

Question 1 – Audits

An audit is a systematic process of examining, reviewing, and evaluating records, processes, systems, or operations to check whether they are accurate, reliable, and compliant with established standards, laws, or objectives.

Q1 Audit (Initiation & Requirements Phase)

- BA ensures **Business Requirements Document (BRD)**, **Stakeholder Register**, and **Requirement Gathering Notes** are complete.
- Auditors will check:
 - Were all stakeholders (farmers, manufacturers, committee members) consulted?
 - Are requirements documented, reviewed, and signed-off?

BA's Role: Present requirement gathering methods, validate traceability of business needs to project scope.

Q2 Audit (Analysis & Design Phase)

- BA ensures **Functional Requirement Specification (FRS) / Use Cases / Process Models (BPMN, workflows)** are properly documented.
- Auditors will check:
 - Are requirements traceable to design elements?
 - Is there a gap analysis document?
- BA's Role: Show how requirements are translated into design, confirm no missing functionality, support the audit team with requirement-to-design mapping.

Q3 Audit (Development & Testing Phase)

- BA validates **Requirement Traceability Matrix (RTM)** is up-to-date.
- Auditors will check:
 - Are requirements mapped to test cases?
 - Are change requests properly logged & approved?
- BA's Role: Work with testers (Jason, Alekya) to confirm requirements are testable, ensure acceptance criteria are measurable, and demonstrate coverage in RTM.

Q4 Audit (Deployment & Closure Phase)

- BA ensures **UAT Sign-off, Lessons Learned, and Project Closure Reports** are maintained.
- Auditors will check:
 - Was UAT done with farmers & companies?
 - Did final solution meet requirements?
 - Is documentation updated for handover?
- BA's Role: Provide evidence of requirement fulfillment, collect stakeholder feedback, and assist in sign-off process.

Question 2 – BA Approach Strategy

1. Requirement Elicitation

I will begin by collecting requirements from all stakeholders (Committee, Farmers, Manufacturers, Project Team):

- Elicitation Techniques Applied:
 - Interviews → with Mr. Henry, Mr. Pandu, Mr. Dooku, farmers (Peter, Kevin, Ben) & manufacturers.
 - Workshops / JAD sessions → group discussions with committee & technical team.
 - Surveys & Questionnaires → for farmers in remote areas to collect large-scale inputs.
 - Observation / Contextual Inquiry → understanding how farmers currently procure seeds/pesticides.
 - Document Analysis → reviewing existing agriculture product ordering systems/market practices.
 - Brainstorming → with developers & testers for feasibility and innovation.

2. Stakeholder Analysis

- Identify Stakeholders:
 - Committee (Henry, Pandu, Dooku) – Business Owners

- Farmers (Peter, Kevin, Ben, etc.) – End Users
- Manufacturers – Product Providers
- APT IT Solutions team – Project Delivery Team

- **RACI Matrix:**

Activity	Responsible (R)	Accountable (A)	Consulted (C)	Informed (I)
Requirements Gathering	BA	Project Manager	Committee, Farmers, Manufacturers	Delivery Head
Technical Design	Developers, DB Admin, Network Admin	Project Manager	BA, Senior Developer	Committee
Testing	Testers	Project Manager	BA, Developers	Committee
UAT	Farmers, Committee	Committee	BA, Testers	All Stakeholders

3. Documentation Plan

- Business Requirement Document (BRD) → Business goals, objectives, scope.
- Functional Requirement Specification (FRS) → Detailed system requirements, use cases.
- System Requirement Specification (SRS) → Technical details (3-tier architecture, DB, network).
- Use Case Diagrams, Process Flow (BPMN), Data Flow Diagrams (DFD).
- Requirement Traceability Matrix (RTM) → Map requirements → design → test cases.
- Change Request Log → to track CRs formally.
- Test Scenarios & UAT Document → prepared with testers.

4. Sign-off & Approval Process

- After drafting each document (BRD, FRS, SRS), circulate to Committee & PM.
- Conduct review meetings → capture feedback.
- Incorporate changes → finalize document.
- Obtain formal sign-off via email / digital signature (Client Approval Form).

5. Communication Strategy

- Weekly Status Meetings → with Committee & PM.
- Daily Stand-ups → with Development & Testing team.
- Communication Channels:
 - Email → Formal approvals & escalations.
 - MS Teams / Zoom → Meetings & workshops.
 - Project Management Tool (like JIRA / MS Project) → Task tracking & progress.
- Progress Updates:
 - Weekly dashboard → shared with Committee (milestones, risks, issues).
 - Monthly Steering Committee Report → budget, timeline, scope status.

6. Change Request (CR) Management

- Any CR raised by Committee / Farmers / Manufacturers logged in Change Request Log.
- Impact Analysis (Time, Cost, Scope) done by BA + PM + Technical team.
- Submit Change Impact Document → Committee reviews.
- On approval, CR added to backlog and updated in RTM.

7. Progress Tracking & Reporting

- Maintain RTM for requirement coverage.
- Track deliverables against Gantt Chart (shared by PM).
- Provide Committee with:
 - Weekly Requirement Status Report.
 - Monthly Project Progress Report.

Highlight risks, dependencies, blockers.

8. UAT & Client Project Acceptance

- Prepare UAT Test Scenarios mapped to requirements.
- Coordinate UAT with Farmers, Manufacturers, and Committee.
- Collect feedback, log UAT issues, resolve defects.
- Once UAT is successful → Obtain Formal UAT Sign-off & Client Project Acceptance Form from Committee.

Question 3 – 3-Tier Architecture

The 3-Tier Architecture is a well-structured software architecture model that separates the system into three independent layers:

1. Presentation Layer (UI Layer)

This is the top-most layer and is what the user directly interacts with. It includes the user interface (UI), such as a web browser or a mobile application. Its primary function is to display information to the user and collect input from them. In the online agriculture store, this would be the website or mobile app interface that farmers and manufacturers use.

2. Application Layer (Business Logic Layer / Middle Tier)

This middle layer contains the core business logic of the application. It processes user requests, performs calculations, and makes decisions based on the rules of the application. It acts as an intermediary between the Presentation and Data tiers. For the online store, this layer would handle tasks like processing login requests, managing the product catalog, handling search queries, and processing payment transactions.

3. Data Layer (Database Layer)

This is the bottom layer, and it stores and retrieves data. It includes the database server and the database management system (DBMS). The logic tier sends requests to this layer to store or retrieve data. In this project, the data tier would hold information about users (farmers, manufacturers), products (fertilizers, seeds, pesticides), orders, and payment details.

Question 4 – BA Approach Strategy for Framing Questions

Before framing a question for a stakeholder, a Business Analyst should keep the following key points in mind to ensure the questions are effective and yield valuable information:

1. Apply 5W 1H Technique

Every requirement/question should answer at least one of:

- What – What product do you want (fertilizers, seeds, pesticides)?
- Why – Why is this product important (reduce pests, increase yield)?
- Who – Who will use this feature (farmers, manufacturers, committee)?
- When – When do you need this feature (season, delivery timelines)?

- Where – Where will this be used (remote areas, warehouses)?
- How – How should it work (mobile app, website, offline mode)?

2. Frame SMART Questions

Questions should be:

- Specific – Clear and to the point (e.g., “Do you want delivery tracking feature?”).
- Measurable – Can the requirement be tested (e.g., “Within how many days should orders be delivered?”).
- Achievable – Technically and financially possible.
- Relevant – Related to project goals (not irrelevant to farmers’ needs).
- Time-bound – Define timelines (e.g., “By what season should system go live?”).

3. Consider RACI Matrix

- Consider the stakeholder's role based on the RACI chart.
 - For a stakeholder who is **Accountable**, questions should focus on the overall business goals and metrics.
 - For someone who is **Responsible**, questions should be about the specific tasks and details of their role.
 - For a person being **Consulted**, questions should seek their expert opinion and input.

For someone who is merely **Informed**, questions are generally not necessary during elicitation

4. Keep 3-Tier Architecture in Mind

While asking, map your questions to the correct layer:

- Presentation Layer (UI/UX): “How should the mobile app look for farmers?”
- Application Layer (Business Rules): “Should farmers be able to place bulk orders?”

Data Layer (Database): “What product details must be stored (price, expiry, manufacturer)?”

5. UML Diagrams and Models (Use Cases, Activity Diagrams, etc.): Use these as a basis for your questions.

Use Cases: Ask questions to define the "actor" and the "goal." "What is the primary goal of a farmer when they use the search function?"

Activity Diagrams: Frame questions to understand the flow of events and decision points. "What is the step-by-step process a farmer follows from finding a product to completing a purchase? What are the possible exceptions to this flow?"

Page Designs/Models: Use visual aids to get specific feedback. "Looking at this mock-up of the product page, is there any information missing that a farmer would need to make a purchase decision?"

Question 5 – Elicitation Techniques

1. B – Brainstorming

Conducted with stakeholders/team to generate new ideas and possible solutions.

Example: Brainstorm with farmers & developers on “features needed in mobile app.”

2. D – Document Analysis

Reviewing existing documents, reports, manuals, policies.

Example: Studying government agriculture subsidy guidelines before defining requirements.

3. R – Reverse Engineering

Extracting requirements from an existing system to understand what it does and how it works.

4. F – Focus Groups

A group of selected stakeholders share opinions/feedback.

Example: Farmers from 2–3 villages giving feedback on prototype screens.

5. O – Observation (Job Shadowing)

Watching end-users in their environment to understand real processes.

Example: Observing how farmers currently buy seeds in local shops.

6. W – Workshops

Broader interactive sessions (could overlap with Requirements Workshop) for requirement discussion.

7. J – Joint Application Development (JAD)

Special type of workshop where business users and IT work together to define requirements quickly.

8. I – Interviews

One-to-one or group interviews with stakeholders to gather detailed requirements.

Example: Interviewing Mr. Pandu (Financial Head) about payment process.

9. P – Prototyping

Creating mockups/wireframes/screens to gather feedback.

Example: Showing farmers a sample “product catalog” screen.

10. Q – Questionnaires/Surveys

Useful when there are many stakeholders.

Example: Sending surveys to farmers in different districts to capture product buying needs.

11. U – User Stories / Use Cases

Writing user-centric requirements in “As a ... I want ... So that ...” format or use case diagrams/specs.

Example: “As a farmer, I want to search seeds by crop type so that I can quickly find suitable products.”

Question 6 – This project Elicitation Techniques

Elicitation Techniques for Online Agriculture Products Store

As a Business Analyst, I would use a **combination of elicitation techniques** to ensure requirements from all stakeholders (Committee, Farmers, Manufacturers, Technical Team) are gathered accurately and completely.

1. Document Analysis

- **Justification:**

- Review existing documents like agriculture product catalogs, order invoices, farmer subsidies, and online retail platforms.
- Helps understand existing processes and avoid missing critical requirements.
- **Application in Project:**
 - Study existing fertilizer/seed/pesticide catalogs to design the **Product Master Data**.
 - Refer to similar online marketplace workflows for login, catalog, and payment.

2. Brainstorming

- **Justification:**
 - Useful when multiple stakeholders (farmers, manufacturers, committee) need to generate new ideas quickly.
- **Application in Project:**
 - Brainstorm with farmers (Peter, Kevin, Ben) to finalize required features (search, payment gateway, delivery tracking).

Brainstorm with committee (Henry, Pandu, Dooku) on CSR alignment, budget, and priority features.

3. Interviews

- **Justification:**
 - One-to-one discussions to understand specific needs in detail.
- **Application in Project:**
 - Interview Mr. Henry for **business vision** (CSR initiative, target farmers).
 - Interview farmers for **user-level requirements** (easy login, COD, UPI, order confirmation emails).
 - Interview manufacturers for **product upload process**.

4. Prototyping

- **Justification:**
 - Farmers are new to digital platforms, so showing prototypes helps validate requirements early.
- **Application in Project:**

- Create wireframes/screens for:
 - Login/Registration (with email & password).
 - Product Catalog with Search Option.
 - Payment Gateway (COD, Debit/Credit, UPI).
 - Delivery Tracker screen.

Farmers & committee review → feedback incorporated

5. Workshops / Joint Application Development (JAD)

- **Justification:**
 - Collaborative sessions to bring business (Committee, Farmers) and technical team together.
- **Application in Project:**
 - Workshop with Mr. Vandanam (PM), Developers, Testers + Farmers to finalize **end-to-end workflow**:
 - Login → Browse Products → Add to Cart → Payment → Order Tracking.

6. Questionnaires / Surveys

- **Justification:**
 - To capture inputs from a large group of farmers across multiple villages.
- **Application in Project:**
 - Distribute simple surveys asking farmers:
 - Preferred payment methods?
 - Language preferences for UI?
 - Most critical features (Search, Delivery Tracking, Order History.)

Question 7 – 10 Business Requirements

BR001 – User Registration & Login

System should allow **farmers and manufacturers** to register and login using **email ID and secure password**.

BR002 – Role-based Access

System should provide **separate access rights** for:

- Farmers (Buy products)
- Manufacturers (Upload & manage products)
- Admin/Committee (Monitor and approve activities).

BR003 – Product Catalog

System should provide a **catalog of fertilizers, seeds, and pesticides** uploaded by manufacturers, with images, price, and details.

BR004 – Product Search & Filter

System should allow farmers to **search products** (by name, category, crop type) and **apply filters** (price, manufacturer, availability).

BR005 – Shopping Cart & Buy-Later List

Farmers should be able to **add products to cart** or move them to a **buy-later list** before placing an order.

BR006 – Secure Payment Gateway

System should provide **multiple payment options** – Cash on Delivery (COD), Debit/Credit Card, and UPI.

BR007 – Order Confirmation & Notifications

System should send **order confirmation emails/SMS** and notify farmers about **order status updates** (processing, shipped, delivered).

BR008 – Delivery Tracking

System should provide farmers with **real-time delivery tracking** of their orders.

BR009 – Product Upload by Manufacturers

Manufacturers should be able to **upload, update, and manage product details** (name, price, stock availability, expiry date).

BR010 – Reports & Monitoring (Admin/Committee)

System should provide reports for the **Committee/Admin** to track:

- Number of farmers registered.
- Orders placed and delivered.
- Manufacturer participation.

Question 8 –Assumptions

General Assumptions

1. Farmers and manufacturers will have **basic internet connectivity** in remote areas to access the application.
2. Farmers are **not highly tech-savvy**, so the application should be **simple, multilingual, and mobile-friendly**.
3. Both **Web and Mobile versions** of the application will be developed within the given budget and timeline.
4. The project will strictly follow the **CSR budget of 2 Crores INR and 18 months delivery timeline**.
5. The **3-tier architecture** (Presentation, Business Logic, Database) finalized by the technical team will be used.

User & Access Assumptions

6. Farmers and manufacturers will have to **register and login** before accessing advanced features (buy/upload products).
7. The system will support **role-based access control**: Farmers, Manufacturers, and Admin/Committee.
8. User authentication will be through **email ID and password**, with **future scope for OTP/biometric login**.

Functional Assumptions

9. Farmers can search, filter, and add products to a **shopping cart or buy-later list**.
10. Payment gateway will support **COD, Debit/Credit cards, and UPI**.
11. Delivery tracking will be **integrated with third-party courier services**.
12. Notifications (order status, confirmations) will be sent via **email and SMS**.
13. Manufacturers can upload products with **name, price, stock, image, and description**.
14. Admin/Committee will have access to **reports and dashboards** to monitor transactions and usage.

Non-Functional Assumptions

15. The application will support **minimum 5000 concurrent users** initially, scalable later.
16. System should ensure **data security** with encryption for payments and personal details.

17. Application will support **at least 3 languages (English, Hindi, Telugu as an assumption)** for farmers in rural areas.

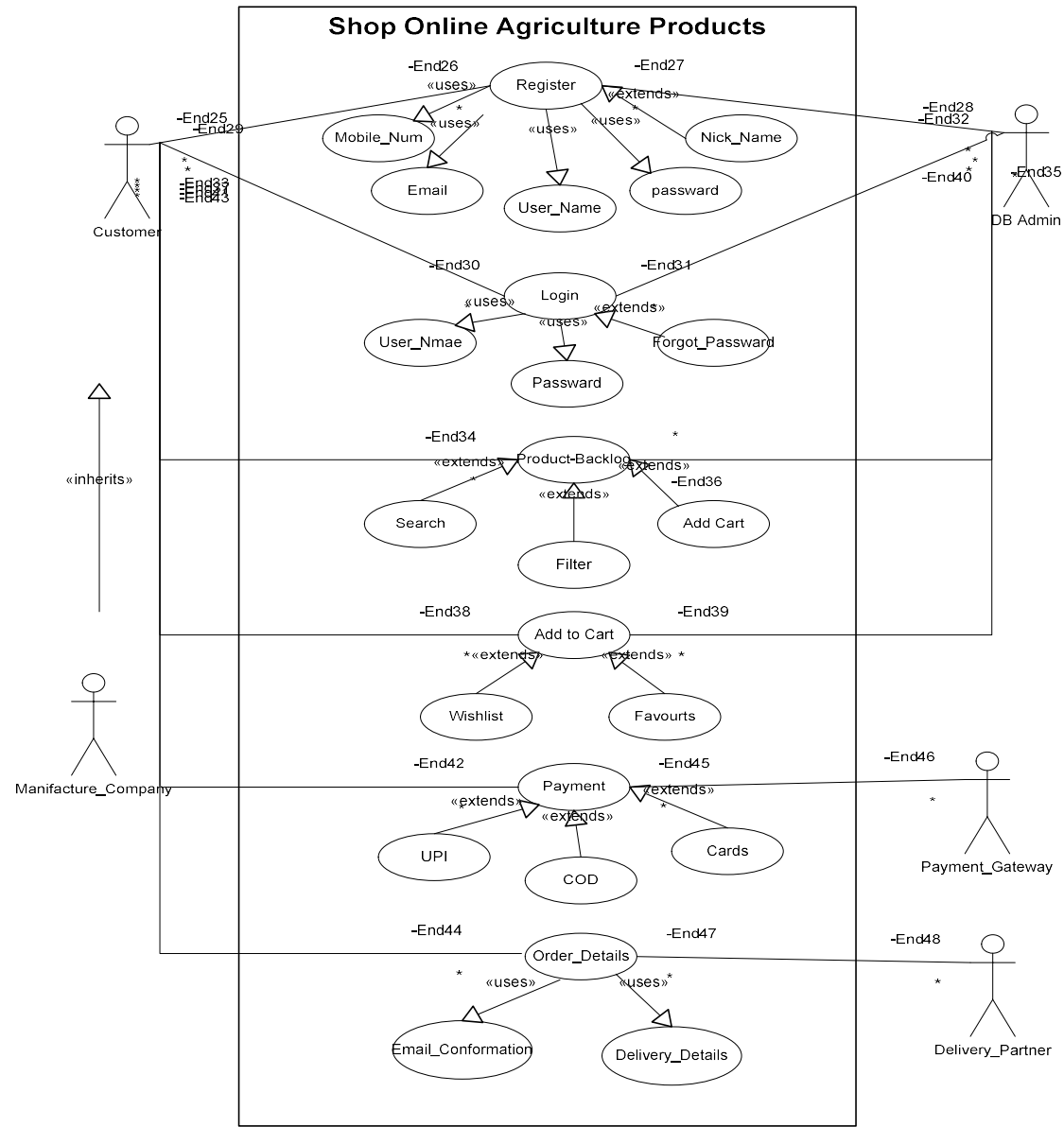
18. The system should be **responsive** and work across devices (desktop, tablet, smartphone).

Question 9 – This project Requirements Priority

1. Prioritization of Requirements

Req ID	Req Name	Description	Proposed Priority (1–10)
BR001	Farmer Search for Products	Farmers should be able to search for fertilizers, seeds, pesticides	10
BR002	Manufacturers Upload Products	Manufacturers should upload & display their products	9
BR003	User Registration & Login	Farmers & manufacturers must create accounts	10
BR004	Product Catalog Display	Farmers should be able to browse the catalog	9
BR005	Shopping Cart & Buy-Later List	Farmers can add products to cart or buy later	7
BR006	Secure Payment Gateway	COD, Debit/Credit, UPI payments	10
BR007	Order Confirmation & Notifications	Send email/SMS updates for order status	8
BR008	Delivery Tracking	Farmers should track their product delivery	7
BR009	Reports & Monitoring (Admin)	Committee/Admin should see usage reports	6
BR010	Multi-language Support	App should support local languages	6

Question 10 – Use Case Diagram



Question 11 – (minimum 5) Use Case Specs

Create Farmer Account

Use Case ID	UC001
Use Case Name	Create Farmer Account
Actor	Farmer
Description	This use case allows a farmer to create a new account in the online agriculture store system so they can log in, browse products, and place orders.
Preconditions	Farmer must have internet access. Farmer should not already have an account with the same mobile number/email.
Postconditions	Farmer account is successfully created and stored in the system. Farmer account is successfully created and stored in the system.
Normal Flow	Farmer opens the online agriculture store application/website. Farmer clicks on “Create Account” . System displays the registration form. Farmer enters details (Name, Mobile Number, Email, Address, Password). Farmer clicks Submit . System validates details (mandatory fields, unique email/phone). System creates the new account. System sends a confirmation message (email/SMS). Farmer account is now active.
Alternate Flows	Mobile/Email already registered: System displays error message:" Account already exist. Please login ." Weak Password: System prompts farmer to enter a stronger password
Exception Flows	Network Failure – System displays “Unable to create account. Please try again later.” Invalid Data Format – System rejects incorrect inputs (e.g., invalid email, phone number).
Assumptions	Password must meet security rules (e.g., minimum 8 characters, mix of letters and numbers). Mobile number must be unique for each farmer. Email is optional, but if provided, must be unique and valid.

Search the Product

Use Case ID	UC002
Use Case Name	Search Product
Actor	Farmer

Description	This use case allows a farmer to search for agricultural products (e.g., seeds, fertilizers, tools) by name, category, or filter so they can easily find items to purchase
Preconditions	Farmer has access to the application/website. Product catalog exists in the system.
Postconditions	Matching products are displayed to the farmer If no product matches, the system shows a “No products found” message.
Normal Flow	Farmer logs into the system (optional for browsing). Farmer navigates to the Search Bar or Product Catalog . Farmer enters product name/keyword or selects filters (e.g., category, price range, brand). System retrieves matching products from the catalog . System displays a list of matching products with details (name, price, availability). Farmer selects a product to view details.
Alternate Flows	No Search Input: System displays all products or prompts the farmer to enter a keyword. Multiple Matches Found: System displays a paginated or filterable product list.
Exception Flows	Invalid Characters in Search: System displays “Invalid search query.” System Unavailable / Database Error – System shows “Unable to fetch products, please try later.”
Assumptions	Search should support partial keywords (e.g., “fer” → “Fertilizer”). Filters (price, category, rating) must work in combination with search keywords. Search results should be sorted by relevance by default.

Upload Product Details

Use Case ID	UC003
Use Case Name	Upload Product Details
Actor	Manufacture
Description	This use case allows the manufacture or admin to upload new product details (name, description, category, price, stock, image, etc.) into the online agriculture store catalog so that farmers can search and purchase them.
Preconditions	Manufacture/Admin must be logged into the system with valid credentials. Manufacture/Admin must have permission to add or manage products.
Postconditions	Product details are successfully stored in the system’s catalog. The product becomes visible to farmers in search and browsing.
Normal Flow	Manufacture/Admin logs into the system. Manufacture/Admin navigates to Product Management → Add Product . System displays the product upload form. Manufacture/Admin enters required details:Product Name,Description, Category,Price,Quantity, Product image Manufacture/Admin clicks Submit/Upload . System validates the details (mandatory fields, valid data formats).

	System saves the product details in the catalog. System displays a confirmation message: “Product uploaded successfully.” Product is now available for farmers to view.
Alternate Flows	Missing Mandatory Fields: System prompts Manufacture/admin to fill missing details before submission. Duplicate Product Entry: If the product already exists, system asks whether to update existing product instead.
Exception Flows	Invalid File Format (Image Upload) – System rejects the file and displays an error message. Network/System Failure – Upload is canceled, system shows “Unable to upload, please try again.” Insufficient Permissions – If a user without admin/Manufacture rights attempts upload, system denies access.
Assumptions	Product name must be unique within a Manufacture’s catalog. Price must be a positive numeric value. Stock quantity cannot be negative. Only image formats (JPG, PNG) are allowed for product uploads. Each product must belong to at least one category.

Place the order

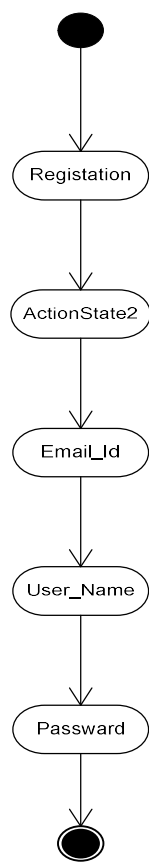
Use Case ID	UC004
Use Case Name	Place Order
Actor	Farmer
Description	Farmer places an order for agricultural products.
Preconditions	Farmer must be logged in. Items must be available in the catalog
Postconditions	Order is successfully placed and stored in the system. Confirmation is sent via email/SMS.
Normal Flow	Farmer logs in. Selects items and adds them to cart. Proceeds to checkout. Selects payment method. System processes payment. Order confirmed. Confirmation message sent
Alternate Flows	If payment method = COD, skip payment gateway
Exception Flows	If payment fails → System displays "Payment Failed" → Farmer retries or cancels.
Alternate Flows	Farmer logs in.
Assumptions	conditions we expect to be true (like login, stock availability, payment service, connectivity) before the order placement can work smoothly.

Make Payment

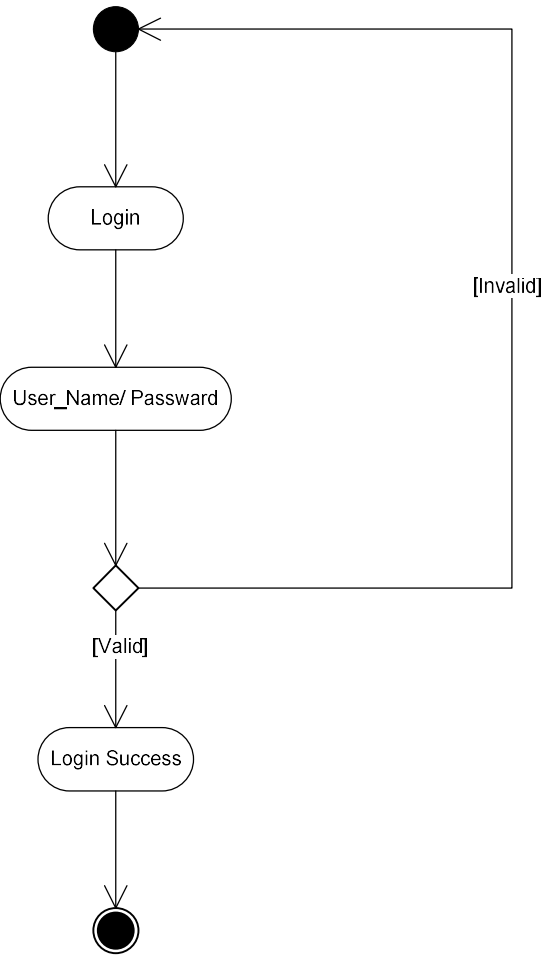
Use Case ID	UC005
Use Case Name	Make Payment
Actor	Farmer
Description	This use case allows the farmer to make payment for products in the cart using available payment methods (e.g., UPI, credit/debit card, net banking, cash on delivery).
Preconditions	Farmer must be logged in. Farmer has already placed items in the cart and proceeded to checkout. Payment gateway is active and accessible.
Postconditions	If successful: Payment is processed, order is confirmed, and confirmation message is sent. If failed: Order remains pending until payment is retried.
Normal Flow	Farmer reviews order summary at checkout. Farmer selects “Proceed to Payment” . System displays payment options (UPI, card, net banking, COD). Farmer selects a payment method. Farmer enters required details (e.g., card number, UPI ID). System redirects to payment gateway (if applicable). Payment gateway validates details with bank. Bank/system confirms payment success. System generates order confirmation. conditions we expect to be true (like login, stock availability, payment service, connectivity) before the order placement can work smoothly.
Alternate Flows	Cash on Delivery (COD) Farmer selects COD → System skips online payment → Order confirmed → COD label added. Wallet/Stored Payment Option If farmer has stored wallet balance or saved card, payment can be auto-filled.
Exception Flows	Payment Declined – System displays “Payment failed, please retry.” Session Timeout – System cancels transaction → farmer redirected to checkout. Network Error – System shows “Unable to process payment now, try later.”
Assumptions	Order will not be confirmed unless payment succeeds (except COD). Payment retries allowed up to 3 times per order . Sensitive details (card numbers, CVV, UPI PIN) must not be stored by the system.

Question 12 – (minimum 5) Activity Diagrams

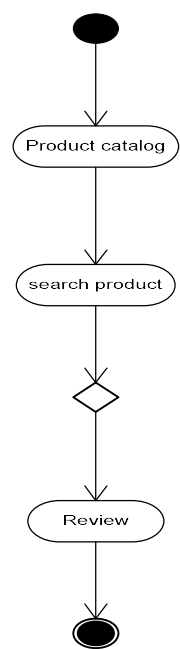
Activity Diagram 1: User Registration



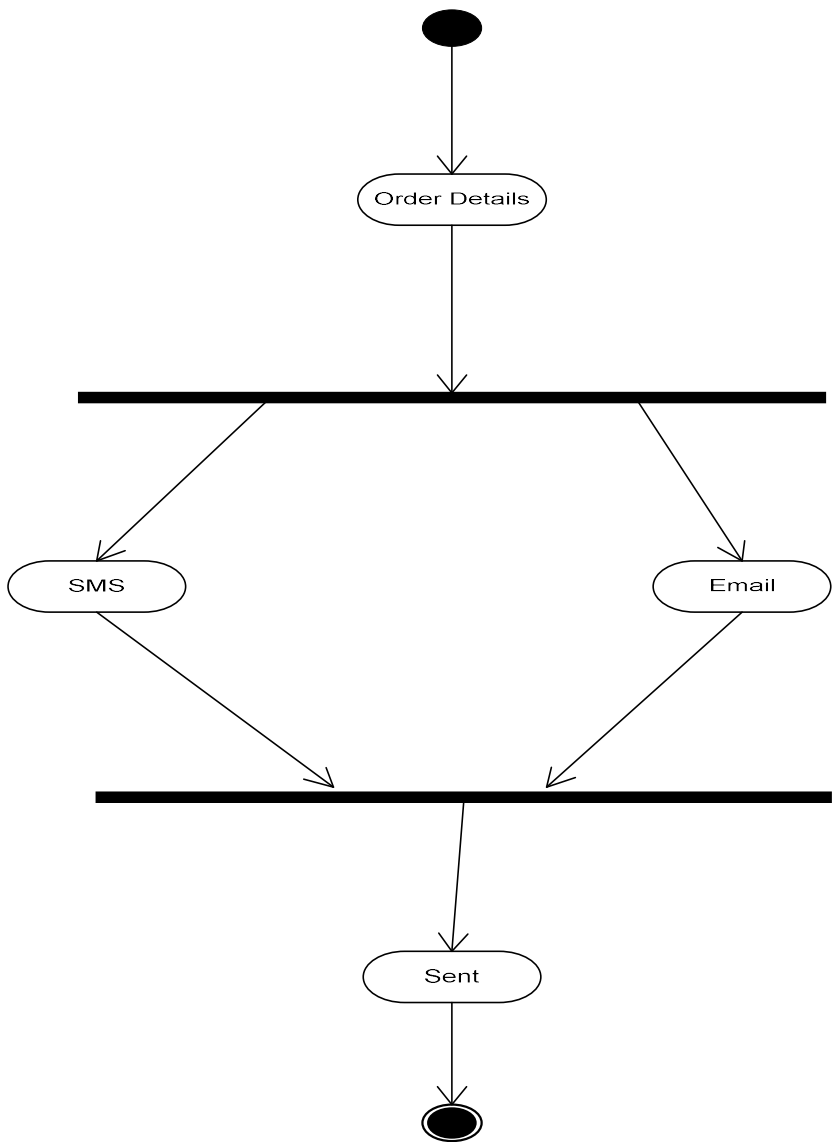
Activity Diagram 2: User Login



Activity Diagram 3: Searching of products



Activity Diagram 4: Placing Order



Activity Diagram 5: Payment

