

Online Agricultural Store

1. Four Quarterly Audits are planned, Q1, Q2, Q3, Q4, for this Project. What is your knowledge of how these audits will happen for a BA?

Ans: An audit is a systematic inspection of work to assess its quality, compliance, and adherence to process standards.

- Quarter-1 Audit Report (Requirement Gathering Phase)**

Stage	Requirement Gathering
Time Frame	8 Weeks (Week 1-Week 8)
Check List	
	Business Requirements Document (BRD) Template
	Elicitation Techniques Report
	Stakeholder Identification & Mapping
	Meeting Minutes & Discussion Logs
	Client Requirements Sign-off
	Email Communication: To CC, BCC

- Quarter-2 Audit Report (Requirement Analysis Phase)**

Stage	Requirement Analysis
Time Frame	11 Weeks (Week 9-Week 20)
Check List	
	Functional & Non-Functional Requirements Document (FRD/NFRD)
	Requirements Feasibility & Impact Analysis
	Business Rules & Validation Criteria

	Requirement Traceability Matrix (RTM)
	Use Case & User Story Documentation
	Client Review & Sign-Off on Refined Requirements
	Email Communication: To CC, BCC

- Quarter-3 Audit Report (Design Phase)**

Stage	Design phase
Time Frame	15 Weeks (Week 20-Week 35)
Check List	
	Functional & Non-Functional Requirements Document (FRD/NFRD)
	Requirements Feasibility & Impact Analysis
	Business Rules & Validation Criteria
	Requirement Traceability Matrix (RTM)
	Use Case & User Story Documentation
	Client Review & Sign-Off on Refined Requirements

- Quarter-4 Audit Report (Implementation & Coding Phase)**

Stage	Implementation & Coding
Time Frame	35 Weeks (Week 35-Week 65)
Check List	
	Technical Design Document (TDD)
	Code Review & Quality Standards Compliance
	Joint Application Development (JAD) Sessions
	API & Integration Documentation
	Unit Testing & Developer Test Logs
	Email Communication: To- CC, BCC

- Quarter-5 Audit Report (Testing Phase)**

Stage	Testing
Time Frame	15 Weeks (Week 65-Week 80)
Check List	
	Test Case summary
	Training report for end-user
	Test Case Creation & Coverage
	Defect Management & Tracking
	User Acceptance Testing (UAT) & Sign-Off
	Email Communication: To- CC, BCC

2. BA Approach Strategy for this project?

Ans: A BA Approach Strategy is a structured plan that a Business Analyst (BA) follows to elicit, analyze, document, and manage requirements effectively throughout a project.

1. Requirement Elicitation Techniques:

To gather requirements effectively, the following elicitation techniques will be applied:

- **Interviews:** Conduct interviews with stakeholders like Mr. Henry, Peter, Kevin, Ben, and the Committee members to understand the expectations.
- **Workshops:** Organize brainstorming sessions with APT IT SOLUTIONS team and SOONY Company to define high-level requirements.
- **Surveys/Questionnaires:** Distribute surveys to farmers and manufacturers to understand their challenges and expectations.
- **Document Analysis:** Review any existing agriculture-related e-commerce solutions and study government regulations on online agricultural transactions.
- **Observation:** Study how farmers currently procure agricultural products to identify pain points.

2. Stakeholder Analysis, RACI Matrix & ILS Technique:

Stakeholders:

- **Key Stakeholders:** Mr. Henry, Peter, Kevin, Ben, Mr. Pandu (Financial Head), Mr. Dooku (Project Coordinator), The Committee.

- **Project Team:** Mr. Vardhan (Project Manager), Developers, Testers, Network Admin, DB Admin.
- **End Users:** Farmers and Agricultural Companies (Manufacturers of fertilizers, seeds, pesticides).

RACI Matrix (Responsible, Accountable, Consulted, Informed):

Stakeholder	Role	R (Responsible)	A (Accountable)	C (Consulted)	I (Informed)
Mr. Henry	Project Initiator & Sponsor		☒	☒	☒
Mr. Pandu	Financial Head		☒	☒	☒
Mr. Dooku	Project Coordinator	☒	☒	☒	☒
Peter, Kevin, Ben	Stakeholders (Farmers)			☒	☒
Mr. Karthik	Delivery Head (APT_IT SOLUTIONS)	☒	☒	☒	☒
Mr. Vardhan	Project Manager	☒	☒	☒	☒
Ms. Juhi	Senior Java Developer	☒			☒
Mr. Tyson, Ms. Annie, Mr. Tucker, Mr. Bravo	Java Developers	☒			☒
Mr. Mike	Network Administrator	☒			☒
Mr. John	Database Administrator	☒			☒
Mr. Jason, Ms. Aleshia	Testers	☒			☒

ILS (Influence, Legitimacy, Support) Analysis Technique:

- **Influence:** Identifies stakeholders with decision-making power, such as Mr. Henry, Mr. Pandu, and Mr. Dooku.
- **Legitimacy:** Recognizes stakeholders who have a legitimate interest in the project, such as Peter, Kevin, Ben, and farmers.
- **Support:** Determines stakeholders who actively support the project, including the SOONY Company and APT IT SOLUTIONS team.

3. Key Documents to be Prepared:

- **Business Requirement Document (BRD):** Captures business needs, goals, and high-level requirements.
- **Functional Requirement Document (FRD):** Defines system functionalities, features, and workflows.
- **Software Requirement Specification (SRS):** Details system specifications, technical constraints, and dependencies.
- **Use Case Document:** Defines user interactions with the system.
- **Process Flow Diagrams:** Visual representation of business workflows.
- **Test Cases & Test Scenarios:** To validate the application against the requirements.
- **Change Request Document:** Captures any modifications requested after approval of requirements.
- **User Training Manuals:** Guides for farmers and manufacturers on how to use the system.
- **Project Status Reports:** Regular updates on project progress.

4. Process for Document Sign-off & Approvals:

- **Step 1:** Prepare and review each document internally with the project team.
- **Step 2:** Conduct walkthrough sessions with stakeholders and address feedback.
- **Step 3:** Submit documents for approval to the Committee (Mr. Henry, Mr. Pandu, Mr. Dooku).
- **Step 4:** Obtain sign-off through a formal acceptance process (email confirmation, digital signature, or physical signature).

5. Communication Channels & Implementation:

- **Weekly Status Meetings:** Conducted by PM to review progress.
- **Stakeholder Updates:** Bi-weekly emails/reports to Committee members.
- **Project Management Tool:** Use tools like JIRA/Trello for task tracking.
- **Dedicated Support Channel:** Slack/WhatsApp group for quick discussions.
- **Formal Documentation Repository:** Store all documents on a shared cloud drive (Google Drive, SharePoint, or Confluence).

6. Handling Change Requests:

- **Step 1:** Capture the change request via a Change Request Form.
- **Step 2:** Conduct impact analysis (cost, timeline, feasibility) with relevant teams.
- **Step 3:** Discuss with stakeholders and get approvals.
- **Step 4:** Implement changes in a controlled release cycle.

7. Progress Update to Stakeholders:

- **Daily Scrum Meetings:** For internal development team discussions.
- **Weekly Reports:** Status reports to be sent to the Committee.
- **Monthly Steering Committee Meetings:** Provide detailed project updates and review risks.

8. UAT & Client Project Acceptance:

- **Step 1:** Conduct UAT with key stakeholders (Peter, Kevin, Ben, and representatives from manufacturers).
- **Step 2:** Document feedback and resolve defects.
- **Step 3:** Obtain sign-off on the **UAT Client Project Acceptance Form** confirming system readiness.
- **Step 4:** Proceed with production deployment and training sessions.

3. Explain and illustrate 3-tier architecture?

3-Tier Architecture is a software architecture pattern that divides an application into three separate layers:

1. Presentation Layer (UI Layer)

- **What it does:** The front-end or user interface that interacts with users.
- **Technologies used:** HTML, CSS, JavaScript, React, Angular, or mobile frameworks like Flutter.
- **Example:** The webpage or mobile app screen where farmers browse and buy agricultural products.

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

- **What it does:** Processes business logic, handles user requests, and communicates between the UI and database.
- **Technologies used:** Java, .NET, Python (Django), Node.js, Spring Boot.
- **Example:** When a farmer places an order, this layer processes the request, checks inventory, and sends data to the database.

3. Data Layer (Database Layer)

- **What it does:** Stores and retrieves data from the database.
- **Technologies used:** MySQL, PostgreSQL, MongoDB, Spark.
- **Example:** Stores farmer details, product inventory, orders, and payment transactions.

Benefits of 3-Tier Architecture:

Scalability: Each layer can be scaled independently.

Security: Data access is controlled by the middle layer.

Maintainability: Easier to update and modify each layer separately.

Reusability: The business logic can be reused for different UI platforms (web, mobile).

4. Business Analyst should keep What points in his/her mind before he frames a Question to ask to the Stakeholder?

Framing the right questions is essential in Business Analysis to elicit clear, complete, and actionable requirements. The following techniques help in structuring effective questions:

1. Use the 5W1H Framework

The 5W1H framework helps gather complete information by asking six key questions:

- **What?** – Defines the requirement or problem.
- **Why?** – Identifies the business need or justification.
- **Who?** – Determines stakeholders involved.
- **When?** – Establishes timelines or urgency.
- **Where?** – Specifies the location or context.
- **How?** – Explains the process or method.

Example:

- "What difficulties do farmers face in procuring fertilizers?"
- "Why is direct communication with suppliers important?"
- "How do farmers currently buy agricultural products?"

2. Choose the Right Question Types

- Open-ended questions (for detailed insights): "What challenges do you face while purchasing seeds?"
- Close-ended questions (for specific answers): "Do you prefer online or offline payments?"
- Probing questions (for deeper understanding): "Can you describe a recent issue you faced with product delivery?"

3. Apply SMART Criteria to Define Clear Requirements

The SMART approach ensures that questions lead to well-defined, actionable requirements:

- **Specific** – Clearly define what is needed.

- Measurable – Ensure the requirement can be quantified or validated.
- Attainable – Check if it is practical and feasible.
- Relevant – Align with business objectives.
- Time-bound – Include deadlines or expected delivery timeframes.

Example: Instead of asking "Do you want a user-friendly application?", ask "What specific features would make the application user-friendly for farmers?"

4. Use Elicitation Techniques to Collect Responses

- Interviews – One-on-one discussions with farmers and manufacturers.
- Workshops – Collaborative sessions to refine requirements.
- Surveys & Questionnaires – To gather input from a large group.
- Observation – Studying how farmers currently procure products.
- Prototyping – Using mock-ups to validate requirements.

5. As a Business Analyst, What Elicitation Techniques are you aware of?

As a **Business Analyst**, I am aware of several **elicitation techniques** that help in gathering, clarifying, and refining requirements from stakeholders. These techniques include:

1. Interviews

- One-on-one discussions with stakeholders to gather detailed insights.
- **Example:** Interviewing farmers to understand challenges in buying agricultural products.

2. Surveys & Questionnaires

- Used to collect data from a large audience quickly.
- **Example:** Sending a questionnaire to multiple farmers to identify common pain points.

3. Workshops

- Interactive sessions with multiple stakeholders to brainstorm and finalize requirements.
- **Example:** Conducting a workshop with manufacturers and farmers to define product features.

4. Focus Groups

- A guided discussion with selected participants to get feedback and insights.
- **Example:** Gathering a group of farmers to discuss their preferences for the online platform.

5. Observations

- Directly watching end-users perform tasks to understand their needs.

- **Example:** Observing how farmers currently purchase fertilizers offline.

6. Document Analysis

- Reviewing existing documentation, policies, or reports for relevant information.
- **Example:** Analyzing past sales reports to understand product demand.

7. Prototyping

- Creating wireframes or mock-ups to get feedback on system functionality and UI/UX.
- **Example:** Presenting a sample order placement screen to farmers for validation.

8. Brainstorming

- Encouraging stakeholders to share ideas and solutions openly.
- **Example:** Brainstorming with the project team on how to improve the ordering process.

9. Joint Application Development (JAD)

- A structured workshop that brings together business and technical teams for real-time collaboration.
- **Example:** A JAD session with developers and stakeholders to finalize system workflows.

10. Interface Analysis

- Studying interactions between different systems to ensure integration requirements are met.
- **Example:** Analyzing how the online agriculture store will connect with payment gateways.

11. Mind Mapping

- A visual technique to structure ideas and relationships between different requirements.
- **Example:** Mapping out the entire user journey from product selection to order delivery.

12. 5W1H (Who, What, When, Where, why, How)

- A structured questioning approach to cover all aspects of a requirement.
- **Example:** Asking "Who will use this feature?" or "How should payments be processed?"

13. Reverse Engineering

- Analyzing an existing system to determine its features and requirements.
- **Example:** Examining a competitor's online store to identify gaps and improvement areas.

Conclusion:

Using the right **elicitation technique(s)** depends on the **project type, stakeholder availability, and complexity of requirements**.

6 Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques?

The selection of elicitation techniques for this project is based on the need for comprehensive requirement gathering while ensuring efficiency within the 18-month timeline.

1. Interviews

Stakeholders Involved: Farmers, Manufacturers, Logistics Providers

Purpose:

- To understand the challenges faced by farmers in procuring fertilizers, seeds, and pesticides.
- To capture manufacturers' requirements for listing and selling their products.
- To gain insights into potential logistical constraints for deliveries.

2. Workshops

Stakeholders Involved: Farmers, Manufacturers, Project Team

Purpose:

- To facilitate discussions between multiple stakeholders to prioritize key features.
- To ensure alignment between business requirements and technical feasibility.

3. Surveys & Questionnaires

Stakeholders Involved: Farmers (Large-Scale Input)

Purpose:

- To gather data on farmer preferences for product selection, payment methods, and delivery options.
- To identify common pain points in the current purchasing process.
-

4. Document Analysis

Sources: Government Regulations, Competitor Platforms, Market Reports

Purpose:

- To understand legal and regulatory requirements for selling agricultural products online.
- To analyze existing market solutions and identify best practices.

5. Prototyping (Wireframes & Mockups)

Stakeholders Involved: Farmers, Manufacturers, UI/UX Team

Purpose:

- To provide stakeholders with a visual representation of the application.
- To gather early feedback on usability, navigation, and key functionalities.

6. Observations

Stakeholders Involved: Farmers, Market Vendors

Purpose:

- To gain firsthand insights into farmers' current purchasing processes.
- To identify unspoken challenges that might not be captured through interviews alone.

7. Make suitable Assumptions and identify at least 10 Business Requirements.

Ans: **Business Requirements (BRs)**

User & Authentication Requirements

- **BR001:** The system shall allow **farmers, manufacturers, and sellers** to register and authenticate using mobile numbers and OTP verification.
- **BR002:** The platform shall support **multi-language accessibility** to cater to farmers from different regions.

Product & Catalog Management

- **BR003:** The platform shall allow manufacturers to **list and manage their products** under predefined categories (fertilizers, seeds, pesticides, etc.).
- **BR004:** The system shall enable farmers to **search, filter, and compare** products based on price, ratings, location, and availability.

Order & Payment Processing

- **BR005:** Farmers shall be able to **place, track, and manage orders** through the application.
- **BR006:** The platform shall support **multiple payment methods**, including UPI, credit/debit cards, and cash-on-delivery.
- **BR007:** The system shall provide **real-time order tracking and notifications** via SMS, email, and WhatsApp.

Vendor & Logistics Management

- **BR008:** The system shall have a **vendor verification process** before allowing manufacturers to list products.
- **BR009:** The platform shall integrate with **third-party delivery partners** to facilitate logistics and delivery tracking.

Customer Support & Compliance

- **BR010:** A **customer support module** shall be available to handle farmer inquiries, complaints, and refund requests.
- **BR011:** The system shall comply with **government policies** on pesticide and fertilizer sales, requiring documentation for restricted items.

8. List your assumptions?

Ans: **Assumptions**

1. The platform will be available as both a **web and mobile application**.
2. The application should support **multiple regional languages** to ensure accessibility for farmers.
3. Farmers may have **limited digital literacy**, so the UI must be simple and easy to navigate.
4. **Payment options** should include UPI, bank transfers, and cash-on-delivery.
5. **Order tracking and notifications** must be provided via SMS, email, and WhatsApp.
6. The project must be delivered **within 18 months** and adhere to the **₹2 crore budget**.
7. **Compliance with government regulations** on the sale of agricultural products must be ensured.
8. **Manufacturers and sellers** should go through a **verification process** before listing products.
9. The system should provide **logistics support** through third-party delivery partners.
10. Farmers must have access to **customer support** for grievance resolution.

9. Give Priority 1 to 10 numbers (1 being low priority – 10 being high priority) to these Requirements after discussions with the stakeholders.

Req ID	Req Name	Req Description	Priority Score (1-10)
BR001	Order Placement & Management	Farmers should be able to place, track, and manage their orders.	10
BR002	Payment Integration	The system should support UPI, credit/debit cards, and cash-on-delivery options.	9
BR003	Secure User Authentication	Farmers, manufacturers, and sellers should register securely via OTP authentication.	9

BR004	Compliance with Govt Regulations	The system should ensure adherence to legal guidelines on selling fertilizers and pesticides.	10
BR005	Farmer Search for Products	Farmers should be able to search for available products in fertilizers, seeds, pesticides.	8
BR006	Manufacturers Upload Products	Manufacturers should be able to upload and display their products in the application.	8
BR007	Logistics & Delivery Management	The system should integrate with third-party logistics partners for seamless delivery.	7
BR008	Real-time Order Tracking	Farmers should receive real-time notifications about their order status via SMS, Email, and WhatsApp.	7
BR009	Product Reviews & Ratings	Farmers should be able to review and rate purchased products.	6
BR010	Personalized Recommendations	The system should suggest products based on previous purchases and searches.	5
BR011	Social Media Integration	Users should be able to share products on social media platforms.	4

10. Draw use case diagram

2. Goal:

Allow users to register with **First Name, Last Name, Email ID, and Password**.

3. Pre-Conditions:

- The user must not already have an account.

4. post-Conditions:

- A new user account is created.
- A confirmation email is sent.

5. Main Flow:

1. User navigates to the **Registration Page**.
2. Enters **First Name, Last Name, Email ID, and Password**.
3. Clicks "**Register**".
4. System validates inputs:
 - Checks empty fields, email format, and password strength.
 - Ensures email is unique.
5. If valid, details are saved in the **database**.
6. Confirmation email is sent.
7. The success message displayed was "**Registration Successful!**"

6. Alternate Flows:

- **Invalid Email Format:** System prompts error.
- **Weak Password:** System suggests a stronger password.
- **Email Already Registered:** System asks user to log in instead.

7. Assumptions:

- The system has a stable internet connection.
- Users enter valid details willingly.
- The email service for confirmation is functional.
- The database can store and retrieve user data efficiently

Use case specification: Login

1. Actors:

- **Primary Actor:** User
- **Primary Actor:** Manufacturer
- **Supporting System:** Database

2. Goal:

Allow a registered user to log in using **Email ID and Password**.

3. Pre-Conditions:

- The user must have a registered account.

4. post-Conditions:

- The user is successfully logged into the system.

5. Main Flow:

1. User navigates to the **Login Page**.
2. Enters **Email ID and Password**.
3. Clicks "**Login**".
4. System validates inputs:
 - Checks if fields are empty.
 - Verifies email format.
 - Matches credentials with the database.
5. If valid, the user is granted access to their account.
6. Success message displayed: "**Login Successful!**"

6. Alternate Flows:

- **Invalid Credentials:** System displays "**Incorrect email or password**".
- **Forgot Password:** User is redirected to the password reset page.
- **Account Not Found:** System suggests user to **register first**.

7. Assumptions:

- The user enters correct credentials.
- The database is accessible for verification.
- The system has session management enabled.

Use case specification: Product Catalogue

1. Actors:

- **Primary Actor:** User (Customer)
- **Supporting System:** Database

2. Goal:

Allow users to browse the product catalogue, which includes **Fertilizers, Seeds, and Pesticides**.

3. Pre-Conditions:

- Products must be available in the database.

4. post-Conditions:

- The user can view product details and proceed with ordering.

5. Main Flow:

1. User navigates to the **Product Catalogue Page**.
2. System displays categories: **Fertilizers, Seeds, Pesticides**.
3. User selects a category.
4. System retrieves and displays relevant products with details (name, price, description).
5. User can view product details or add items to the cart.

6. Alternate Flows:

- **No Products Available:** System displays "**No products found**".
- **Network Issue:** System prompts "**Unable to load products, check your connection**".

7. Assumptions:

- The database contains an updated product list.
- Users have access to an internet connection.
- The system supports filtering and sorting of products.

Use case specification: Browse & Search

1. Actors:

- **Primary Actor:** User (Customer)
- **Supporting System:** Database

2. Goal:

Allow users to browse and search products by **name and price**.

3. Pre-Conditions:

- The system must have products available in the database.

4. post-Conditions:

- The user can view relevant products based on their search.

5. Main Flow:

1. User navigates to the **Browse/Search Page**.
2. The system displays available products.
3. User enters a **product name** or sets a **price range** in the search bar.
4. System fetches and displays matching products.
5. User can view product details or add items to the cart.

6. Alternate Flows:

- **No Matching Results:** System displays "No products found".
- **Invalid Price Input:** System prompts "Enter a valid price range".
- **Network Issue:** System shows "Unable to fetch products, check your connection".

7. Assumptions:

- The product database is updated and functional.
- The system supports efficient search and filtering.
- Users enter valid search criteria.

Use case specification: Payment

1. Actors:

- **Primary Actor:** User (Customer)
- **Supporting System:** Payment Gateway, Database

2. Goal:

Enable users to complete the purchase using **COD, Card, or UPI** payment methods.

3. Pre-Conditions:

- The user must have items in the cart.
- The user must be logged in.

4. post-Conditions:

- The payment is processed successfully.
- The order is confirmed and saved in the system.

5. Main Flow:

1. User proceeds to **Checkout** after adding items to the cart.

2. System displays available **payment options**:
 - **Cash on Delivery (COD)**
 - **Card Payment** (Credit/Debit)
 - **UPI Payment**
3. User selects a payment method and confirms the payment.
4. System processes the payment:
 - **For COD**: Order is placed directly.
 - **For Card/UPI**: System redirects to a **secure payment gateway** for authentication.
5. Upon successful payment, system confirms the order.
6. User sees a success message: **"Payment Successful! Order Confirmed."**

6. Alternate Flows:

- **Payment Failure**: System displays **"Payment failed, try again"**.
- **Insufficient Balance (Card/UPI)**: System prompts **"Transaction declined, use a different method"**.
- **Network Issue**: System shows **"Payment processing error, check your connection"**.

7. Assumptions:

- The system securely processes and stores payment transactions.
- The payment gateway is functional and available.
- COD is allowed for the selected delivery location.

Use case specification: order details

1. Actors:

- **Primary Actor**: User (Customer)
- **Supporting System**: Database, Email Service, Order Tracking System

2. Goal:

Allow users to receive order confirmation via email and track their order status.

3. Pre-Conditions:

- The user must have successfully placed an order.

4. post-Conditions:

- The user receives an email confirmation.
- The user can check real-time order tracking status.

5. Main Flow:

1. After successful payment, the system generates an **Order ID**.

2. The system sends an **order confirmation email** with details (Order ID, product list, total amount, delivery estimate).
3. User logs in and navigates to the **Order History** page.
4. System displays the **current tracking status** (e.g., Processing → Shipped → Out for Delivery → Delivered).

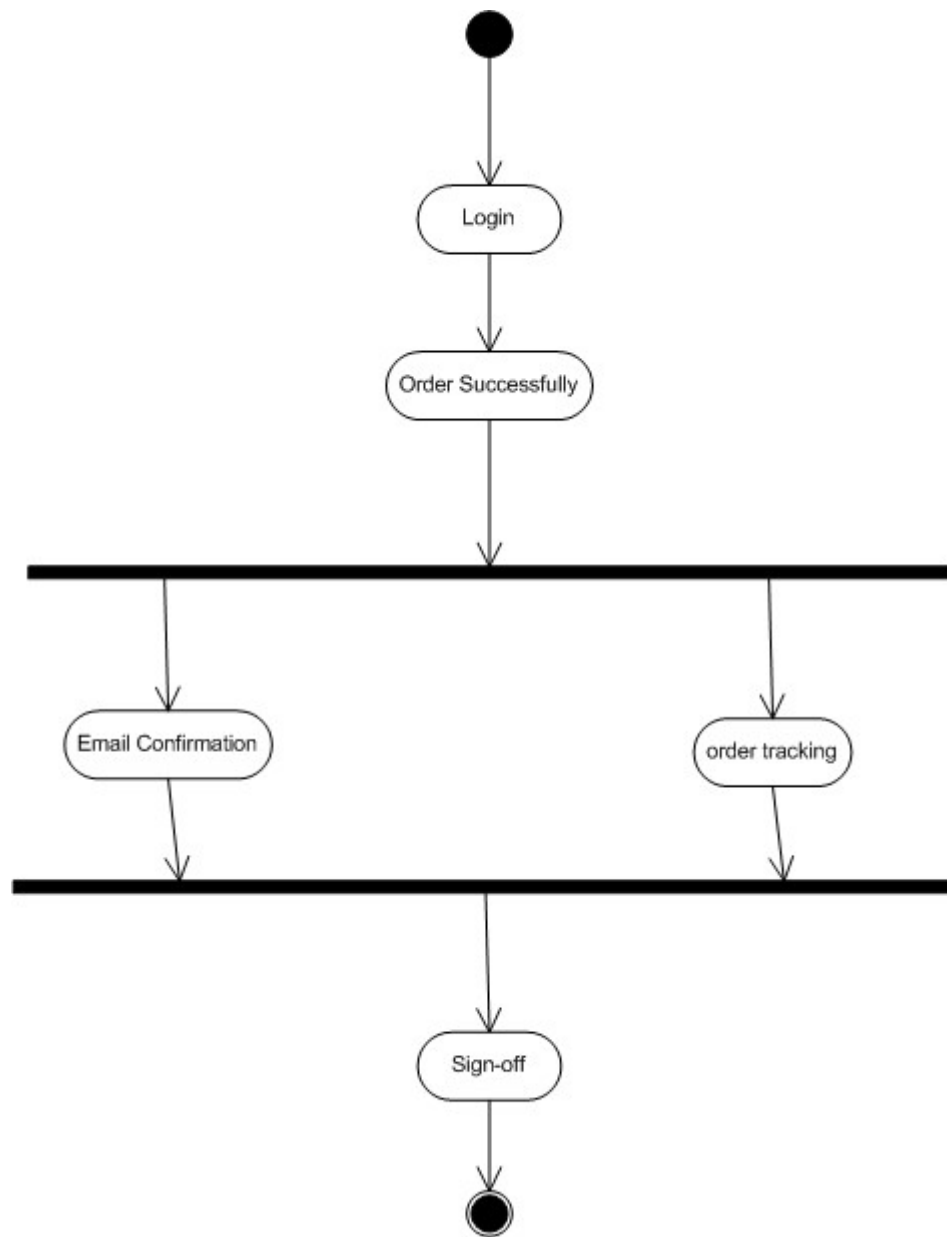
6. Alternate Flows:

- **Email Not Received:** System provides an option to **resend confirmation email**.
- **Order Not Found:** System prompts "**No orders found under this account**".
- **Tracking System Unavailable:** System shows "**Tracking information currently unavailable, try again later**".

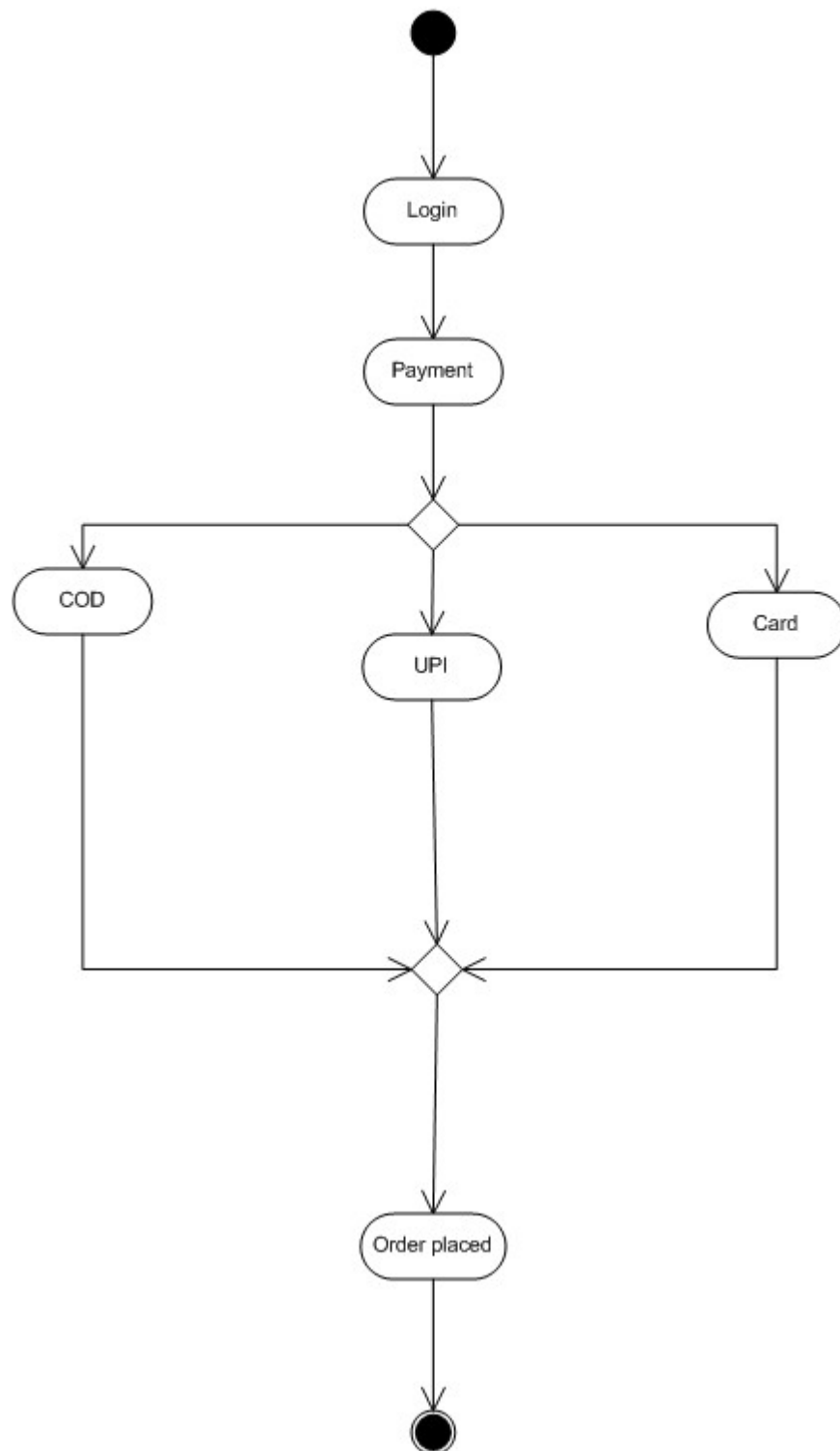
7. Assumptions:

- The email service is functional and timely.
- The order tracking system is updated in real time.
- Users have internet access to track orders.

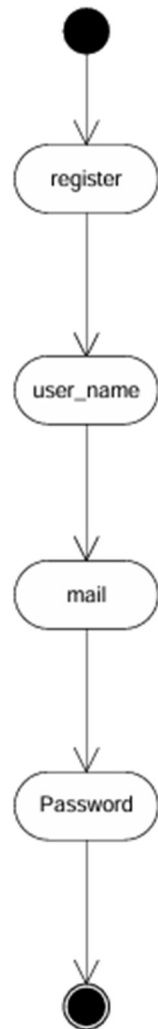
Activity diagram: Ordering



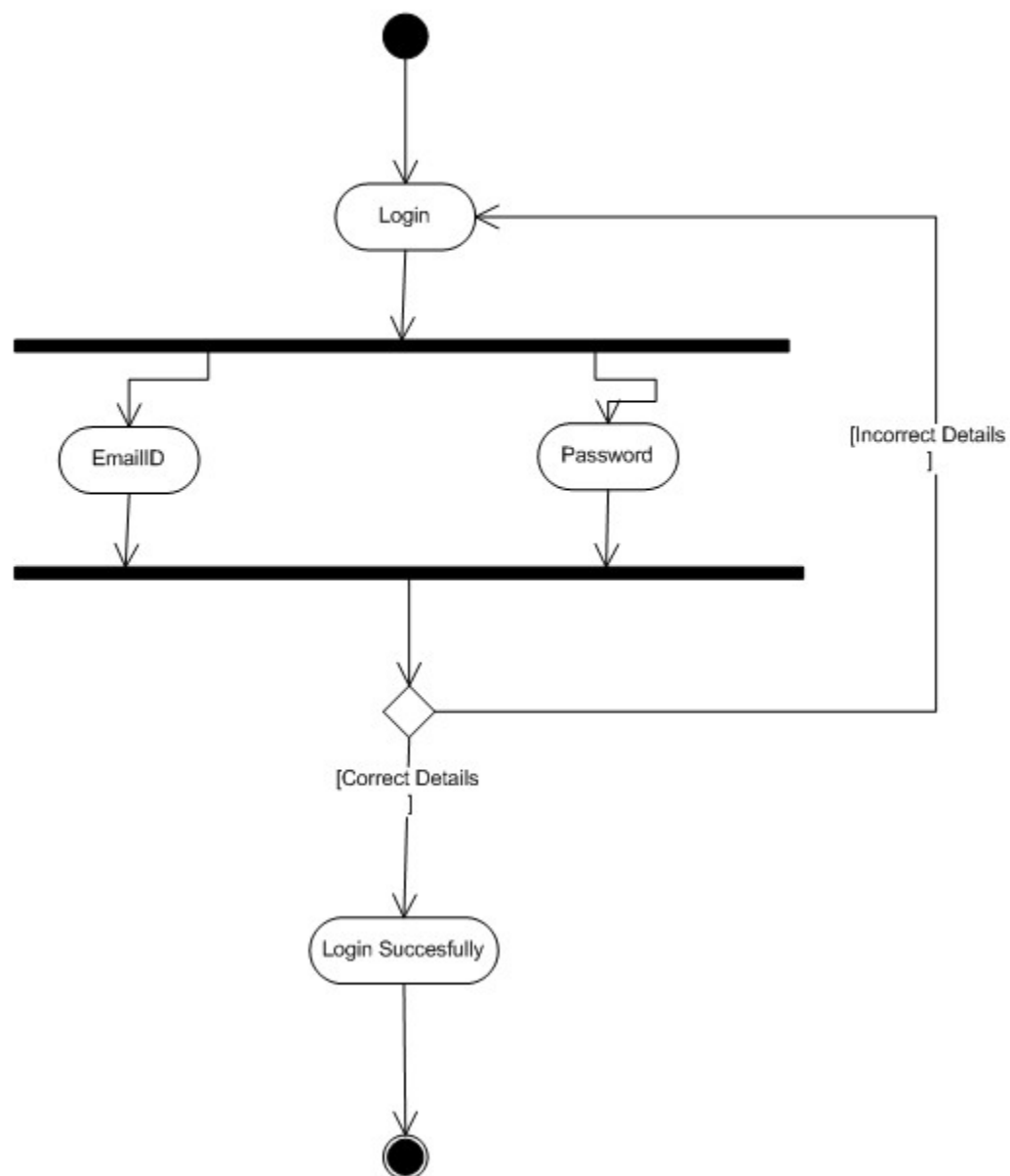
Activity diagram: Payment



Activity diagram: Registration



Activity diagram: Login



Activity diagram: Product catalogue

