**CapstoneProject1 Part-2**

**Answer 1 – Quarterly Audits**

**Q1 – Planning and Requirements Audit**

**Focus –** project initiation, stakeholder analysis, requirements gathering

 **BA contributions**

* Present the stakeholder analysis
* Share details of elicitation techniques used e.g., interviews, brainstorming)
* Submit and explain the Business Requirements Document(BRD)
* Initiate the Requirement Traceability Matrix(RTM)
* Conduct and present a gap analysis (current state vs future state)

**Objective of Q1 Audit**

* Confirm alignment with business goals
* Ensure all key stakeholders needs are captured
* Validate completeness and accuracy of initial requirements

**Q2 – Design & specification Audit**

**Focus –** Functional design, system specification, use case

**BA contributions**

* Present the System Requirements Specification (SRS) document
* Share Use Case Diagram, Activity Diagrams and Screen mockups
* Update and refine the RTM based on design output

**Objective of Q2 Audit**

* Verify that the system design meets business needs
* Ensure clarity between stakeholders and the technical team
* Confirm usability and expectations through mockups

**Q3 – Development & Change control Audit**

**Focus –** Development process, change requests, communication

**BA contributions**

* Document and track change requests and their approvals
* Present the update RTM showing requirements coverage
* Provide logs of issue resolutions during development

**Objective of Q3 Audit**

* Ensure requirement changes are properly managed
* Monitor development alignment with business needs
* Maintain clear and consistent communication

**Q4 – UAT & Project Closure Audit**

**Focus –** user testing, project completion, sign-off

**BA contributions**

* Assist in user acceptance testing(UAT) planning and coordination
* Validate test scenarios and cases based on requirements
* Collect client feedback from stakeholders (Peter, Kevin, Ben)
* Ensure client sign-off on final deliverables
* Present final RTM and lesson learned document

**Objectives of Q4 Audit**

* Confirm that all requirements are tested and accepted
* Ensured client satisfaction
* Complete official closure and document

**Answer 2 – BA Approach Strategy**

1. **Elicitation Plan**

 To gather complete and accurate requirements, as a BA, I will use a combination of elicitation techniques

* Interviews with Mr. Henry and key stakeholders
* Workshops with the SOONY committee and users
* Prototyping for early feedback on UI/UX
* Brainstorming sessions with technical teams for potential features
1. **Stakeholders Identification**

I will identify and classify all stakeholders based on their roles, influence, and interest in the project.

* Key stakeholders – MR. Henry (Project sponsor), MR. Pandu (Financial Head), MR. Dooku (project coordinator), Peter, Kevin, Ben(End users)
* Project Team – Mr. Vandanam (PM), Ms. Juhi (Senior Developer), Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo (Java developers), Mr. John (DB Admin), Mr. Yash (Business Analyst).
* RACI Matrix

Responsible (BA, Developers)

Accountable (sponsor, PM)

Consulted (End users)

Informed (Support Functions)

1. **Documentation**

The following documents will be prepare and maintained

* Business Requirements Document (BRD)
* System Requirements Specification (SRS)
* Use case Specifications
* Activity Diagrams, process models, UI mockups
* Requirements Traceability Matrix (RTM)
1. **Communication Plan**
* Establish communication channels such as email, Zoom meetings and project WhatsApp groups
* Weekly progress calls with PM and technical teams
* Bi-weekly updates to stakeholders and sponsor
* Maintain a communication log after every major discussion
1. **Review and Sign-Off process**
* Conduct document walkthrough sessions with stakeholders
* Collect feedback and incorporate changes
* Obtain formal Sign-Off on BRD and SRS from Mr. Henry and the committee
* Maintain vision control and approval records
1. **Change Request Management**
* Any new requirement or scope change will be documented through a change request form
* Impact analysis will be done in terms of time, cost, and effort
* Formal approval will be taken from the committee before implementation
* RTM and related documents will be updated
1. **Project Tracking & Updates**
* Provide regular updates on requirement progress, Sign-Off, and development linkage
* Present updated RTM and milestone achivements during quarterly audits
* Track issues, resolutions, and risk in collaboration with PM
1. **UAT Planning & Client Sign-Off**
* Support the testers in preparing UAT test scenarios
* Coordinate with key stakeholders (Peter, Kevin, Ben) for UAT excecution
* Collect UAT feedback and track issues for resolutions
* Obtain final Uat Sign-Off and project acceptance form from Mr. Henry

**Answer 3 - 3-tier Architecture**

**1. Application Layer**

Function: Users directly interact with this layer, which represents the application’s front-end or UI. This layer includes all visible components and screens.

Examples:

* Login and Signup interfaces
* Product catalog featuring seeds, fertilizers, and pesticides
* Search and filtering functionalities
* Order placement and payment interfaces
* Delivery tracking interface

**2. Business Logic Layer**

Function: Serves as the intermediary between the User Interface and the Database.

 Functions:

* Validate user login information
* Manage product uploads
* Implement business rules (such as discounts and stock availability)
* Process orders and payments
* Facilitate communication with the database

**3. Database Layer**

Function: Responsible for storing all relevant data and supplying it to the application as required.

Data includes

* User information
* Product inventories
* Order and payment records
* Information about manufacturers and farmers

**Answer 4 - BA Approach Strategy for Framing Questions**

**1. 5W1H Framework**

 A fundamental questioning technique that help explore the requirements from all angles. This framework ensures no critical aspect is overlooked.

* **What** – Understand the functionality or process being requested.
Example: What functionality should be available for farmers after they log in?
* **Why** – Uncover the purpose and business need behind the feature.
Example: Why do farmers need a “Buy Later” option? What problem does it solve?
* **Who** – Identify the user roles involved and who will interact with the system.
Example: Who will be responsible for uploading product details like the manufacturer or admin?
* **Where** – Determine where in the application the feature is required.
Example: Where should the product search filter be displayed on the homepage or the product page?
* **When** – Understand the timeline or event triggering the feature.
Example: When should a confirmation email be triggered—immediately after payment or after dispatch?
* **How** – Explore how the feature should function from a business and technical perspective.
Example: How should the delivery tracking feature update the user—real-time map or status bar?

This framework ensures I approach requirements from a 360-degree view, promoting deeper discussions with stakeholders.

**2. SMART Criteria**

 **SMART**

* **S – Specific**: The requirement must be clearly defined without confusion.
For example, allowing users to log in with an email address is more specific than simply referring to the login feature.
* **M – Measurable**: There must be a quantifiable outcome.
For example, Email notifications should be sent within 30 seconds of placing an order.
* **A – Achievable**: It must be technically and practically feasible within project constraints.
* **R – Relevant**: The requirement must align with business goals and user needs.
For example, adding a local language filter aligns with a rural farmer audience.
* **T – Time-bound**: There must be a defined timeline or milestone attached to the requirement.

This ensures that the questions I frame help identify and refine requirements that are feasible and useful.

**3. RACI Matrix**

Before asking any questions, BA analyzes the RACI matrix to determine the right people to approach for answers.

* **Responsible** – Who will perform the task or provide detailed input (e.g., Developers).
* **Accountable** – Who owns the decision or final sign-off (e.g., Client, Project Manager).
* **Consulted** – Who should be consulted for feedback or domain knowledge (e.g., Peter, Kevin, Ben).
* **Informed** – Who should be kept updated with progress (e.g., Testers, Delivery Head).

**4. 3-Tier Architecture**

* **Application Layer**– Questions about usability, layout, and user flow.
For example, how should the product catalog be structured for farmers?
* **Business Logic Layer** – Questions about application behavior and rules.
For example, what should happen if a farmer attempts to order an out-of-stock product?
* **Data Layer** – Questions about database fields, relationships, and security.
For example, what product attributes must be stored (e.g., price, category, brand, expiry date)?

**5. Use Cases**

 Use Cases to simulate how users will interact with the system. These help identify

* Actors involved
* User goals
* Step-by-step interaction
* Alternate and exception flows

By visualizing these scenarios, I prepare more focused and scenario-based questions.
For example, what should happen if a farmer adds a product to the cart without logging in?

**6. Use Case Specifications**

Use Case Specs to detail every condition of the flow. These specifications guide questioning

* What are the preconditions for login or product order?
* What validations are needed during signup?
* What should be the response in case of system errors?

**7. Activity Diagrams**

Activity Diagrams to break down workflows step-by-step.

* Decision points in the process
* Loops, parallel activities, and exceptions
* Stakeholder involvement at each stage

 **8. Models**

* **Data Flow Diagrams (DFD)** – for understanding system inputs and outputs
* **Entity Relationship Diagrams (ERD)** – to explore data structure
* **Business Process Models** – to represent overall operations

These models highlight dependencies and relationships, prompting data-specific or integration-related questions.

 **9. Page Designs**

Visual designs stimulate better stakeholder feedback and help them understand the system better.

* Where should key buttons be placed for easy access?
* Should the product list display image thumbnails?
* What kind of error message is user-friendly for farmers?

Visual designs stimulate better stakeholder feedback and help them understand the system better.

**Answer 5 – Elicitation Techniques**

**1. Brainstorming**

Brainstorming is an idea-generation technique where a group of stakeholders, including clients, users, and team members, are brought together in a collaborative session to generate a wide variety of ideas, solutions, or requirements related to a business problem or new functionality. As a Business Analyst, I use brainstorming sessions to uncover insights from diverse perspectives, especially in the early stages of the project when the problem space is still evolving. These sessions encourage open dialogue, allow for creative and out-of-the-box thinking, and help capture ideas that may not emerge through structured interviews. The output is a consolidated list of potential features, challenges, or enhancements that are later prioritized for deeper analysis.

**2. Document Analysis**

Document analysis involves reviewing existing documentation, such as business process models, user manuals, system requirement specifications, service agreements, and compliance reports to understand the current state of operations. As a BA, this technique helps me identify business rules, functional requirements, known issues, and opportunities for improvement within the existing system or process. It is particularly useful in scenarios where systems are already in place and enhancements or upgrades are being planned. Document analysis often serves as a foundation for validating stakeholder inputs and ensures that no critical requirement is overlooked due to lack of formal discussion.

**3. Reverse Engineering**

Reverse engineering is used when there is limited or no documentation available for an existing application or system. In such cases, I, as a Business Analyst, work closely with technical teams to analyze the behavior, data flow, and business logic of the system to extract requirements and functionality. This technique is especially helpful when dealing with legacy systems where the original development team may no longer be available. Reverse engineering enables me to map out the current functionality and create documentation that becomes the baseline for redesigning or replacing the system.

**4. Focus Groups**

Focus groups consist of a selected group of users or stakeholders who are brought together in a facilitated session to share their experiences, expectations, needs, and feedback about a system, product, or process. As a BA, I use focus groups to gather qualitative insights into how users perceive the current system and what enhancements they would value. These sessions promote discussion and allow me to identify common patterns or conflicting needs across different user segments. Focus groups are particularly useful during the requirement validation and UX design phases of the project.

**5. Observation (Job Shadowing)**

Observation, or job shadowing, involves directly watching stakeholders perform their day-to-day tasks in their actual working environment. As a BA, I find this technique valuable for understanding the practical challenges users face, their decision-making processes, and any workarounds they use. This real-time observation uncovers undocumented steps, dependencies, or inefficiencies that stakeholders might forget to mention during interviews. It gives me a ground-level understanding of workflows, which helps in designing intuitive systems aligned with user behavior.

**6. Workshops**

Workshops are structured group sessions where stakeholders come together to identify, define, analyze, and validate business requirements or process improvements. As a Business Analyst, I facilitate these workshops to foster collaborative decision-making, resolve conflicting views, and prioritize features. Workshops are highly interactive and productive, especially when there’s a need to achieve consensus quickly. With well-prepared agendas, visual aids like process maps or mock-ups, and focused discussions, these sessions can accelerate requirement gathering and improve stakeholder engagement.

**7. Joint Application Development (JAD)**

Joint Application Development (JAD) is a collaborative approach where business users, developers, testers, and analysts work together in extended working sessions to design and define the system. As a BA, I use JAD sessions when the scope is complex and requires constant interaction between business and technical teams. These sessions ensure that all stakeholders are aligned, and that business needs are translated into feasible technical solutions in real time. JAD reduces rework and speeds up requirement gathering by enabling continuous feedback and validation.

**8. Interviews**

Interviews are one of the most commonly used techniques, involving direct, often one-on-one, conversations with stakeholders to understand their specific requirements, challenges, and expectations. As a BA, I conduct structured or semi-structured interviews to deep dive into detailed needs of various stakeholders. This technique allows me to explore sensitive or unique information that may not be suitable for group settings. Interviews are ideal for understanding individual perspectives and uncovering hidden needs that can significantly impact project success.

**9. Prototyping**

Prototyping involves creating a visual or interactive model of the application, such as wireframes, mock-ups, or clickable demos, to help stakeholders visualize the final product and provide feedback. I, as a Business Analyst, use prototyping to reduce ambiguity, especially when stakeholders have difficulty articulating their requirements. It allows them to interact with a sample version of the system and suggest changes early in the development process, ultimately leading to a better user experience and fewer revisions later in the project lifecycle.

**10. Questionnaires**

Questionnaires or surveys are structured sets of questions sent to a wide group of stakeholders to collect opinions, preferences, or feedback in a quantifiable manner. I use this method when I need input from a large, geographically dispersed group or when time constraints limit in-person interactions. It allows me to collect both qualitative and quantitative data that supports decision-making. Surveys are particularly effective during needs assessments, satisfaction measurement, or when validating trends identified through other techniques.

**11. Use Cases / User Stories**

Use cases and user stories are narrative techniques used to capture how users interact with the system to accomplish specific goals. As a BA, I write use cases to describe step-by-step system interactions, and user stories to frame requirements from the end-user's perspective in agile environments. These formats help bridge the gap between business and technical teams by focusing on user intent, system behavior, and expected outcomes. They are also essential in defining acceptance criteria for the development and testing phases.

**Answer 6 - This project Elicitation Techniques**

**1. Prototyping**

As a Business Analyst, I understand that many stakeholders in this project, especially farmers from remote areas, might find it difficult to interpret technical language or lengthy documentation. To overcome this challenge, I use prototyping to develop visual mock-ups and sample screens of the application. These could include the home page, product search interface, login/registration forms, and order tracking pages.

By showing these visual models early in the process, stakeholders can better understand the proposed features, provide their input, and suggest changes before any actual development begins. This not only ensures better clarity. Additionally, it promotes more meaningful discussions between stakeholders and the technical team.

**2. Use Case Specifications**

Use Case Specifications are structured documents that describe how different users will interact with the system. For this project, I prepare use cases such as:

* "Farmer creates an account"
* "Manufacturer uploads a new product"
* "Farmer adds items to cart and places an order"
* "System sends email notification with delivery status"

These specifications define actors (users), steps, preconditions, postconditions, and exceptions for each use case. They serve as a foundational reference for developers and testers to understand the business logic and user expectations.

**3. Document Analysis**

Before jumping into direct interviews or workshops, I begin by analyzing any existing documentation, such as the company’s regulatory guidelines for agricultural commerce, internal project reports from SOONY, or past e-commerce models. This helps in understanding the business context, legal constraints, user demographics, and any previous initiatives that were taken or failed. Document Analysis provides a strong foundation and background for the project by identifying already known information, reducing rework, and ensuring compliance and completeness.

**4. Brainstorming**

Given the diverse set of stakeholders in this project, including business owners like Mr. Henry, farmer representatives, project coordinators, and technical teams, brainstorming sessions become essential for collaborative thinking. These sessions allow everyone to openly share ideas, challenges, and possible solutions. For example, brainstorming helped us identify the need for a search option, multi-language support, cash-on-delivery, and email-based tracking, features that were not initially documented. These ideas often emerge only when stakeholders feel heard and engaged.

 Brainstorming encourages creativity, ensures inclusive participation, and uncovers hidden requirements by bringing stakeholders together in an open discussion platform*.*

**Answer 7 - Business Requirements**

**BR001 – Product Search for Farmers**
Farmers should be able to search for available products (fertilizers, seeds, pesticides) using product name, category, or keywords.

**BR002 – Manufacturer Product Upload**
Manufacturers must have the ability to register, log in, and upload detailed information about their products (including images, descriptions, prices, and stock availability).

**BR003 – User Registration & Login**
Both farmers and manufacturers must be able to create an account using their email ID and a secure password. Existing users should be able to log in securely.

**BR004 – Product Catalog Browsing**
All users, especially farmers, should be able to browse a categorized product catalog even before logging in. Full buying functionality is available only after login.

**BR005 – Add to Cart / Buy Later**
Farmers should be able to add products to a shopping cart or a "Buy Later" list, helping them manage their purchasing decisions conveniently.

**BR006 – Payment Integration**
The platform should support multiple payment options, including UPI, Debit/Credit cards, and Cash-on-Delivery (COD) for seamless transactions.

**BR007 – Order Confirmation Email**
After a successful order, the system should send an automated email confirmation to the user with order details, payment receipt, and expected delivery date.

**BR008 – Order Delivery Tracking**
Farmers should be able to track the real-time status of their orders, from order placement to shipment and final delivery, via a delivery tracker within the application.

**BR009 – Mobile-Responsive Interface**
The application should be fully responsive on mobile devices since many farmers may access the platform via mobile phones in remote areas.

**BR010 – Multilingual Support**
The platform should provide content in multiple local languages to accommodate users from different regions who may not be proficient in English.

**Answer 8 - Assumptions**

**1.**  **Internet Accessibility**
It is assumed that the target users, including farmers and manufacturers, will have adequate access to internet services via mobile networks or broadband to use the application effectively.

**2. Basic Tech Familiarity**
Users are expected to possess basic digital literacy, enabling them to navigate the platform, register/log in, and perform actions like browsing and purchasing.

**3.** **Complete Product Data from Manufacturers**
Manufacturers will be responsible for providing accurate and comprehensive product details such as names, prices, descriptions, stock availability, and images for listing purposes.

**4. Mobile-Friendly Interface**
Considering the rural user base, it is assumed that the application will be optimized for mobile devices to ensure a smooth user experience on smartphones.

**5. Secure Login Mechanism**
The platform will incorporate secure authentication features, including email-based login, password protection, and data encryption to safeguard user accounts.

**6.** **Multiple Payment Options**
The application is assumed to support a variety of payment methods, including UPI, debit/credit cards, and cash on delivery, to accommodate different user preferences.

**7. Logistics Support for Deliveries**
Order fulfillment will either be managed through third-party logistics integration or an internal delivery system to ensure timely and trackable shipments to the farmers.

**8. Support for Regional Languages**
It is assumed that support for multiple local languages might be required in future releases to improve accessibility for farmers across different regions..

**9.** **Stakeholder Engagement**
Key stakeholders, including Mr. Henry, Peter, Kevin, and Ben, are expected to be available during various project phases for requirement gathering, validation, and feedback sessions.

**10.** **Budget and Timeline Stability**
The project is planned within a fixed budget of ₹2 Crores and an 18-month delivery timeline under SOONY’s CSR initiative. Any modifications will require formal committee approval.

|  |  |  |  |
| --- | --- | --- | --- |
| **Req ID** | **Requirement Name** | **Description** | **Priority** |
| **BR010** | Multilingual Support | The platform should support local languages for better accessibility. | **1** |
| **BR007** | Order Confirmation Email | Email notification with order details should be sent post-purchase. | **2** |
| **BR005** | Add to Cart / Buy Later | Users can add products to a cart or wishlist for future purchase. | **3** |
| **BR009** | Mobile-Responsive Interface | App/website should work smoothly on mobile devices. | **4** |
| **BR004** | Product Catalog Browsing | Farmers can browse through products even without logging in. | **5** |
| **BR008** | Order Delivery Tracking | Farmers should be able to track the status of their order delivery. | **6** |
| **BR006** | Payment Integration | Support for UPI, debit/credit card, and COD options. | **7** |
| **BR002** | Manufacturer Product Upload | Manufacturers should be able to upload and display their products in the application. | **8** |
| **BR001** | Farmer Product Search | Farmers should be able to search for available products in fertilizers, seeds, and pesticides. | **9** |
| **BR003** | User Registration & Login | Users (farmers and manufacturers) must be able to register/log in using email and password. | **10** |

**Answer 9 - This project Requirements Priority**

**Answer 10 – UML Diagram**



**Answer 11 – Use Case Spec**

**Use Case 1: Upload Product (Manufacturer)**

* **Use Case ID:** UC001
* **Use Case Name:** Upload Product
* **Created By:** Business Analyst
* **Date Created:** 22-Apr-2025
* **Actor:** Manufacturer and system
* **Description:** This use case allows a manufacturer to upload fertilizers, seeds, and pesticide products with necessary details like name, category, price, and description.
* **Preconditions:** The Manufacturer is logged into the system.
* **Postconditions:** Product is successfully saved and becomes visible in the catalog.
* **Normal Flow:**
	1. Manufacturer logs in and navigates to “Upload Product”.
	2. Fills in product details (name, category, image, price, quantity, etc.).
	3. Submits the form.
	4. The system validates and saves the product.
* **Alternate Flow:**

 If mandatory fields are missing, the system prompts for correction.

* **Exceptional Flow:**

 Image or data file fails to upload — display an error.

* **Frequency:** Regularly used when new products are added.
* **Assumptions:** The system allows bulk uploads and supports necessary formats.

**Use Case 2: Browse Product Catalog**

* **Use Case ID:** UC002
* **Use Case Name:** Browse Product Catalog
* **Created By:** Business Analyst
* **Date Created:** 22-April-2025
* **Actor:** Customer (Farmer) and system
* **Description:** This use case describes how a customer browses through the available product categories, such as fertilizers, seeds, and pesticides.
* **Preconditions:**

 The user must have access to the website or application.

 Products must be listed in the catalog by manufacturers.

* **Postconditions:**

 The customer is able to view product listings.

* **Normal Flow:**

1. The customer lands on the homepage.

 2. Navigates to the product catalog section.

 3. Selects a category (fertilizers, seeds, pesticides).

 4. View a list of products with basic details.

* **Alternate Flow:**

 If no category is selected, the system may show all products by default.

* **Exceptional Flow:**

 If the product catalog fails to load, the system shows error message.

* **Frequency of Use:** Frequently
* **Assumptions:**

1. The catalog is updated regularly.

 2. Internet connection is available.

**Use Case 3: Search Products**

* **Use Case ID:** UC003
* **Use Case Name:** Search Products
* **Created By:** Business Analyst
* **Date Created:** 22-Apr-2025
* **Actor:** Farmer
* **Description:** This use case allows farmers to search for specific fertilizers, seeds, or pesticide products using keywords or filters.
* **Preconditions:** Customer must have access to the application.
* **Postconditions:** A list of matching products is displayed based on search criteria.
* **Normal Flow:**
	1. User enters a search keyword (e.g., “organic fertilizer”) or selects filters (e.g., category, price range).
	2. System processes the input.
	3. Displays a list of matching products.
* **Alternate Flow:**

 If no matches are found, display the “No Products Found” message.

* **Exceptional Flow:**

 Server error or search service down.

* **Frequency:** Frequently used by farmers to find products.
* **Assumptions:** A search engine and filter logic are in place.

**Use Case 4: Login**

* **Use Case ID:** UC004
* **Use Case Name:** Login
* **Created By:** Business Analyst
* **Date Created:** 2025-04-22
* **Actor:** Farmer, Manufacturer
* **Description:**This use case describes how a new user registers on the platform and how an existing user logs in to access features such as browsing products, placing orders, or adding items to the wishlist.
* **Preconditions:**

The user has internet access and opens the application on a supported device.

For login, the user must already be registered.

* **Postconditions:**

If the user is new and registers successfully, they are redirected to the dashboard.

**Input:**

* Email ID
* Password
* Confirm Password (for registration)
* User Role (Farmer or Manufacturer)

**Output:**

* Success or error message
* Access to the dashboard upon successful authentication
* Account creation confirmation (for registration)

**Business Rules:**

1. Email must be unique across the system during registration.
2. Password must meet security criteria (e.g., 8+ characters, uppercase, lowercase, digit, special character).
3. Users must confirm their password during registration.
4. System must validate email/password during login.
5. Account should be locked after 5 consecutive failed login attempts.

**Normal Flow:**

* Registration (New User)
1. User selects the Register option.
2. User provides Email, Password, Confirm Password, and Role.
3. System validates inputs and checks for email uniqueness.
4. If validation passes, system creates a new user account.
5. System displays a success message and redirects user to login.
* Login (Existing User)
1. User selects the Login option.
2. User enters Email and Password.
3. System validates credentials.
4. If valid, user is logged in and redirected to their dashboard.

**Alternate Flow**:

If a user forgets their password, they can click “Forgot Password” to initiate a password recovery process via their registered email.

**Exceptional Flow:**

If the email already exists during registration, system shows “Email already registered”.

If the login credentials are incorrect, the system displays an error message.

After 5 failed login attempts, account is temporarily locked and user is prompted to recover password or contact support.

**Frequency of Use:**

High – every user must register once and log in frequently to use the application.

**Assumptions:**

* Users are either Farmers or Manufacturers.
* Email ID is used as a unique identifier.
* The system is integrated with a secure authentication module.

**Use Case 5 – Place Order**

* **Use Case ID**: UC005
* **Use Case Name**: Place Order
* **Created By**: Business Analyst
* **Date Created**: 2025-04-24
* **Actor(s)**: Farmer
* **Description**:
This use case describes how a registered and logged-in farmer selects items, reviews their cart, confirms shipping details, and successfully places an order for agricultural products such as fertilizers, seeds, or pesticides through the platform.

**Preconditions:**

* The farmer is registered and logged in.
* The farmer has selected at least one product and added it to the cart.
* Products in the cart are available in stock.
* Delivery address and payment options are available.

**Postconditions:**

* Order is successfully placed.
* Order confirmation is sent to the farmer via the application and email.
* The order is saved in the system and assigned a unique Order ID.

**Normal Flow:**

1. The farmer logs in and views their cart.
2. Selects or confirms a delivery address.
3. The system checks for product availability and validates inputs.

 4. The order is added to the farmer’s order history for future tracking.

**Alternate Flow:**

* If the farmer does not have a saved address, they are prompted to enter one before proceeding.
* If the payment gateway is slow or partially fails, the user is asked to retry or select a different payment option.

**Exceptional Flow:**

* If payment fails due to incorrect details or system error, the user is notified and the order is not placed.
* In case of a backend issue (e.g., database error or service crash), the system shows an error and logs the failure for investigation.

**Frequency of Use:**

High – This functionality is expected to be used regularly by active farmers on the platform.

**Assumptions:**

* Stock levels are updated in real-time.
* Notifications are automatically triggered after successful order placement.

**Use Case 6: Make Payment**

* **Use Case ID:** UC006
* **Use Case Name:** Make Payment
* **Created By:** Business Analyst
* **Date Created:** 2025-04-22
* **Actor:** Farmer (Buyer), Payment Gateway System
* **Description:**
This use case allows a registered and logged-in farmer to make a payment for products added to their cart using various payment methods such as COD, UPI, or Credit/Debit Card.
* **Preconditions:**

 The farmer must be logged in.

 The cart must contain at least one item.

 Internet connection must be active.

* **Postconditions:**

 Payment is successfully processed or fails with an appropriate message.

 Order is marked as “Confirmed” in case of success.

* **Normal Flow:**

1. Farmer navigates to the cart and selects “Checkout.”

 2. The system displays available payment options.

 3. Farmer selects preferred payment method (UPI, COD, Credit/Debit Card)

 4. An email confirmation is sent to the farmer.

 5. Order status is updated to “Confirmed.”

* **Alternate Flow:**

 If the user cancels the payment midway, the order remains in Pending

* **Exceptional Flow:**

If the payment fails due to gateway timeout or insufficient funds, an error message is displayed and the farmer can retry.

* **Frequency of Use:** High – Every product purchase.
* **Assumptions:**

 Users are familiar with online payments.

**Answer 12 – Activity Diagram**

