Phase 4: Process Automation (Admin)

AgriConnect

Salesforce-Based Farmer Support & Marketplace System

Process automation in Salesforce allows administrators to streamline business operations, reduce manual work, and ensure data accuracy. This phase covers several automation tools: **Validation Rules, Workflow Rules, Process Builder, Approval Process, Flow Builder, Email Alerts, Field Updates, Tasks, and Custom Notifications**.
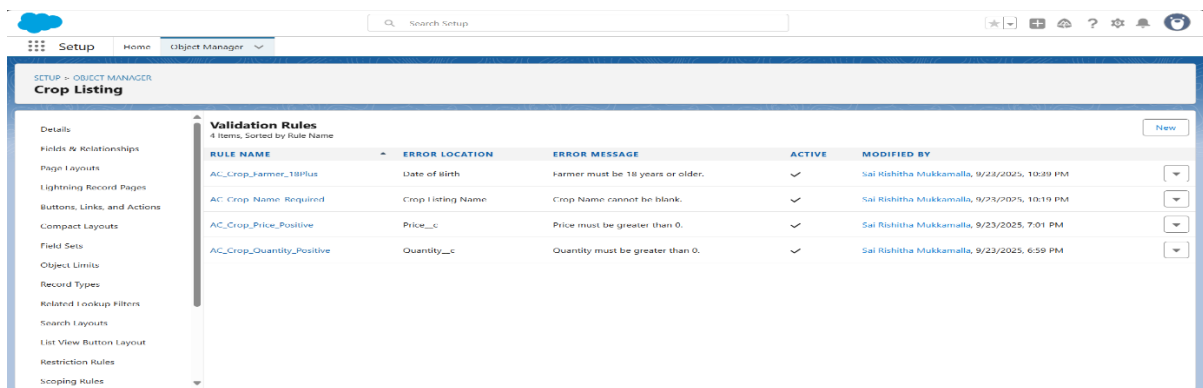
Step 1: Validation Rules

Validation rules in AgriConnect ensure that all data entered by users across objects like **CropListing, Order, Consultation, Knowledge, and Marketplace** is accurate, complete, and meets business requirements. These rules prevent errors such as missing required fields, invalid numeric values, or incorrect formats.

Each object has specific rules implemented to maintain **data integrity** and **enforce business logic**.

- ➢ **CropListing__c Validation Rules**
  - • **Quantity must be greater than 0**
    - ○ **Label:** AC_Crop_Quantity_Positive
    - ○ **Formula:** OR(ISBLANK(Quantity__c), Quantity__c <= 0)
    - ○ **Error Message:** Quantity must be greater than 0
    - ○ **Error Location:** Field → Quantity__c
  - • **Price must be positive**
    - ○ **Label:** AC_Crop_Price_Positive
    - ○ **Formula:** OR(ISBLANK(Price__c), Price__c <= 0)
    - ○ **Error Message:** Price must be greater than 0

- o **Error Location:** Field → Price__c
- **Crop Name mandatory**
  - o **Label:** AC_Crop_Name_Required
  - o **Formula:** ISBLANK(Name)
  - o **Error Message:** Crop Name cannot be blank
  - o **Error Location:** Field → Name
- **Farmer Age ≥ 18**
  - o **Label:** AC_Crop_Farmer_18Plus
  - o **Formula:** TODAY() - DOB__c < 18*365
  - o **Error Message:** Farmer must be 18 years or older
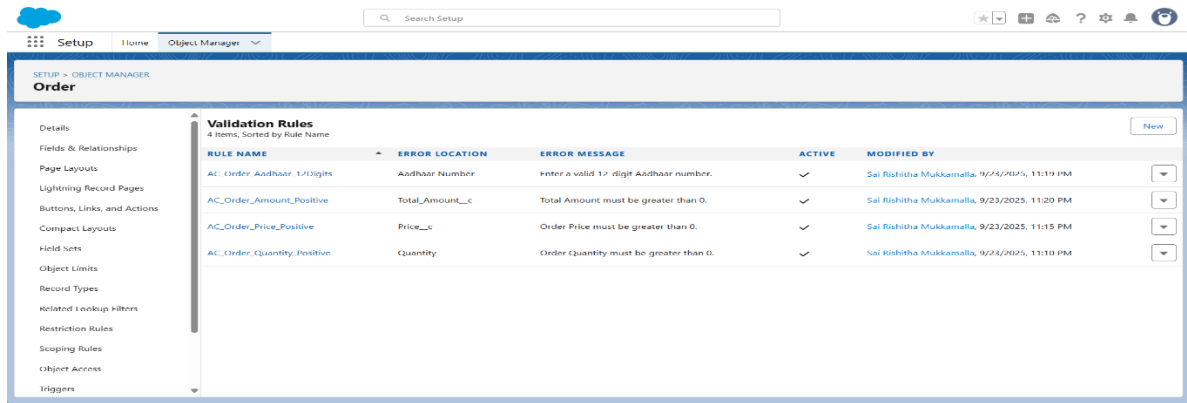 - o **Error Location:** Field → DOB__c

> **Order__c Validation Rules**
  - **Quantity > 0** → AC_Order_Quantity_Positive
  - **Price > 0** → AC_Order_Price_Positive
  - **Aadhaar number 12 digits** → AC_Order_Aadhaar_12Digits (NOT(REGEX(Aadhaar_Number__c, "^[0-9]{12}$")))
  - **Amount = Price × Quantity > 0** (optional cross-check) → AC_Order_Amount_Positive

Order Validation Rules (Order)
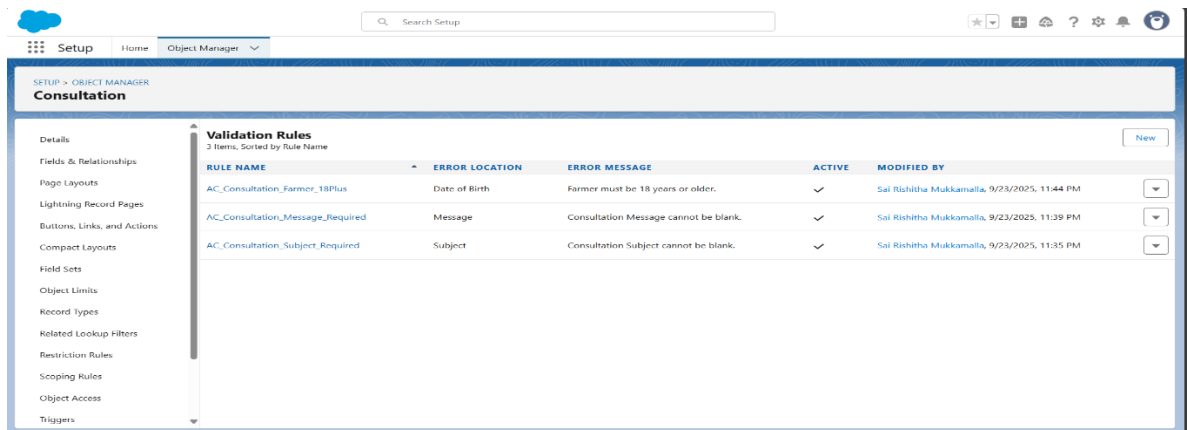
Validation Rules
4 Items, Sorted by Rule Name

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY
AC_Order_Aadhaar_12Digits	Aadhaar Number	Enter a valid 12 digit Aadhaar number.	✓	Sai Rishitha Mukkamalla, 9/24/2025, 11:19 PM
AC_Order_Amount_Positive	Total_Amount__c	Total Amount must be greater than 0.	✓	Sai Rishitha Mukkamalla, 9/23/2025, 11:20 PM
AC_Order_Price_Positive	Price__c	Order Price must be greater than 0.	✓	Sai Rishitha Mukkamalla, 9/23/2025, 11:15 PM
AC_Order_Quantity_Positive	Quantity	Order Quantity must be greater than 0.	✓	Sai Rishitha Mukkamalla, 9/23/2025, 11:10 PM

➢ **Consultation__c Validation Rules**

- **Subject mandatory** → AC_Consultation_Subject_Required

- **Message mandatory** → AC_Consultation_Message_Required

- **Farmer Age ≥ 18** → AC_Consultation_Farmer_18Plus

Validation Rules
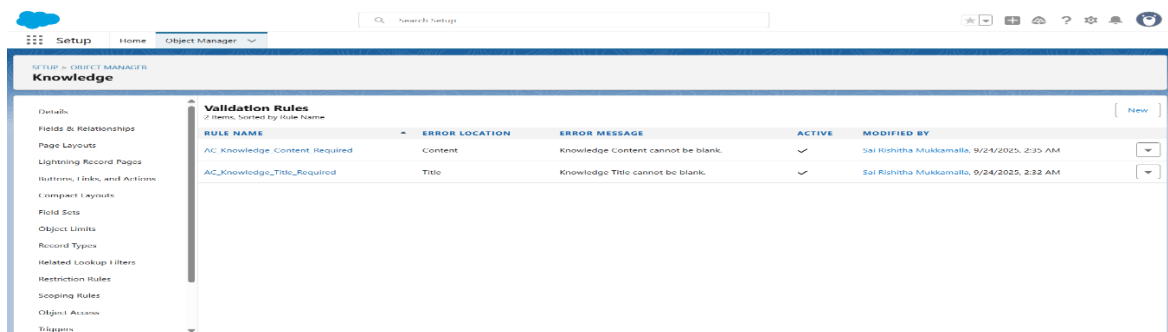3 Items, Sorted by Rule Name

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY
AC_Consultation_Farmer_18Plus	Date of Birth	Farmer must be 18 years or older.	✓	Sai Rishitha Mukkamalla, 9/23/2025, 11:44 PM
AC_Consultation_Message_Required	Message	Consultation Message cannot be blank.	✓	Sai Rishitha Mukkamalla, 9/23/2025, 11:39 PM
AC_Consultation_Subject_Required	Subject	Consultation Subject cannot be blank.	✓	Sai Rishitha Mukkamalla, 9/23/2025, 11:35 PM

➢ **Knowledge__c Validation Rules**

- **Title mandatory** → AC_Knowledge_Title_Required

- **Content mandatory** → AC_Knowledge_Content_Required

Validation Rules
2 Items, Sorted by Rule Name

RULE NAME	ERROR LOCATION	ERROR MESSAGE	ACTIVE	MODIFIED BY
AC_Knowledge_Content_Required	Content	Knowledge Content cannot be blank.	✓	Sai Rishitha Mukkamalla, 9/24/2025, 2:35 AM
AC_Knowledge_Title_Required	Title	Knowledge Title cannot be blank.	✓	Sai Rishitha Mukkamalla, 9/24/2025, 2:32 AM

> ➤ **Marketplace__c Validation Rules**

- **Item Name mandatory** → AC_Marketplace_ItemName_Required
- **Price > 0** → AC_Marketplace_Price_Positive
- **Quantity > 0** → AC_Marketplace_Quantity_Positive
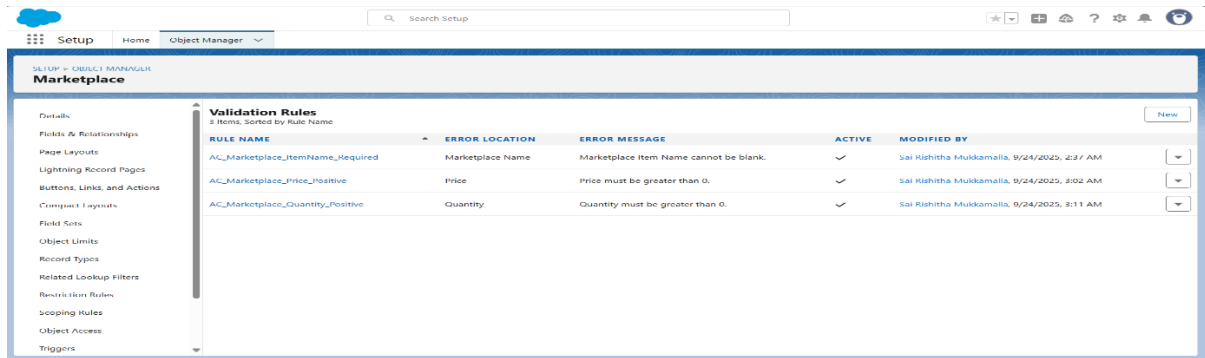
Step 2: Workflow Rules

A Workflow Rule in Salesforce is an automated process that evaluates records based on specific criteria and then performs actions when those criteria are met. It is one of the most powerful process automation tools available to administrators and is mainly used to save time and enforce consistency in business operations.

> ➤ **AC_WF_Consult_Assign_Expert_Pesticide**

- **Object:** Consultation
- **Purpose:** Automatically assigns a consultation record to the pesticide expert whenever the topic/subject relates to pesticides.
- **Key Action:** Field Update → Assigned_Expert__c set to the pesticide expert user.

> ➤ **AC_WF_Consultation_Completed_Email**

- **Object:** Consultation
- **Purpose:** Sends an email notification when the consultation status changes to **Completed**.

- **Key Action:** Email Alert → notifies the farmer and/or consultation owner.

➢ **AC_WF_Crop_Status_Available**
- **Object:** Crop Listing
- **Purpose:** Marks a crop as **Available** when its quantity is greater than zero.
- **Key Action:** Field Update → updates Status__c field to "Available".

➢ **AC_WF_Crop_Status_OutOfStock**
- **Object:** Crop Listing
- **Purpose:** Marks a crop as **Out of Stock** when the quantity becomes zero.
- **Key Action:** Field Update → updates Status__c field to "Out of Stock".

➢ **AC_WF_NewCrop_NotifyAdmin**
- **Object:** Crop Listing
- **Purpose:** Notifies the Admin whenever a new crop listing is created.
- **Key Action:** Email Alert → sends email to Admin role/users.

➢ **AC_WF_HighValue_Order_Notify**
- **Object:** Order
- **Purpose:** Alerts the manager whenever an order amount exceeds the defined threshold (e.g., ₹10,000).
- **Key Action:** Email Alert → notifies manager or finance team.

➢ **AC_WF_Order_Email_On_Create**
- **Object:** Order
- **Purpose:** Sends an email notification when a new order is created with status = "New".
- **Key Action:** Email Alert → sends details to farmer and manager.

- ➢ **AC_WF_Order_On_Delivery**
  - • **Object:** Order
  - • **Purpose:** Triggers actions when an order status changes to **Delivered**.
  - • **Key Actions:** Field Update (e.g., set delivery date), Email Alert (notify customer), or Task (create follow-up).
- ➢ **AC_WF_Marketplace_OutOfStock**
  - • **Object:** Marketplace
  - • **Purpose:** Notifies seller/admin when marketplace product quantity reaches zero or less.
  - • **Key Action:** Email Alert → informs relevant stakeholders.
- ➢ **AC_WF_Marketplace_Price_Changed**
  - • **Object:** Marketplace
  - • **Purpose:** Notifies stakeholders whenever the product price changes.
  - • **Key Action:** Email Alert → sends updated price details.
- ➢ **AC_WF_New_Knowledge_Notify**
  - • **Object:** Knowledge
  - • **Purpose:** Notifies users or reviewers when a new knowledge article is published.
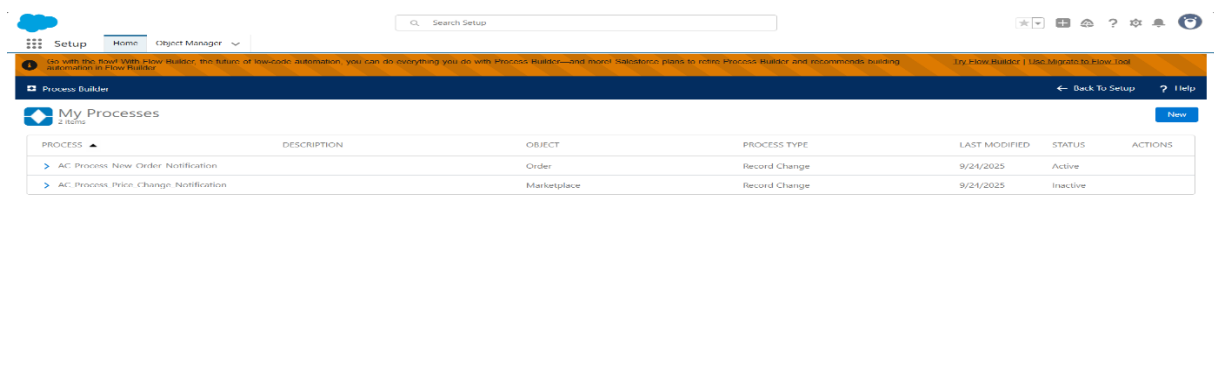 - • **Key Action:** Email Alert → sends article details to subscribers or admins.
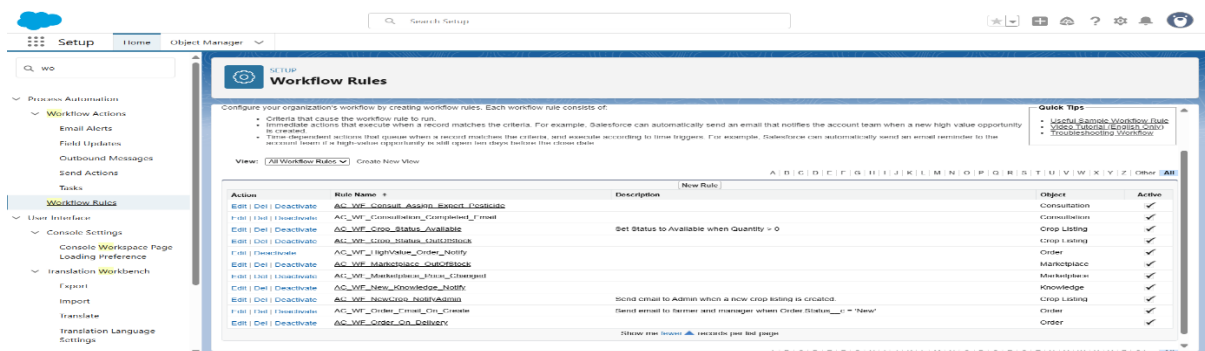
Step 3: Process Builder

In AgriConnect, Process Builder is used to automate complex business processes that require multiple conditions and actions. Unlike Workflow Rules, Process Builder allows you to define multiple if/then branches, update related records, invoke other processes, and even launch flows.

Two processes were created for this project:

- The New Order Notification Process automatically triggers when a new order record is created. It sends notifications to farmers and managers, ensuring timely communication.

- The Price Change Notification Process monitors price updates. When a price is modified in relevant objects (such as Marketplace or Crop Listing), it sends a notification or email alert to stakeholders, ensuring transparency and quick response.

These processes ensure that important events such as new orders and price updates are handled automatically without manual intervention.


> **AC_Process_New_Order_Notification**

- **Object:** Order

- **Trigger:** When a new order record is created.

- **Action:** Sends a notification/email to farmers and managers.

- **Purpose:** Keeps stakeholders informed immediately when a new order is placed.
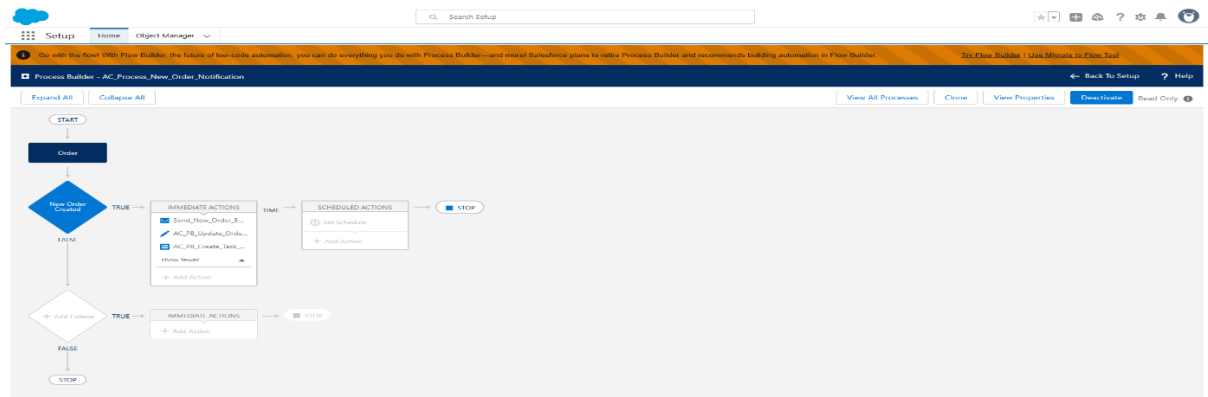
> ➤ **AC_Process_Price_Change_Notification**

- **Object:** Marketplace / Crop Listing

- **Trigger:** When the price field is updated.

- **Action:** Sends notification/email to stakeholders.

- **Purpose:** Ensures users are alerted of price changes instantly, reducing miscommunication.
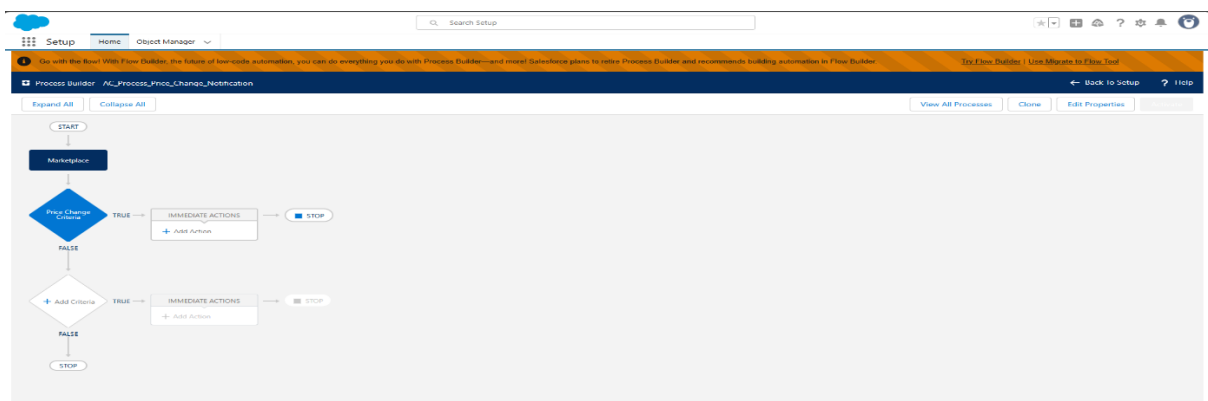
Step 4: Approval Process

In AgriConnect, an **Approval Process** is used to enforce structured decision-making for sensitive records. The process created for the **Order object** is called **AC_Approval_High_Value_Order**. This process ensures that any order exceeding a defined threshold amount (e.g., ₹10,000) is automatically routed for approval before it can proceed further.

The approval request is sent to the designated approver (such as a Manager or Admin). Once the approver reviews and approves/rejects, the order record status is updated accordingly. This guarantees better control over high-value transactions and reduces the risk of unauthorized orders being processed.
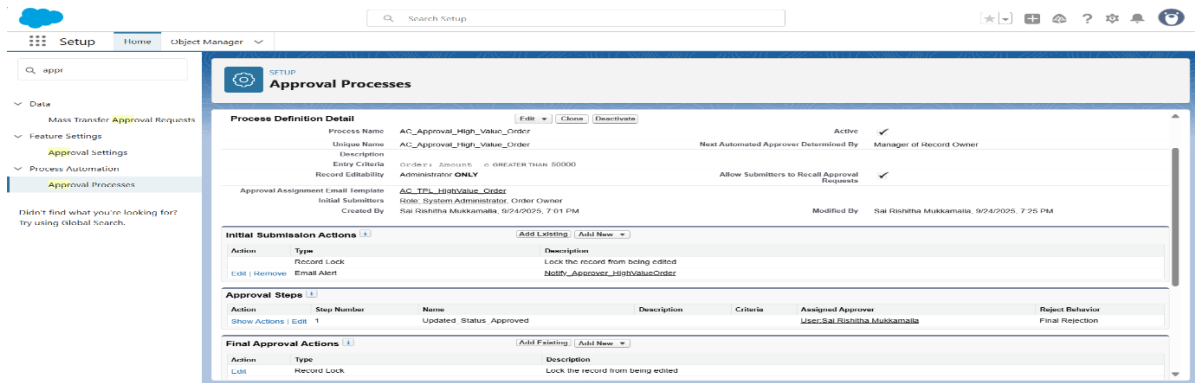

Email Templates

To support workflow rules, process builder, and approval processes, email templates were created in Salesforce. These templates provide predefined, consistent communication formats to ensure professional and accurate messaging. Each template is customized for specific automation scenarios such as order processing, new crop listings, price changes, and knowledge sharing.

The following email templates were developed:

- Consultation Completed (AC_TPL_Consultation_Completed): Sent when a consultation is marked as completed.
- High Value Order (AC_TPL_HighValue_Order): Used in the approval process for high-value orders, notifying approvers.
- New Crop Listing (AC_TPL_New_CropListing): Notifies admins when a new crop is listed.
- New Knowledge (AC_TPL_New_Knowledge): Notifies users when new knowledge content is published.
- Order Out of Stock (AC_TPL_Order_OOS): Alerts farmers/admins when an order cannot be fulfilled due to insufficient stock.

- Order Processing (AC_TPL_Order_Processing): Updates customers when their order moves into processing.
- Price Changed (AC_TPL_Price_Changed): Notifies stakeholders when product prices are updated.
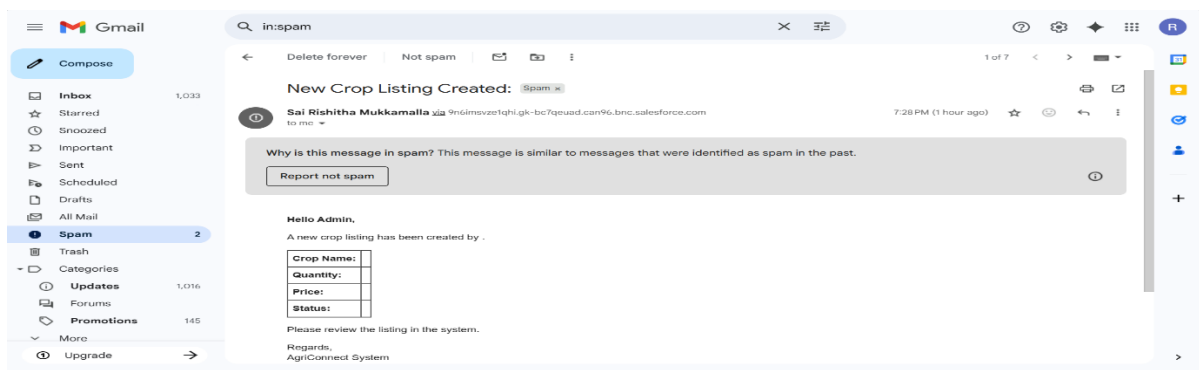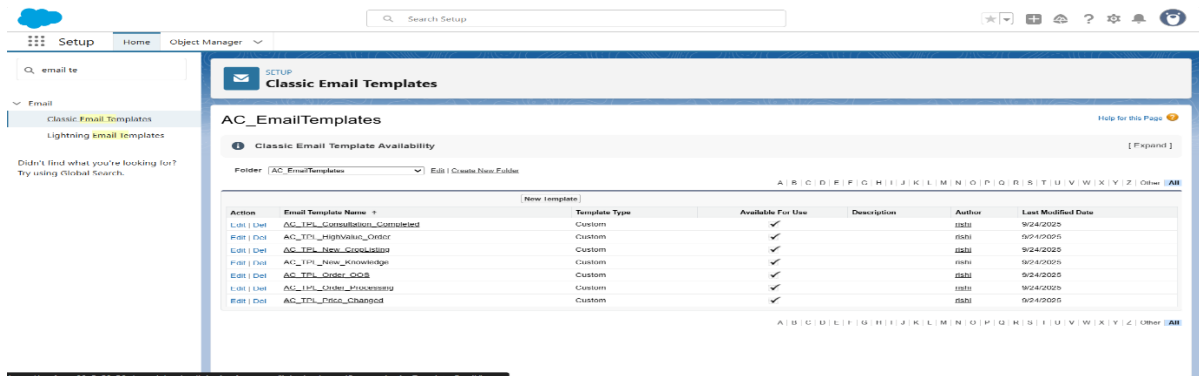
Step 5: Flow Builder (Screen, Record-Triggered, Scheduled, Auto-launched)

Salesforce Flow Builder is an automation tool that allows us to collect data, update records, and perform business logic without writing code. Flows can be triggered in different ways depending on business needs. The main flow types include:

- Screen Flows: Require user interaction (forms/screens).
- Record-Triggered Flows: Run automatically when a record is created or updated.
- Scheduled Flows: Run at a specific date and time automatically.

- Auto-Launched Flows: Run in the background without user interaction, often called by processes, buttons, or Apex.

Flows are highly flexible and are considered the future of Salesforce automation, replacing workflow rules and process builder gradually.

- ➢ **Screen Flow –** *AC_Flow_Screen_Create_CropListing - V1*
  - **Purpose:** Allows users to create a **Crop Listing** via a guided screen.
  - **Functionality:** Provides a form with fields like crop name, quantity, price, and description.
  - **User Interaction:** Farmer enters crop details → Flow saves them into CropListing object.
  - **Use Case:** Simplifies crop listing creation without navigating standard Salesforce forms.


- ➢ **Record-Triggered Flow –** *AC_Flow_Record_Marketplace_OutOfStock - V1*

- **Purpose:** Triggers automatically when a **Marketplace record** is updated to "Out of Stock."

- **Functionality:** Sends an alert/notification to admins or farmers when products go out of stock.

- **Trigger Condition:** Record status field = Out of Stock.

- **Use Case:** Helps manage inventory effectively and informs stakeholders in real-time.
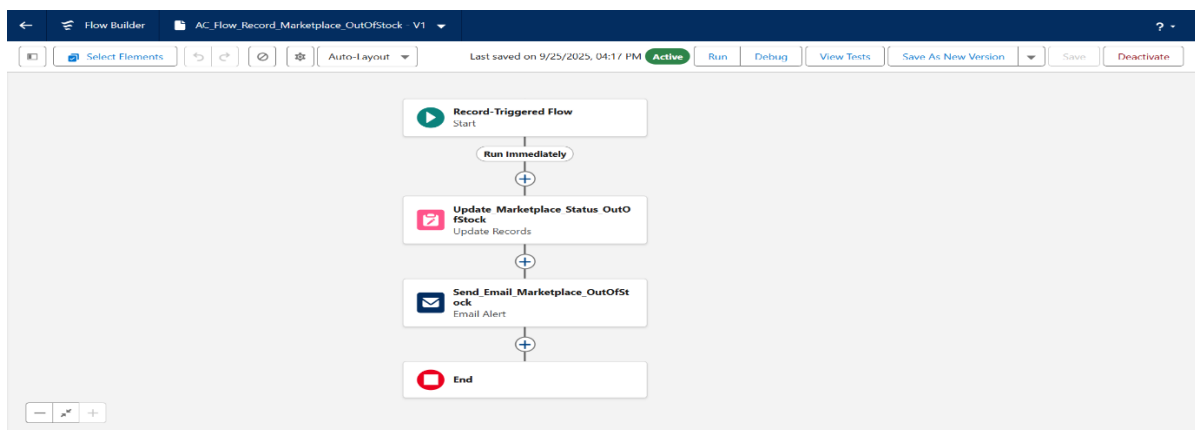

> ➤ **Scheduled Flow –** *AC_Flow_Scheduled_PendingOrders_Reminder - V1*

- **Purpose:** Runs daily/weekly (as scheduled) to check for **pending orders**.

- **Functionality:** Finds orders in "Pending" status beyond a time limit (e.g., 3 days).

- **Actions:** Sends reminder emails/notifications to admins and customers.

- **Use Case:** Ensures pending orders don't get ignored and improves customer experience.
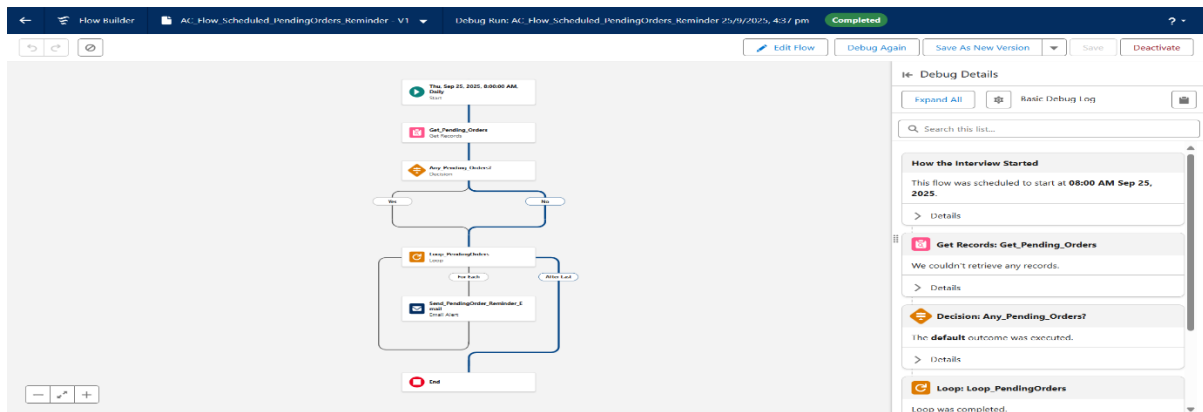
> ➤ **Auto-Launched Flow** – *AC_Flow_Auto_Process_Order - V1*

- **Purpose:** Automatically processes orders without user input.

- **Functionality:** When an order reaches a specific stage, the flow updates status, applies logic (e.g., stock deduction), and sends confirmation.

- **Trigger:** Called by another process (Process Builder / Apex / Button).

- **Use Case:** Streamlines order management and reduces manual intervention.
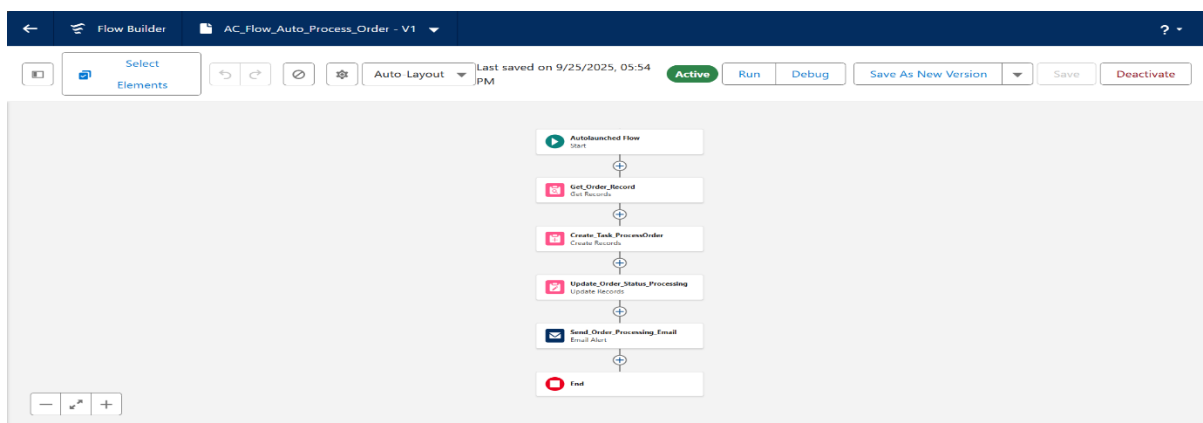
Step 6: Email Alerts

In Salesforce, Email Alerts are automated emails sent to users when certain conditions are met. They rely on Email Templates to define the content and layout of the emails. In the AgriConnect project, email alerts were designed to handle

order processing and pending order reminders. This ensures that both customers and managers are kept informed automatically without manual follow-up.

Two email templates were created to define the content, and two email alerts were created to trigger these templates when conditions were met.
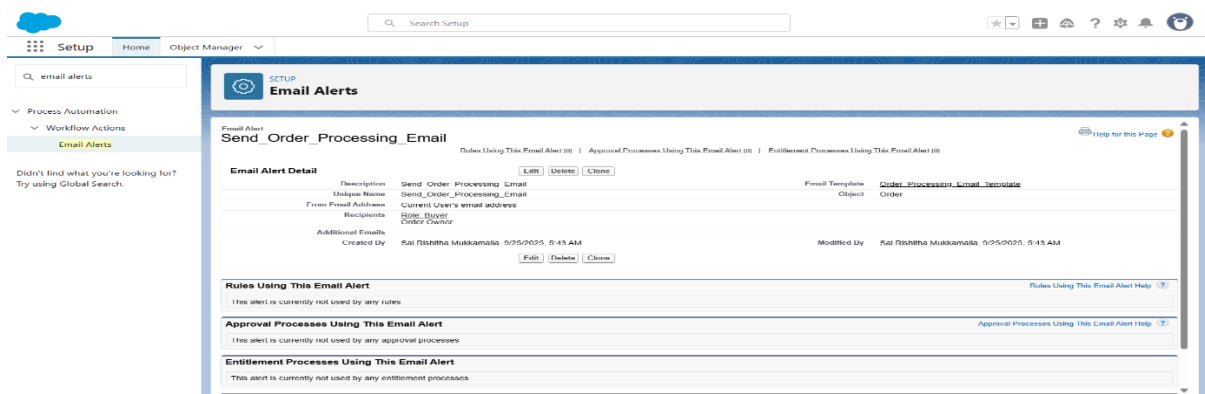
➢ **Email Alerts**

- **send_pendingorder_remainder_email**

  o Purpose: Sends automated reminders to customers and managers for **orders that are still pending**.

  o Trigger: Used in a scheduled flow or workflow rule.
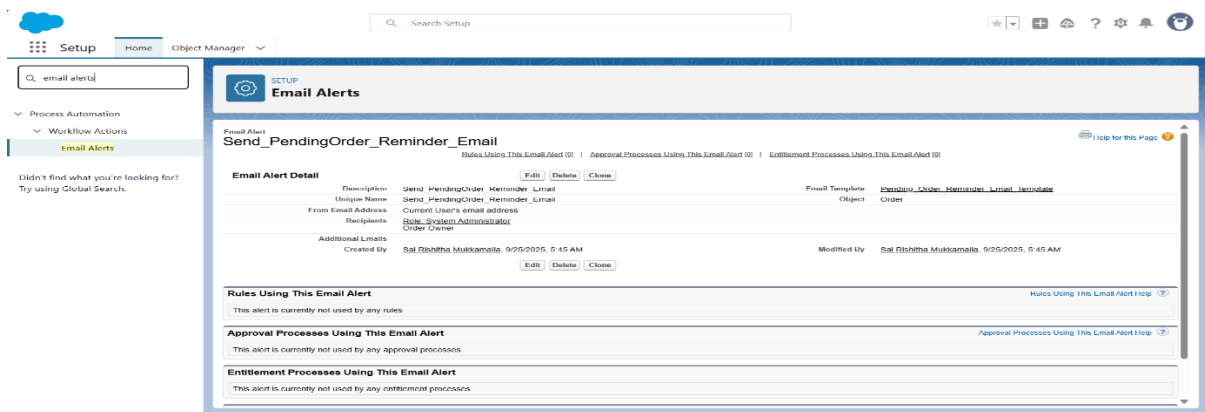

- **send_order_processing_email**

  o Purpose: Notifies stakeholders when an **order is being processed**.

  o Trigger: Used in record-triggered flow or approval process.


➢ **Email Templates**

- **order_processing_email_template**

  - Template Content: Defines the message sent when an order is in processing.
  - Use Case: Keeps the customer informed that their order has moved to the processing stage.
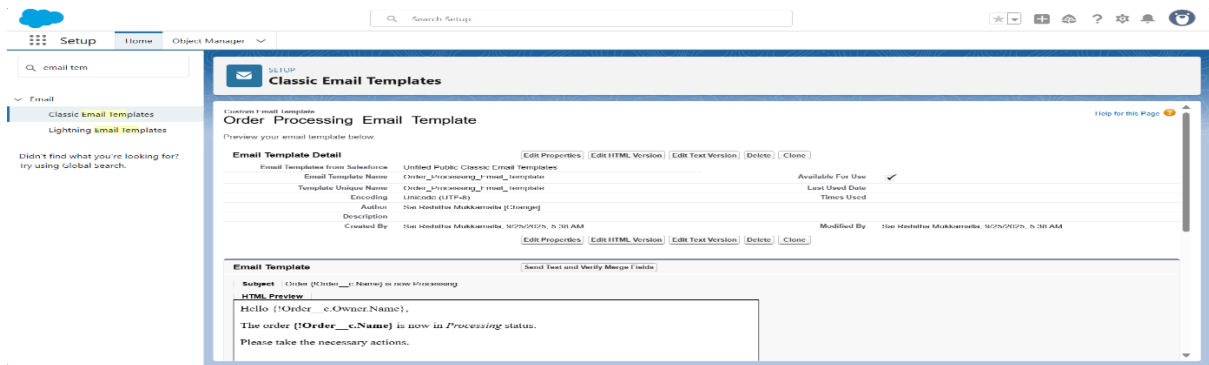

- **pending_order_remainder_email_template**

  - Template Content: Defines the reminder email for pending orders.
  - Use Case: Reminds customers/admins about incomplete or pending orders
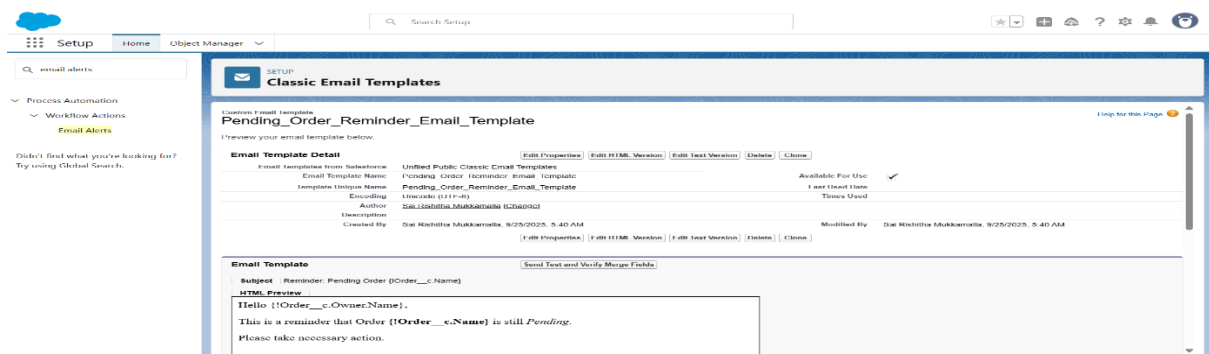
Step 7: Field Updates

> **Definition:** Field Updates automatically modify the value of a field based on a trigger condition.

- ➢ **Where Used:** Can be part of Workflow Rules, Approval Processes, and Flows.
- ➢ **Supported Field Types:** Text, Number, Checkbox, Date, Picklist, and more.
- ➢ **Examples:**
  - When an **Order** is delivered → update **Status = Delivered**.
  - When a **Crop Listing Quantity** = 0 → update **Status = Out of Stock**.
  - When an **Approval Process** is completed → update **Approval_Status = Approved**.
- ➢ **Benefits:** Saves time, ensures accuracy, and automates repetitive updates.
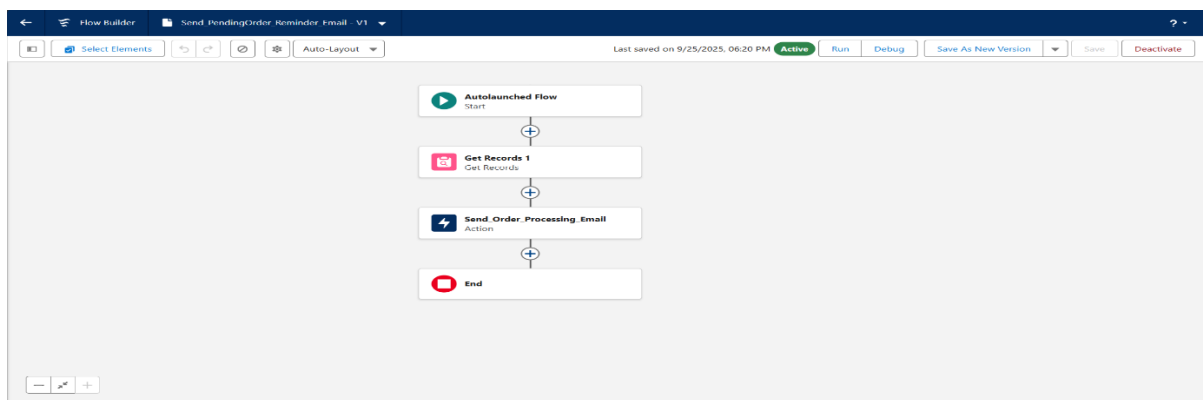
Step 8: Tasks

- ➢ **Definition:** Tasks are actionable items assigned to users in Salesforce to track work and follow-ups.
- ➢ **Where Used:** Created via **Flow Builder, Workflow Rules, or Process Builder** to automate task creation.
- ➢ **Examples of Tasks Created in AgriConnect:**
  - **Create_Task_ProcessOrder** – Assigned to the Finance Owner when an order is placed, reminding them to process the order.
  - **Consultation Follow-Up Task** – Assigned to the Expert or Admin when a new consultation is submitted, ensuring timely response.

- **High-Value Order Review Task** – Created during the approval process for high-value orders, reminding managers to review and approve.

➢ **Purpose:**

- Ensures that critical actions are not missed.

- Provides visibility of pending work.

- Automates assignment to the correct user, reducing manual tracking.
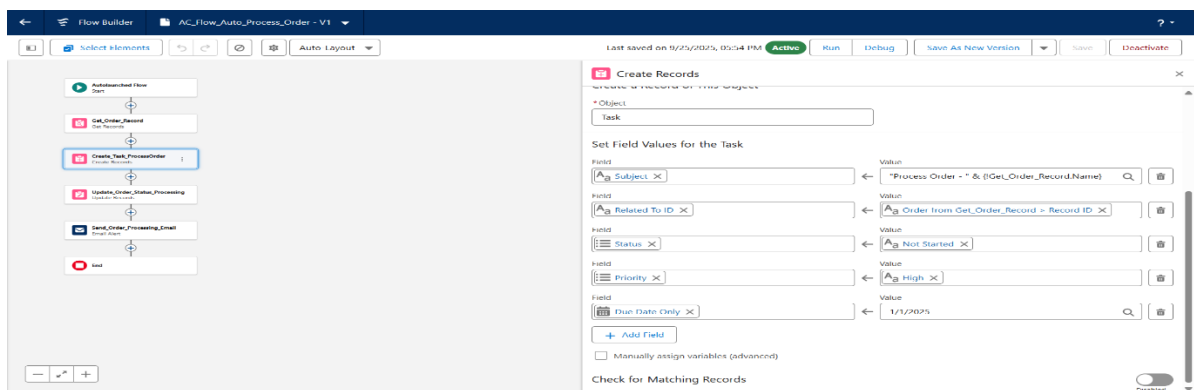
Step 9: Custom Notifications

➢ Definition: Custom notifications are real-time alerts sent to users within Salesforce (desktop or mobile).

➢ Where Used: Can be triggered from Flows, Process Builder, or Apex when specific events occur.

➢ Examples in AgriConnect:

- New Crop Listing Notification – Sent to admins when a farmer creates a new crop listing.

- Order Pending Notification – Sent to the manager if an order remains pending for too long.

- Consultation Update Notification – Sent to experts when a new consultation is submitted.

- Order Processing Notification – Sent to the finance owner when an order moves into processing.

> ➤ Benefits:
>
>> • Provides immediate visibility of important events.
>>
>> • Ensures timely action without relying solely on emails.
>>
>> • Can be targeted to specific users, roles, or profiles.
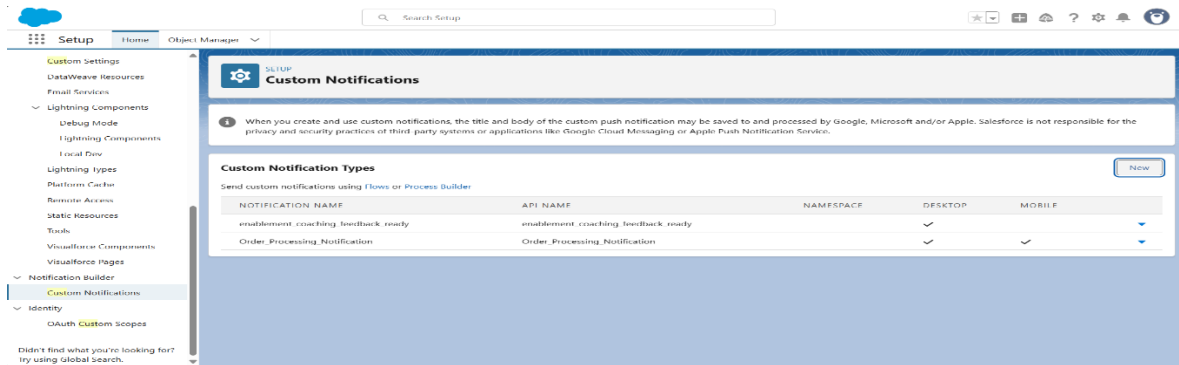
Conclusion

The AgriConnect project demonstrates a fully functional Salesforce-based system for managing agricultural operations. Using App Builder, all key objects such as Order__c and CropListing__c have been configured with relevant fields, layouts, and validation rules to ensure accurate data entry and enforce business logic.

Automation was implemented using Flows, Workflow Rules, Process Builder, Approval Processes, Email Alerts, Field Updates, Tasks, and Custom Notifications, ensuring that:

- Orders are automatically processed and monitored.
- Pending orders and high-value orders trigger alerts and approvals.
- Farmers and admins are notified of critical events such as new crop listings, stock updates, or consultations.
- Data integrity is maintained through validation rules (e.g., quantity > 0, price > 0, Aadhaar validation, farmer age ≥ 18).

Overall, the system provides streamlined operations, timely notifications, and automated workflows, reducing manual effort and improving efficiency. Test

data for Orders and Crop Listings confirmed that all flows and automations function correctly, making AgriConnect a robust solution for agricultural management.