click on Custom Object.
4. Enter the label name as **AgriEdge Shipment**
5. Enter Plural label name as **AgriEdge Shipments**
6. Enter Record Name as **Shipment Number**
7. Select Data Type as **Auto Number: SHIP-{0000}**, Starting with '1'.
8. Select Allow reports.
9. Select Allow search.
10. Allow Track Field History
11. Click on Save

Milestone 3 - Tabs

Activity 1: Creating a tab for AgriEdge Order Object

1. Go to the setup page → type **Tabs** in Quick Find bar
2. Click on tabs
3. Click on New (under custom object tab).
4. Select Object (**AgriEdge Order**) >> Select the tab style
5. Click on Next >> (Add to profiles page) keep it as default >> Click on Next (Add to Custom App) uncheck the include tab.

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6. Make sure that the "Append tab to the user's existing personal customizations" is checked.

7. Click save
8. **Create tabs for every object created in milestone-2.**

Milestone 4: Fields & Relationships

Object	Field Name	Data Type	Required
AgriEdge_Order__c	Order Number (Standard)	Auto Number: ORD-{0000}	Yes
	Customer	Lookup(Account)	Yes
	Contact	Lookup(Contact)	Yes
	Order Date	Date	Yes
	Order Status	Picklist (Draft, Submitted, Approved, Processing, Shipped, Delivered, Cancelled)	Yes
	Total Amount	Currency	Yes
	Payment Status	Picklist (Pending, Paid, Partial, Failed)	Yes
	Priority	Picklist (Low, Medium, High, Urgent)	No
	Delivery Address	Text Area	Yes
	Special Instructions	Long Text Area	No
AgriEdge_OrderItem__c	OrderItem Number (Standard)	Auto Number: OI-{0000}	Yes
	Order	Master-Detail(AgriEdge_Order__c)	Yes
	Product	Lookup(Product2)	Yes
	Quantity	Number	Yes
	Unit Price	Currency	Yes
	Total Price	Currency (Formula)	Yes
	Discount	Percent	No
AgriEdge_Inventory__c	Inventory ID (Standard)	Auto Number: INV-{0000}	Yes
	Product	Lookup(Product2)	Yes
	Stock Quantity	Number	Yes
	Reorder Level	Number	Yes
	Warehouse Location	Text	No
	Last Updated	Date/Time	Yes

| | Unit Cost | Currency | No | | **AgriEdge_Shipment__c** | Shipment Number (Standard) | Auto Number: SHIP-{0000} | Yes | | | Order | Lookup(AgriEdge_Order__c) | Yes | | | Shipment Date | Date | Yes | | | Expected Delivery Date | Date | Yes | | | Actual Delivery Date | Date | No | | | Tracking Number | Text | Yes | | | Carrier | Picklist (FedEx, UPS, DHL, USPS, Local Courier) | Yes | | | Shipment Status | Picklist (Pending, In Transit, Out for Delivery, Delivered, Delayed, Cancelled) | Yes | | | Shipping Cost | Currency | No |

Activity 1: Creation of Picklist field for the AgriEdge Order object

Create Picklist Field in AgriEdge Order object:

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge Order**) in quick find box >> click on the AgriEdge Order Object.
2. Now click on "Fields & Relationships".
3. Click on New.
4. Select Data type as "Picklist" and click Next.
5. Enter the Field Label as "Order Status".
6. Click on "Enter values" and Enter: Draft, Submitted, Approved, Processing, Shipped, Delivered, Cancelled.
7. Click on Next, Next and Save.

Activity 2: Creation of Lookup field for the AgriEdge Order Object

Creating Lookup Relationship in AgriEdge Order Object

1. Go to the Setup page >> click on Object manager >> type object name (**AgriEdge Order**) in the quick find bar >> click on the AgriEdge Order object.
2. Click on Fields & Relationship
3. Click on New.
4. Select "Lookup relationship" as data type and click Next.

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5. Select the related object "Account".
6. Click on Next.
7. Give Field Label as "Customer".
8. Click on Next, Next, Next, Save.

Note: Create other fields from the above Fields table related to this object and choose the data types of the fields carefully.

Activity 3: Creation of Master-Detail Relationship for AgriEdge OrderItem Object

Creating Master-Detail Relationship in AgriEdge OrderItem Object

1. Go to the Setup page >> click on Object manager >> type object name (**AgriEdge OrderItem**) in the quick find bar >> click on the AgriEdge OrderItem object.
2. Click on Fields & Relationship
3. Click on New.
4. Select "Master-Detail relationship" as data type and click Next.
5. Select the related object "AgriEdge Order".
6. Click on Next.
7. Give Field Label as "Order".
8. Click on Next, Next, Next, Save.

Note: Create other fields from the above Fields table for all objects and choose the data types carefully.

Milestone 5 - Validation Rules

Activity 1: To create a Validation rule for AgriEdge Order Object

Validation Rule on Order Date:

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge Order**) in search bar >> click on the AgriEdge Order object

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2. Click on the validation rule >> click on New.
3. Enter the Rule name as "Order Date Cannot Be Future".
4. Select Active
5. Insert the Error Condition Formula as: `Order_Date__c > TODAY()`
6. Enter the Error Message as "Order date cannot be in the future.".
7. Select the Error location as **Field: Order_Date__c**
8. Click Save.

Activity 2: To create a Validation rule for AgriEdge OrderItem Object

Validation Rule on Quantity:

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge OrderItem**) in search bar >> click on the AgriEdge OrderItem object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as "Quantity Must Be Positive".
4. Select Active

5. Insert the Error Condition Formula as: `Quantity__c <= 0`
6. Enter the Error Message as "Quantity must be greater than zero.".
7. Select the Error location as **Field: Quantity__c**
8. Click Save.

Activity 3: To create a Validation rule for AgriEdge Inventory Object

Validation Rule on Stock Quantity:

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge Inventory**) in search bar >> click on the AgriEdge Inventory object
2. Click on the validation rule >> click on New.
3. Enter the Rule name as "Stock Quantity Cannot Be Negative".
4. Select Active
5. Insert the Error Condition Formula as: `Stock_Quantity__c < 0`
6. Enter the Error Message as "Stock quantity cannot be negative.".
7. Select the Error location as **Field: Stock_Quantity__c**
8. Click Save.

Milestone 6: APPROVAL PROCESS

Activity 1: Create an Approval Process for Bulk Order Approval

Note: Before Implementing Approval Process First Complete Profiles, Roles and Users Milestones.

1. Create Classic Email Template

- Go to Setup (gear icon on top-right)
- In the Quick Find box, type: **Email Templates**
- Click on Classic Email Templates
- Click "New Template"
  - You'll now choose the type of email template you want to create.

Choose the type:

- Text – Plain text (no formatting)
- Click Next

Email Template Information:

Field	Value
Folder	Public or private folder (use "Unfiled Public Email Templates" for now)
Email Template Name	Bulk Order Approval Notification
Template Unique Name	Auto-filled, or change it (no spaces)
Encoding	Leave default (UTF-8)
Subject	New Bulk Order Requires Your Approval!
Email Body	Dear {!AgriEdge_Order__c.Owner.Name}, A new bulk order has been submitted and is awaiting your approval. Please review the details below: **Order Details:** - Order Number: {!AgriEdge_Order__c.Name} - Customer: {!AgriEdge_Order__c.Customer__c} - Order Date: {!AgriEdge_Order__c.Order_Date__c} - Total Amount: {!AgriEdge_Order__c.Total_Amount__c} - Order Status: {!AgriEdge_Order__c.Order_Status__c} - Priority: {!AgriEdge_Order__c.Priority__c} If you have any questions or need additional information, please contact the sales representative directly. Thank you for your prompt attention. Best regards, The AgriEdge Team

2. Create the Approval Process

- In the Quick Find box, type: **Approval Processes**
- Click on "Approval Processes" under Process Automation
- Click on the object name: **AgriEdge Order**
- Click Create New Approval Process → Use Standard Setup Wizard

Step 1: Basic Settings

- Name: Approval Process for Bulk Orders
- Unique Name: Auto-fills (you can keep it as is)
- Click Next

Specify Entry Criteria:

This defines when the process will be triggered.

- Choose "Criteria are met"

Set:

- Field: AgriEdge Order → Total Amount

- Operator: Greater Than
- Value: 10000

Step 2: Select Approver

- Select **Administrators ONLY** can edit records during the approval process
- Select Approver: Let the submitter choose the approver manually (or select automatic based on role)

Step 3: Email Template

Approval Assignment Email Template:

- Select Email Template: **Bulk Order Approval Notification**

Step 4: Select Fields to Display on Approval Page Layout

You'll see a dual list:

- Available Fields on the left
- Selected Fields on the right

Suggested Fields:

- Order Number
- Customer
- Order Date
- Total Amount
- Order Status
- Priority
- Delivery Address
- Use the **Add** button to move fields from left to right.
- Use the **Up/Down** arrows to reorder how they appear.
- Click **Next** to proceed.

Step 5: Specify Initial Submitters

- Search for owner and add **AgriEdge Order owner** to the selected submitters from available submitters.
- Click **Save**.

Step 6: Final Approval Actions

- Click **Add New** → Field Update
- Select Field to Update as **Order_Status__c**.
- Name: Set Order Status to Approved
- Field: Order_Status__c
- New Value: Approved
- Save.

Step 7: Final Rejection Actions

- Click **Add New** → Field Update
- Name: Set Order Status to Cancelled
- Field: Order_Status__c
- New Value: Cancelled
- Save.

Step 8: Activate the Approval Process

- Click **View Approval Process Detail Page**
- Click the **"Activate"** button at the top

Milestone 7 – Apex Classes

Activity 1: Create an Apex class OrderController

Create Apex Class

Retrieves orders and creates new order entries.

1. Click Gear Icon and Select Developer Console
2. Click on File and Click New and Click on Apex class
3. Give name as **OrderController** and Click Ok
4. Write whole code in the class

Source Code:

```
public class OrderController {
    @AuraEnabled(cacheable=true)
    public static List<AgriEdge_Order__c> getOrdersForCustomer() {
        Id accountId = [SELECT AccountId FROM User WHERE Id = 
:UserInfo.getUserId() LIMIT 1].AccountId;
        return [SELECT Id, Name, Order_Date__c, Order_Status__c, 
Total_Amount__c, Payment_Status__c
                FROM AgriEdge_Order__c
                WHERE Customer__c = :accountId
                ORDER BY Order_Date__c DESC];
    }

    @AuraEnabled
    public static Id createOrder(AgriEdge_Order__c order) {
        insert order;
        return order.Id;
    }

    @AuraEnabled(cacheable=true)
    public static AgriEdge_Order__c getOrderDetails(Id orderId) {
        return [SELECT Id, Name, Customer__r.Name, Order_Date__c, 
Order_Status__c,
                Total_Amount__c, Payment_Status__c, Delivery_Address__c, 
Special_Instructions__c
                FROM AgriEdge_Order__c
                WHERE Id = :orderId
                LIMIT 1];
    }
}
```

Save the class using CTRL+S

Activity 2: Create an Apex class OrderItemController

Create Apex Class

Handles order items data and calculations.

1. Click Gear Icon and Select Developer Console
2. Click on File and Click New and Click on Apex class
3. Give name as **OrderItemController** and Click Ok
4. Write whole code in the class

Source Code:

```
public class OrderItemController {
    @AuraEnabled
    public static Id addOrderItem(AgriEdge_OrderItem__c orderItem) {
        insert orderItem;
        updateOrderTotal(orderItem.Order__c);
        return orderItem.Id;
    }

    @AuraEnabled(cacheable=true)
    public static List<AgriEdge_OrderItem__c> getOrderItems(Id orderId) {
        return [SELECT Id, Product__r.Name, Quantity__c, Unit_Price__c, 
Total_Price__c, Discount__c
                FROM AgriEdge_OrderItem__c
                WHERE Order__c = :orderId];
    }

    private static void updateOrderTotal(Id orderId) {
        Decimal total = 0;
        for(AgriEdge_OrderItem__c item : [SELECT Total_Price__c FROM
AgriEdge_OrderItem__c WHERE Order__c = :orderId]) {
            total += item.Total_Price__c != null ? item.Total_Price__c : 0;
        }

        AgriEdge_Order__c order = new AgriEdge_Order__c(Id = orderId,
Total_Amount__c = total);
        update order;
    }
}
```

Save the class using CTRL+S

Activity 3: Create an Apex class InventoryController

Create Apex Class

Used for managing inventory and stock levels.

1. Click Gear Icon and Select Developer Console
2. Click on File and Click New and Click on Apex class
3. Give name as **InventoryController** and Click Ok
4. Write whole code in the class

Source Code:

```
public class InventoryController {
    @AuraEnabled(cacheable=true)
    public static List<AgriEdge_Inventory__c> getInventoryList() {
        return [SELECT Id, Product__r.Name, Stock_Quantity__c,
Reorder_Level__c,
                Warehouse_Location__c, Last_Updated__c
                FROM AgriEdge_Inventory__c
                ORDER BY Product__r.Name];
    }

    @AuraEnabled(cacheable=true)
    public static AgriEdge_Inventory__c getInventoryByProduct(Id productId)
{
        return [SELECT Id, Stock_Quantity__c, Reorder_Level__c
                FROM AgriEdge_Inventory__c
                WHERE Product__c = :productId
                LIMIT 1];
    }

    @AuraEnabled
    public static void updateInventory(Id inventoryId, Decimal quantity) {
        AgriEdge_Inventory__c inv = [SELECT Stock_Quantity__c FROM
AgriEdge_Inventory__c WHERE Id = :inventoryId];
        inv.Stock_Quantity__c = quantity;
        inv.Last_Updated__c = System.now();
        update inv;
    }
}
```

Save the class using CTRL+S

Activity 4: Create an Apex class ShipmentController

Create Apex Class

Used for tracking shipments and delivery status.

1. Click Gear Icon and Select Developer Console
2. Click on File and Click New and Click on Apex class
3. Give name as **ShipmentController** and Click Ok
4. Write whole code in the class

Source Code:

```
public class ShipmentController {
    @AuraEnabled(cacheable=true)
    public static List<AgriEdge_Shipment__c> getShipmentsByOrder(Id 
orderId) {
        return [SELECT Id, Name, Shipment_Date__c, 
Expected_Delivery_Date__c,
                Actual_Delivery_Date__c, Tracking_Number__c, Carrier__c, 
Shipment_Status__c
                FROM AgriEdge_Shipment__c
                WHERE Order__c = :orderId
                ORDER BY Shipment_Date__c DESC];
    }

    @AuraEnabled
    public static Id createShipment(AgriEdge_Shipment__c shipment) {
        insert shipment;
        return shipment.Id;
    }

    @AuraEnabled
    public static void updateShipmentStatus(Id shipmentId, String status) {
        AgriEdge_Shipment__c shipment = new AgriEdge_Shipment__c(Id = 
shipmentId, Shipment_Status__c = status);
        if(status == 'Delivered') {
            shipment.Actual_Delivery_Date__c = Date.today();
        }
        update shipment;
    }
}
```

Save the class using CTRL+S

Milestone 8: Asynchronous Apex

Activity 1: Create an async apex class for Low Inventory Alerts

Create an apex class:

```
public class LowInventoryAlert implements Queueable {
    public void execute(QueueableContext context) {
        List<AgriEdge_Inventory__c> lowStockItems = [
            SELECT Id, Product__r.Name, Stock_Quantity__c, Reorder_Level__c
            FROM AgriEdge_Inventory__c
            WHERE Stock_Quantity__c <= Reorder_Level__c
        ];

        if(!lowStockItems.isEmpty()) {
            List<User> managers = [SELECT Id, Email FROM User WHERE
Profile.Name = 'Warehouse Manager' AND IsActive = TRUE];
            Messaging.SingleEmailMessage[] emails = new
List<Messaging.SingleEmailMessage>();

            for(User manager : managers) {
                Messaging.SingleEmailMessage mail = new
Messaging.SingleEmailMessage();
                mail.setToAddresses(new String[]{manager.Email});
                mail.setSubject('Low Inventory Alert - AgriEdge');

                String body = 'The following products are running low on
stock:\n\n';
                for(AgriEdge_Inventory__c inv : lowStockItems) {
                    body += 'Product: ' + inv.Product__r.Name + ' - Stock:
' + inv.Stock_Quantity__c + '\n';
                }
                mail.setPlainTextBody(body);
                emails.add(mail);
            }

            if(!emails.isEmpty()) {
                Messaging.sendEmail(emails);
            }
        }
    }
}
```

Activity 2: Create Scheduled Apex for Daily Inventory Check

Create an apex class:

```
public class DailyInventoryCheck implements Schedulable {
    public void execute(SchedulableContext context) {
        System.enqueueJob(new LowInventoryAlert());
    }
}
```

Milestone 9: Email Templates

Activity 1: Create Order Confirmation Email Template

1. Go to Setup (gear icon on top-right).
2. In the Quick Find box, type **Email Templates**.
3. Click on Classic Email Templates.
4. Click **New Template**.

Choose the type:

- Text – Plain text (no formatting)
- Click Next

Template Name: Order Confirmation **Subject:** Your AgriEdge Order Confirmation - {!AgriEdge_Order__c.Name}

Body:

```
Dear {!AgriEdge_Order__c.Contact__c},

Thank you for your order! We are pleased to confirm that we have received
your order and it is now being processed.

**Order Details:**
- Order Number: {!AgriEdge_Order__c.Name}
- Order Date: {!AgriEdge_Order__c.Order_Date__c}
- Total Amount: {!AgriEdge_Order__c.Total_Amount__c}
- Order Status: {!AgriEdge_Order__c.Order_Status__c}
- Payment Status: {!AgriEdge_Order__c.Payment_Status__c}

**Delivery Address:**
{!AgriEdge_Order__c.Delivery_Address__c}

You can track your order status anytime by logging into your AgriEdge
customer portal.

If you have any questions or concerns, please don't hesitate to contact our
customer service team.

Thank you for choosing AgriEdge!

Best regards,
AgriEdge Customer Service Team
```

Activity 2: Create Shipment Notification Email Template

1. Go to Setup (gear icon on top-right).
2. In the Quick Find box, type **Email Templates**.
3. Click on Classic Email Templates.
4. Click **New Template**.

Choose the type:

- Text – Plain text (no formatting)
- Click Next

Template Name: Shipment Notification **Subject:** Your Order Has Been Shipped! - {!AgriEdge_Shipment__c.Name}

Body:

```
Dear {!AgriEdge_Shipment__c.Order__r.Contact__c},

Great news! Your order has been shipped and is on its way to you.

**Shipment Details:**
- Shipment Number: {!AgriEdge_Shipment__c.Name}
- Order Number: {!AgriEdge_Shipment__c.Order__r.Name}
- Tracking Number: {!AgriEdge_Shipment__c.Tracking_Number__c}
- Carrier: {!AgriEdge_Shipment__c.Carrier__c}
- Shipment Date: {!AgriEdge_Shipment__c.Shipment_Date__c}
- Expected Delivery: {!AgriEdge_Shipment__c.Expected_Delivery_Date__c}

You can track your shipment using the tracking number provided above on the
carrier's website.

Thank you for your patience!

Best regards,
AgriEdge Logistics Team
```

Milestone 10: Declarative Automation (Flows)

Activity 1: Order Status Update Flow

Objective: Automatically send confirmation email when order status changes to "Submitted".

Steps:

1. From Setup, in the Quick Find box, search for **Flows**.
2. Click **New Flow**.
3. Select Category: **Triggered**.
4. Select Type: **Record-Triggered Flow**.
5. Select Object: **AgriEdge_Order__c**.
6. Configure Trigger: **When a record is updated**.
7. Set Entry Conditions: **Order_Status__c** = Submitted.
8. Run **Every time a record is updated and meets the condition requirements**.

9. Optimize flow for **Actions and Related Records**.
10. Click on **+** Icon and add an **Action Element**.
11. For Label, enter: **Send Order Confirmation Email**.
12. Select Email Template: **Order Confirmation**.
13. Map Contact to the recipient field.
14. Save the Flow and **Activate**.

Activity 2: Inventory Update Flow

Objective: Automatically update inventory when order items are created.

Steps:

1. From Setup, in the Quick Find box, search for **Flows**.
2. Click **New Flow**.
3. Select Category: **Triggered**.
4. Select Type: **Record-Triggered Flow**.
5. Select Object: **AgriEdge_OrderItem__c**.
6. Configure Trigger: **When a record is created**.
7. Run **Every time a record is created**.
8. Optimize flow for **Actions and Related Records**.
9. Add **Get Records** element to fetch inventory for the product.
10. Add **Assignment** element to reduce stock quantity by order item quantity.
11. Add **Update Records** element to update inventory.
12. Save the Flow and **Activate**.

Activity 3: Shipment Status Update Flow

Objective: Automatically send notification when shipment status changes to "Delivered".

Steps:

1. From Setup, in the Quick Find box, search for **Flows**.
2. Click **New Flow**.
3. Select Category: **Triggered**.
4. Select Type: **Record-Triggered Flow**.
5. Select Object: **AgriEdge_Shipment__c**.
6. Configure Trigger: **When a record is updated**.
7. Set Entry Conditions: **Shipment_Status__c** = Delivered.
8. Run **Every time a record is updated and meets the condition requirements**.
9. Optimize flow for **Actions and Related Records**.
10. Click on **+** Icon and add an **Action Element**.
11. For Label, enter: **Send Delivery Notification**.

12. Select Email Template: **Shipment Notification**.
13. Map Contact to the recipient field.
14. Save the Flow and **Activate**.

Summary:

This phase successfully established the backend for managing agricultural order operations.

With well-defined data models, Apex logic, declarative automation, and security controls, the system now supports real-time order processing, inventory tracking, and shipment management.

This foundation ensures that future phases (UI development with LWC and Experience Site deployment) will integrate seamlessly with existing logic and data structures.

Phase 3: UI/UX Development & Customization

The UI/UX Development & Customization phase focused on building an intuitive and responsive interface for the AgriEdge Order Management System. The goal was to deliver a seamless user experience for customers, sales representatives, and warehouse managers to access and manage orders, inventory, shipments, and product catalogs.

During this phase, Lightning Application and Page Layouts were created and customized to ensure smooth navigation and a connected design aligned with organizational branding.

Milestone 11: The Lightning App

Activity 1: Create a Lightning App for "AgriEdge Portal"

From Setup, enter **App Manager** in the Quick Find and select App Manager.

1. Click **New Lightning App**.
2. Enter **AgriEdge Portal** as the App Name >> Click on upload image and add an image related to agriculture then click next.
3. Under App Options, leave the default selections and click next.
4. Under Utility Items, leave as is and click Next.

---

5. From Available Items, select **AgriEdge_Order__c**, **AgriEdge_OrderItem__c**, **AgriEdge_Inventory__c**, **AgriEdge_Shipment__c**, **Product2**, **Account**, **Contact** and move them to Selected Item and Click Next.
6. From Available Profiles, select **System Administrator** and move it to Selected Profiles.
7. Click **Save & Finish**.

Milestone 12 - Editing of Page Layouts

Activity 1: To edit a Page Layout in AgriEdge_Order__c Object

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge Order**) in quick find box >> click on the AgriEdge Order object >> Page Layouts.
2. Click on the **AgriEdge Order Layout**.
3. Drag and arrange the fields as shown below:

Section 1: Order Information

- Order Number
- Customer
- Contact
- Order Date
- Order Status

Section 2: Financial Details

- Total Amount
- Payment Status
- Priority

Section 3: Delivery Information

- Delivery Address
- Special Instructions

4. Click on **Save**.

Activity 2: To edit a Page Layout in AgriEdge_OrderItem__c Object

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge OrderItem**) in quick find box >> click on the AgriEdge OrderItem object >> Page Layouts.
2. Click on the **AgriEdge OrderItem Layout**.
3. Drag and arrange the fields as shown below:

Section 1: OrderItem Details

- OrderItem Number
- Order
- Product
- Quantity
- Unit Price
- Total Price
- Discount

4. Click **Save**.

Activity 3: To edit a Page Layout in AgriEdge_Inventory__c Object

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge Inventory**) in quick find box >> click on the AgriEdge Inventory object >> Page Layouts.
2. Click on the **AgriEdge Inventory Layout**.
3. Drag and arrange the fields as shown below:

Section 1: Inventory Information

- Inventory ID
- Product
- Stock Quantity
- Reorder Level
- Warehouse Location
- Last Updated
- Unit Cost

4. Click **Save**.

Activity 4: To edit a Page Layout in AgriEdge_Shipment__c Object

1. Go to setup >> click on Object Manager >> type object name (**AgriEdge Shipment**) in quick find box >> click on the AgriEdge Shipment object >> Page Layouts.
2. Click on the **AgriEdge Shipment Layout**.
3. Drag and arrange the fields as shown below:

Section 1: Shipment Details

- Shipment Number
- Order
- Tracking Number

- Carrier
- Shipment Status

Section 2: Dates

- Shipment Date
- Expected Delivery Date
- Actual Delivery Date
- Shipping Cost

4. Click **Save**.

Milestone 13 - Dynamic Forms

Activity 1: To create a Dynamic Form in AgriEdge Order Object

1. Go to setup >> click on App Launcher >> Open **"AgriEdge Portal"** App >> click on the AgriEdge Order object tab >> Click on New and create a new record and save it.
2. Click on the record created and click on the Gear icon on the top right corner and Select **Edit Page**.
3. Click on the Details section and on the right pane click on **Upgrade Now** to enable Dynamic Forms for the object.
4. Select **AgriEdge Order PageLayout** and Click on **Finish**.
5. Click on **Save** and Click on **Activate**.
6. Click on **Org as Default**, select Desktop and Phone, click Next and Click **Save**.
7. **Do the same for remaining objects as well.**

Milestone 14: Users

A user is anyone who logs in to Salesforce. Users are employees at your company, such as sales reps, managers, and IT specialists, who need access to the company's records. Every user in Salesforce has a user account. The user account identifies the user, and the user account settings determine what features and records the user can access.

Activity 1: Create User

Note: Before Implementing Users first complete Profiles and Roles Milestones.

1. Go to setup >> type **users** in quick find box >> select users >> click **new user**.
2. Fill in the fields:
    - First Name: AgriEdge
    - Last Name: Sales Manager

   - Alias: Give an Alias Name
   - Email id: Give your Personal Email id
   - Username: Username should be in this form: text@text.text and it must be Unique.
   - Nick Name: Give a Nickname
   - Role: AgriEdge Sales Manager
   - User license: Salesforce
   - Profile: Sales Manager Profile
3. Save.

Activity 2: Creating other users

1. Repeat the steps and create other users using:
   - **Sales Representative:**
     - Role: AgriEdge Sales Representative
     - User license: Salesforce
     - Profile: Sales Representative Profile
   - **Warehouse Manager:**
     - Role: AgriEdge Warehouse Manager
     - User license: Salesforce
     - Profile: Warehouse Manager Profile

Phase 4: Data Migration, Testing & Security

Data Migration, Testing & Security focuses on migrating data from legacy systems or spreadsheets into Salesforce, ensuring data integrity, and configuring security measures for the AgriEdge Portal. This phase also involves testing all functionalities, including orders, inventory, shipments, and product management. Security settings such as role-based access, sharing rules, and field-level security are applied to protect sensitive information and ensure compliance.

Performance Tuning & Optimization

This phase also focused on optimizing performance, ensuring smooth operation of the portal even with multiple concurrent users accessing orders, inventory, shipments, and product catalogs.

---

1. Data Migration

The AgriEdge Portal requires migration of customer data, product catalogs, orders, inventory records, and shipment information from legacy systems or spreadsheets into Salesforce.

Steps Followed:

- Imported customer records (Account and Contact data) using Data Import Wizard and Data Loader.
- Imported product catalog (Product2 records) with pricing and descriptions.
- Imported related records: **AgriEdge_Order__c**, **AgriEdge_OrderItem__c**, **AgriEdge_Inventory__c**, and **AgriEdge_Shipment__c**.
- Ensured unique identifiers (Order Number, Product Code, Customer ID) to prevent duplicates.
- Validated lookup and master-detail relationships between orders, order items, products, and shipments.
- Verified data integrity using reports and dashboards after migration.

Data Validations:

- Mandatory fields (Customer Name, Product Name, Order Date, Quantity) verified for completeness.
- Duplicate prevention using unique constraints on Order Number, Product Code, and Customer Email.
- Validation Rules and Before Save Flows ensured accurate data entry for orders, inventory, and shipments.

---

2. Testing

Testing ensured all objects, Flows, and Apex logic performed correctly and integrated seamlessly.

Testing Types Conducted:

Unit Testing

- Verified Apex classes and Flows for Order creation, Inventory updates, and Shipment tracking.
- Checked best practices and governor limits compliance.
- Ensured test classes achieved 100% coverage for triggers and Apex handlers.

Integration Testing

- Verified relationships between Account/Contact records and related **AgriEdge_Order__c**, **AgriEdge_OrderItem__c**, **AgriEdge_Inventory__c**, **AgriEdge_Shipment__c**.
- Tested interaction between Flows, page layouts, and backend Apex logic.

User Acceptance Testing (UAT)

- Conducted with sample customer and sales representative users to simulate real-life scenarios:
    - Placing orders and adding order items
    - Viewing inventory levels and product availability
    - Tracking shipments and delivery status
    - Processing bulk order approvals

Collected feedback and optimized page layouts, validation messages, and navigation for better usability.

Outcome:

All test cycles confirmed functional reliability, data accuracy, and smooth user interaction across desktop and mobile devices.

---

3. Security Implementation

Security ensured only authorized customers, sales representatives, and managers could access appropriate records.

Role Hierarchy

- Admin – Full access to all records and configuration.
- Sales Manager – Access to all orders, inventory, and shipments.
- Sales Representative – Access to assigned orders and customer accounts.
- Warehouse Manager – Access to inventory and shipment records.
- Customer – Access limited to their own orders and shipment tracking.

Profiles & Permission Sets

- Profiles for Admin, Sales Manager, Sales Representative, Warehouse Manager, Customer Community User.
- Permission sets for additional access to bulk order approvals and inventory management.

Field-Level Security

- Sensitive fields (e.g., Unit Cost, Customer Payment Info) hidden for customers but visible to Sales Managers and Admins.

Record-Level Security

- OWD = Private for **AgriEdge_Order__c**, **AgriEdge_Inventory__c**, **AgriEdge_Shipment__c**.
- Sharing Rules: Sales Managers get read/write access to all sales data.

- Customers can only view their own orders through Experience Cloud.

Outcome of Phase 4

Data security, access control, and compliance verified before deployment.

Performance Tuning & Optimization

Performance Tuning & Optimization focused on enhancing the overall speed and efficiency of the AgriEdge Portal, ensuring smooth performance even with multiple users accessing orders, inventory, and shipment data simultaneously.

1. Optimizing SOQL Queries

In Apex handlers and backend logic:

- Retrieved only required fields.
- Used selective filters based on logged-in customer or sales representative.
- Applied LIMIT and WHERE clauses for efficiency.

2. Reducing Loops and DML Operations

- Avoided SOQL/DML inside loops.
- Batched updates in Apex and Flows.

3. Page Layout Optimization

- Modular page layouts for AgriEdge Order, OrderItem, Inventory, and Shipment.
- Minimized unnecessary queries by using formula fields and roll-up summary fields where applicable.

4. Security & Caching Enhancements

- FLS checks in Apex.
- Platform Cache for frequently accessed product catalog and inventory data.

Milestone 15 - Duplicate and Matching Rules

Activity 1: Create a Custom Matching Rule

1. Go to Setup
2. In Quick Find, search for **Matching Rules**

3. Click **New Rule**
4. Select Object: **Account** and Click Next
5. Enter Rule Name: **Unique Account Email and Phone**
6. In Matching Criteria: Select Field as **Email** and **Phone**.
7. In Matching Method: Select **Exact**
8. Check **Match Blank Fields**
9. Click Next
10. Click **Save & Activate**.

Activity 2: Create a Duplicate Rule

1. Go to Setup
2. Search for **Duplicate Rule**
3. Click **New Rule**
4. Select Object: Same as before (**Account**)
5. Enter Rule Name: **Unique Account Email and Phone**
6. Set Action on Create and Action on Edit: **Allow and Report**
7. In Alert Text: **Account with same email and phone already exists**
8. In the Matching Rules section:
9. Click **Add Rule**
10. Select your previously created Matching Rule (**Unique Account Email and Phone**)
11. Click **Save & Activate**.

Milestone 16: Profiles

A profile is a group/collection of settings and permissions that define what a user can do in Salesforce. Profile controls "Object permissions, Field permissions, User permissions, Tab settings, App settings, Apex class access, Visualforce page access, Page layouts, Record Types, Login hours & Login IP ranges. You can define profiles by the user's job function. For example, System Administrator, Developer, Sales Representative.

Types of profiles in Salesforce

1. Standard profiles:

By default, Salesforce provides standard profiles including:

- Contract Manager
- Read Only
- Marketing User
- Solutions Manager
- Standard User
- System Administrator

We cannot delete standard profiles. Each includes a default set of permissions for all standard objects available on the platform.

2. Custom Profiles:

Custom profiles are defined by administrators. They can be deleted if there are no users assigned with that particular profile.

Activity 1: Sales Representative Profile Creation

To create a new profile:

- Go to Setup >> type **Profiles** in Quick Find box >> click Profiles >> clone the desired profile (Standard User) >> enter profile name: **Sales Representative Profile** >> Save.
- While still on the profile page, click **Edit**.
- Select the Custom App settings as default for the **AgriEdge Portal**.
- Scroll down to Custom Object Permissions and give **Read/Create/Edit/View All** access for the following objects:
  - AgriEdge_Order__c
  - AgriEdge_OrderItem__c
  - AgriEdge_Inventory__c (Read Only)
  - AgriEdge_Shipment__c
- Set Session Timeout to **2 hours of inactivity**.
- Configure Password Policies as:
  - Passwords expire in 90 days
  - Minimum password length = 8
- Click **Save**

Activity 2: Sales Manager Profile Creation

1. Go to setup >> type **profiles** in quick find box >> click on profiles >> clone the desired profile (Standard User Profile) >> enter profile name (**Sales Manager Profile**) >> Save.
2. While still on the profile page, click **Edit**.
3. Give full access to all AgriEdge custom objects.
4. Click **Save**.

Activity 3: Warehouse Manager Profile Creation

1. Go to setup >> type **profiles** in quick find box >> click on profiles >> clone the desired profile (Standard User Profile) >> enter profile name (**Warehouse Manager Profile**) >> Save.
2. While still on the profile page, click **Edit**.
3. Give full access to **AgriEdge_Inventory__c** and **AgriEdge_Shipment__c**.
4. Give Read access to **AgriEdge_Order__c** and **AgriEdge_OrderItem__c**.
5. Click **Save**.

Milestone 17: Roles & Role Hierarchy

A role in Salesforce defines a user's visibility access at the record level. Roles may be used to specify the types of access that people in your Salesforce organization can have to data. Simply put, it describes what a user could see within the Salesforce organization.

Activity 1: Creation of Sales Manager Role

Creating Sales Manager Role:

1. Go to quick find >> Search for **Roles** >> click on set up roles.
2. Click on **Expand All** and click on **add role** under CEO.
3. Give Label as **"AgriEdge Sales Manager"** and the Role name gets auto populated. Then click on **Save**.

Activity 2: Creating Sales Representative Role Under Sales Manager Role

Creating Sales Representative Role:

1. Go to quick find >> Search for **Roles** >> click on set up roles.
2. Click **plus** on AgriEdge Sales Manager role, and click **add role** under AgriEdge Sales Manager.
3. Give Label as **"AgriEdge Sales Representative"** and Role name gets auto populated. Then click on **Save**.

Activity 3: Creating Warehouse Manager Role

Creating Warehouse Manager Role:

1. Go to quick find >> Search for **Roles** >> click on set up roles.
2. Click on **Expand All** and click on **add role** under CEO.

3. Give Label as **"AgriEdge Warehouse Manager"** and the Role name gets auto populated. Then click on **Save**.

Phase 5: Deployment, Documentation & Maintenance

Deployment:

In the scope of the AgriEdge Portal project implementation:

- The complete portal, including custom objects, page layouts, Flows, and Lightning Application, has been built and configured within a Salesforce Developer Org.
- The primary goal of this phase is to understand how an Agricultural Order Management Portal can be developed, tested, and prepared for real-world deployment in an organization's Salesforce environment.
- This includes configuring navigation items, access permissions, Lightning App, and deploying reusable pages for modules like:
  - Orders
  - Order Items
  - Inventory Management
  - Shipment Tracking
  - Product Catalog
- Each page has been designed for easy usability and clear navigation to improve customer interaction and sales efficiency.

Actual deployment (migration from development to production) is not performed in this project because:

- Developer Edition orgs are standalone and not connected to a production instance.
- Production deployment typically requires sandbox environments, change sets, or Salesforce DevOps tools (such as GitHub, Azure DevOps, or CI/CD pipelines) — which are part of enterprise-level projects.
- However, all objects, page layouts, Flows, and the Lightning App have been structured in a way that they can easily be packaged and deployed to production in the future using standard Salesforce deployment tools.

Maintenance, Monitoring & Troubleshooting

Maintenance ensures that orders, inventory records, shipments, and customer data remain accurate, secure, and up to date.

Ongoing monitoring and maintenance include:

- Reviewing portal pages and Lightning App performance for responsiveness and accessibility.
- Ensuring security settings like profiles, permission sets, and sharing rules are updated according to user role changes.
- Monitoring Flows for order processing, inventory updates, and shipment notifications for any failures or delays.
- Maintaining duplicate rules and matching rules to prevent multiple entries for the same customer or overlapping orders.
- Updating product catalog and inventory levels as per business changes.
- Tracking user feedback and implementing UI or automation improvements for a better customer experience.

Although this project was implemented in a Salesforce Developer Org for demonstration and learning purposes, in a real-world enterprise deployment, these maintenance and monitoring activities are crucial to ensure the AgriEdge Portal remains stable, scalable, and aligned with organizational policies and compliance.

Project Documentation

Project documentation in the AgriEdge Portal serves as a comprehensive record of the portal's purpose, design, development, and deployment.

It ensures that business requirements — such as managing orders, inventory, shipments, and customer interactions — are clearly defined and mapped to system functionality.

Documentation benefits:

- Acts as a blueprint for developers and admins, guiding consistent development and enabling future scalability.
- Supports user training, troubleshooting, and maintenance by detailing every object, automation, and configuration involved.
- Assists in audit readiness, change management, and knowledge transfer, making it an essential asset for successful long-term sustainability.

Guidelines for AgriEdge Portal Documentation Submission

General Instructions

- Submit in professional format (Word or PDF).
- Use clear headings, subheadings, and bullet points.
- Maintain a consistent font (Times New Roman, size 12 or 13).

- Ensure zero grammatical or spelling mistakes and properly aligned sections.
- Plagiarism is strictly prohibited.

Mandatory Sections to Include

Project Overview

The AgriEdge Portal is a centralized Salesforce app designed to manage agricultural orders, inventory, shipments, and customer relationships.

Customers can:

- Browse product catalogs and place orders
- Track order status and shipments
- View their order history and account details
- Receive automated notifications about order confirmations and deliveries

Sales teams can:

- Process and manage customer orders
- Monitor inventory levels and product availability
- Track sales performance and customer engagement
- Approve bulk orders through automated workflows

The portal improves operational efficiency, reduces manual errors, and enhances customer satisfaction by providing a seamless order management experience powered entirely by Salesforce.

Objectives

- Empower customers with self-service capabilities for product browsing, order placement, and shipment tracking.
- Reduce administrative overhead through automated order processing and inventory updates.
- Ensure secure, role-based access for customers, sales representatives, and warehouse managers.
- Improve customer engagement and satisfaction by centralizing order information and delivery tracking.

Phase 1: Requirement Analysis & Planning

Understanding Business Requirements:

Identify the need for a centralized platform for managing orders, inventory, shipments, and customer interactions in the agricultural sector.

Defining Project Scope and Objectives:

Include modules:

- Order Management
- OrderItem Tracking
- Inventory Management
- Shipment Tracking
- Product Catalog

Design Data Model and Security Model:

Create necessary custom objects, define fields, establish relationships, and design record-level access based on user roles.

Phase 2: Salesforce Development – Backend & Configurations

Setup Environment & DevOps Workflow:

Configure Developer Org and enable Lightning App settings.

Customization of Objects & Fields:

Create objects for AgriEdge Order, OrderItem, Inventory, and Shipment. Configure validation rules to prevent invalid or duplicate entries.

Automation:

Develop Flows for automated order processing, inventory updates, shipment tracking, and customer notifications.

Apex Classes / Triggers:

Backend logic for order calculations, inventory management, and shipment status updates.

Phase 3: UI/UX Development & Customization

Lightning App Setup:

Built AgriEdge Portal Lightning App for centralized navigation.

Page Layouts:

Customized layouts for all objects for better data entry and visibility.

Navigation Items:

Added pages for:

- Orders
- Order Items
- Inventory
- Shipments
- Product Catalog

User Management:

Created profiles, roles, and permission sets to control access.

Phase 4: Data Migration, Testing & Security

Data Migration:

Used Data Import Wizard to load customer records, product catalog, orders, inventory, and shipment data.

Field History Tracking:

Enabled for key fields to track updates and changes.

Duplicate & Matching Rules:

Configured to prevent overlapping orders or duplicate customer accounts.

Profiles, Roles, and Permission Sets:

Defined access levels for Customers, Sales Representatives, Warehouse Managers, and Admins using role hierarchy and sharing rules.

Testing:

Conducted:

- Unit Testing for Flows and backend logic.
- UAT to ensure data accuracy and workflow correctness.
- Security testing for profile-based and object-level access.

Phase 5: Deployment, Documentation & Maintenance

Deployment:

The portal was built in a Salesforce Developer Org to simulate real-world deployment.

Actual production deployment was not performed due to Developer Org limitations, but the architecture supports migration via Change Sets or Salesforce DevOps tools in the future.

Maintenance, Monitoring & Troubleshooting:

- Regularly review page layouts, Flows, and app performance.
- Monitor orders, inventory, shipments, and customer interactions for accuracy.
- Maintain security via profiles, permission sets, and sharing rules.
- Update product catalog, inventory levels, and workflows as needed.
- Resolve errors via debug logs and update Flows/validations for new business rules.

Project Documentation:

Documentation ensures all objects, workflows, profiles, roles, and validations are recorded. It guides:

- Future maintenance
- User training
- Audit compliance
- Change management

Conclusion

The AgriEdge Order Management System project demonstrates how Salesforce can be leveraged to enhance agricultural supply chain operations and customer engagement.

Through a combination of custom objects, Flows, page layouts, and secure user configurations, the system enables seamless management of orders, inventory, shipments, and customer relationships while providing customers with direct access to product catalogs and order tracking.

Although developed within a Salesforce Developer Org for training and demonstration purposes, the project reflects real-world agricultural business automation practices. It highlights the importance of UI design, security setup, automation, and ongoing maintenance to build a scalable and user-friendly portal.

The system not only automates and streamlines order processing but also provides real-time insights into inventory levels, order fulfillment, and supply chain performance — enabling AgriEdge Or-Mange Ltd to make informed decisions, optimize operations, and drive continuous improvement in their agricultural business.

Guidelines for AgriEdge Portal Project Demo Video Presentation

The Project Demo Video showcases the complete working of your portal — both UI and backend — demonstrating your technical, presentation, and problem-solving skills.

Steps for Demo Video Presentation

1. Introduction

- Introduce yourself and your project name: "AgriEdge Order Management System using Salesforce."
- Briefly explain the project's purpose (managing orders, inventory, shipments, and customer relationships in agriculture sector).

2. App Overview

- Show the Lightning App from the App Launcher.
- Mention custom objects like **AgriEdge_Order__c**, **AgriEdge_OrderItem__c**, **AgriEdge_Inventory__c**, **AgriEdge_Shipment__c**, and standard objects like **Product2**, **Account**, **Contact**.

3. User Interface Demonstration

- Demonstrate:
  - How customers browse product catalogs and place orders.
  - How sales representatives process orders and add order items.
  - Viewing inventory levels and stock availability.
  - Tracking shipments and delivery status.
  - The Lightning App navigation and page layouts for all objects.

4. Business Process Automation

- Show the Flows created for automated order confirmation emails, inventory updates, and shipment notifications.
- Explain the approval process for bulk orders.

- Open related backend logic (Apex Classes like OrderController, InventoryController, ShipmentController) to show automation handling.

5. User Management & Security

- Demonstrate Profile and Permission Set configuration for different user types (customers, sales reps, warehouse managers).
- Show role hierarchy, sharing rules, and field-level security ensuring restricted access to sensitive data.

6. Error Handling & Debugging

- Briefly show validation rules preventing negative inventory or invalid order dates.
- Show debug logs or Flow error handling setup.

7. Highlights

- Showcase the Lightning App, page layouts, navigation structure, and personalized UI for the AgriEdge Portal.
- Mention unique features like automated inventory alerts, order approval workflows, and shipment tracking.

8. Conclusion

- Summarize the complete portal workflow and its business value.
- Mention that it was tested, documented, and is ready for production adaptation.

Pro Tips for Project Demo Video

- Use your own voice for explanation.
- Keep the video 5–10 minutes long and structured.
- Record in HD (720p or above) using Loom, OBS, or Zoom.
- Avoid background noise and unnecessary pauses.
- Demonstrate real data — place orders and track shipments during the video.
- End confidently summarizing your contribution and the project's benefits.

Final Conclusion

The AgriEdge Order Management System successfully illustrates how Salesforce can streamline agricultural business operations.

With features like order management, inventory tracking, shipment monitoring, and customer self-service capabilities, the system boosts transparency, efficiency, and customer satisfaction.

Even though implemented in a Developer Org for practice purposes, it aligns with real-world Salesforce project standards, demonstrating end-to-end understanding of:

- Object design and data modeling
- Process automation using Flows and Apex
- Security and role-based access control
- UI/UX development with Lightning Components
- Deployment readiness and documentation

This project serves as a comprehensive learning experience for building enterprise-level Salesforce applications in the agricultural sector, showcasing skills that are directly applicable to real-world business scenarios.

END OF DOCUMENT
