Mr. Henry, after being successful as a businessman and has become one of the wealthiest persons in the city. Now, Mr. Henry wants to help others to fulfil their dreams. One day, Mr. Henry went to meet his childhood friends Peter, Kevin and Ben. They live in a remote village and do farming. Mr. Henry asked his friends if they are facing any difficulties in their day-to-day work. Peter told Mr. Henry that he is facing difficulties in procuring fertilizers which are very important for farm. Kevin said that he is also facing the same problem in-case of buying seeds for farming certain crops. Ben raised his concern on lack of pesticides which could help in greatly reducing pests in crops. After listening to all his friends' problems, Mr. Henry thought that this is a crucial problem faced not only by his friends but also by so many other farmers. So, Mr. Henry decided to make an online agriculture product store to facilitate remote area farmers to buy agriculture products. Through this Online Web / mobile Application, Farmers and Companies (Fertilizers, seeds and pesticides manufacturing Companies) can communicate directly with each other. The main purpose to build this online store is to facilitate farmers to buy seeds, pesticides, and fertilizers from anywhere through internet connectivity. Since new users are involved, Application should be user friendly. This new application should be able to accept the product (fertilizers, seeds, pesticides) details from the manufacturers and should be able to display them to the Farmers. Farmers will browse through these products and select the products what they need and request to buy them and deliver them to farmers location.

Mr. Henry has given this project through his Company SOONY. In SOONY Company, Mr. Pandu is Financial Head and Mr. Dooku is Project Coordinator. Mr. Henry, Mr. Pandu, and Mr. Dooku informed one Committee and gave this project to APT IT SOLUTIONS company for Budget 2 Crores INRand18 months Duration under CSR initiative. Peter, Kevin and Ben are helping the Committee and can be considered as Stakeholders share requirements for the Project. Mr. Karthik is the Delivery Head in APT IT SOLUTIONS company and he reached out to Mr. Henry through his connects and bagged this project. APT IT SOLUTIONS company have Talent pool Available for this Project. Mr. Vandanam is project Manager, Ms. Juhi is Senior Java Developer, Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo are Java Developers. Network Admin is Mr. Mike and DBA admin is John. Mr. Jason and Ms. Alekya are the Tester. And you joined this team as a BA.

Question no.1

4 Quarterly Audits are planned Q1, Q2, Q3, Q4 for this Project What is your knowledge on how these Audits will happen for a BA?

For BA audits or evaluation process occurs end of each quarter, which may involve reviewing the progress, performance, and outcomes of a project or initiative. The process may vary depending upon the organization.

Q1 (First Quarter Audit)

Focus Areas:

- Review of initial requirements gathering and business analysis documentation.
- Identifying any scope changes or misalignments with business goals.

- Evaluation of project timelines, resource allocation, and any delays in the initial phase.

BA’s role:

    - Ensure all documented requirements are aligned with business objectives.
    - Address gaps in early requirements and scope
    - Prepare updated documentation and analysis of any changes to the project plan or scope.

Q2 (Second Quarter Audit)

Focus Areas:

- Review of business process changes and analysis to ensure alignment with the original requirements.
- Assess how the product or solution being developed is meeting the business goals.
- Track whether key deliverables and milestones are being achieved as planned.

BA's Role:

- Support the analysis of the current progress against the original goals.
- Identify any gaps between business requirements and the delivered product.
- Work on refining and revising requirements based on changes or feedback received.

Q3 (Third Quarter Audit)

Focus Areas:

- Evaluate project deliverables, reviewing whether they meet business objectives and the defined quality standards.
- Assess user acceptance testing (UAT) or any pilot testing that has taken place.
- Review any identified issues, defects, or gaps, and ensure these are being tracked and addressed.

BA's Role:

- Help in coordinating UAT and ensuring that it aligns with business needs and user expectations.
- Document any changes in requirements or adjustments based on testing feedback.
- Analyze risks and issues identified in Q3 and collaborate with the team to prioritize fixes.

Q4 (Fourth Quarter Audit)

Focus Areas:

- Review the final product to ensure it aligns with the original business requirements and expectations.
- Evaluate post-implementation support, tracking any residual issues or lessons learned.
- Conduct a comprehensive analysis of the entire project, documenting successes and challenges.
- Assess the project's impact on business performance and ensure all deliverables are met.

BA's Role:

- Help in finalizing project documentation, ensuring it reflects the true outcomes and lessons learned.
- Assist in conducting a post-implementation review with stakeholders to evaluate the overall success of the project.
- Ensure that all business requirements were met and provide a final report on the project's adherence to scope, timeline, and budget.

General responsibilities of BA in quarterly audits:

Continuous Monitoring**:** The BA should keep track of progress throughout the quarter, noting any issues, risks, or scope changes.

Stakeholder Engagement**:** The BA is responsible for facilitating communication between stakeholders and ensuring that their expectations and requirements are well-managed throughout the project.

Reporting & Documentation: After each audit, the BA typically produces reports summarizing findings, actions, and recommendations.

Risk & Issue Management: The BA plays an important role in identifying and managing risks and issues, ensuring they are addressed promptly.

Change Management: Any scope or requirement changes need to be documented and

Conclusion: The BA plays a key role in ensuring that the project stays on track and delivers the desired outcomes by providing insights and recommendations during each audit phase.

Question 2 –

BA Approach Strategy

Before the Project is going to Kick Start, The Committee asked Mr. Karthik to submit BA Approach Strategy Write BA Approach strategy (As a business analyst, what are the steps that you would need to follow to complete a project – What Elicitation Techniques to apply, how to do Stakeholder AnalysisRACI/ILS, What Documents to Write, What process to follow to Sign off on the Documents, How to take Approvals from the Client, What Communication Channels to establish n implement, How to

Handle Change Requests, How to update the progress of the project to the Stakeholders, How to take signoff on the UAT- Client Project Acceptance Form)

1. Elicitation Techniques

The first step in ensuring that the project's requirements are well understood is to gather information from stakeholders. I would apply the following elicitation techniques:

- Interviews: Conduct one-on-one interviews with key stakeholders, including the Project Manager, developers, testers, and business representatives, to understand their needs, expectations, and concerns.
- Workshops: Organize collaborative workshops with key stakeholders to brainstorm ideas, align on requirements, and ensure clarity around business goals.
- Surveys/Questionnaires: Send out surveys to gather feedback from a wider audience (if needed), especially when seeking input on project requirements or issues.
- Document Analysis: Review existing documentation (e.g., business process documents, system specifications, regulatory requirements) to understand the current system and identify areas for improvement.
- Prototyping: In some cases, creating low-fidelity prototypes can help stakeholders visualize how the final product will look and function, assisting in gathering more accurate requirements.

2. Stakeholder Analysis

A key element in the project is identifying and understanding who the stakeholders are, what their interests are, and how they should be engaged. I would follow the below steps to conduct a stakeholder analysis:

- Identify Stakeholders: List all individuals, groups, and organizations that have an interest in the project or are impacted by it. This includes internal stakeholders (e.g., team members, Project Manager, developers) and external stakeholders (e.g., clients, vendors).
- Stakeholder Mapping: Map out stakeholders according to their influence and interest in the project using a power/interest grid to determine how much communication and engagement each stakeholder needs.
- RACI Matrix (Responsible, Accountable, Consulted, and Informed): Define roles and responsibilities for each stakeholder using a RACI matrix to ensure clear accountability. For example:
    - Project Manager (Mr. Vandanam) – Accountable for the project's success, approvals.
    - BA (You) – Responsible for gathering and analyzing requirements, ensuring scope clarity, communication.

- Java Developers (Ms. Juhi, Mr. Teyson, Ms. Lucie, Mr. Tucker, Mr. Bravo) – Responsible for developing the technical solution.
- Network Admin (Mr. Mike) – Consulted for network-related requirements and issues.
- DB Admin (Mr. John) – Consulted for database-related concerns.
- Testers (Mr. Jason and Ms. Alekya**)** – Responsible for testing the application.

3. Documenting Requirements

Documenting clear, comprehensive requirements is vital. As the BA, I would create the following key documents:

- Business Requirements Document (BRD): This will include high-level business goals, objectives, scope, and business rules. It will be the primary document for obtaining stakeholder approval.
- Functional Requirements Document (FRD): Detailing specific functionalities, features, and system requirements.
- Use Cases/User Stories: To describe specific business processes or user interactions with the system.
- System Requirement Specification (SRS): For technical specifications on how the system will operate.
- Data Flow Diagrams (DFD) and Entity-Relationship Diagrams (ERD**)**: These will help in visualizing how data will flow and how different entities interact in the system.
- Non-Functional Requirements Document: Defining performance metrics, security, and scalability needs for the system.

4. Sign-off Process on Documents

The sign-off process ensures that stakeholders formally agree with the requirements.

- Review and Validate Documents: I will ensure that all documentation is reviewed with key stakeholders, ensuring that the requirements align with business goals and are feasible within project constraints.
- Version Control: Ensure that document versions are controlled and all stakeholders are using the most up-to-date documents.
- Sign-off Request: Once the documents are finalized, I will send the documents to the appropriate stakeholders (e.g., the Project Manager, senior technical team, client) for sign-off. I will track the sign-off process and ensure all approvals are formally recorded.

5. Approvals from the Client

- **Initial Approval**: After the business requirements and technical specifications have been defined, I will present them to the client for initial approval. This will ensure that the client agrees with the scope, objectives, and deliverables.

- Ongoing Approvals: As the project progresses, I will schedule regular meetings to review progress and gather approval on deliverables or changes to the project scope.

6. Communication Channels to Establish and Implement

Establishing clear communication channels ensures transparency and facilitates smooth collaboration.

- Project Kickoff Meeting: A formal meeting with all stakeholders to set expectations, define the project's goals, and establish communication protocols.
- Weekly Progress Meetings: Regular meetings with the development team and project manager to review progress, discuss challenges, and ensure alignment.
- Email and Collaboration Tools (e.g., Slack, Teams): To share documents, track discussions, and ensure stakeholders have access to necessary information.
- Status Reports: A weekly or bi-weekly project status report that summarizes progress, risks, issues, and next steps.
- Issue Tracking System: Tools like Jira or Trello will be used to track ongoing issues, change requests, and progress on tasks.

7. Handling Change Requests

- Document the Request: When a change is requested, I will ensure it is documented in detail, including the reason for the change and the impact on scope, timeline, and resources.
- Impact Assessment: Conduct an analysis to evaluate how the change will affect the project (cost, time, resources).
- Review with Stakeholders: Discuss the change with the relevant stakeholders to assess its necessity and determine if it aligns with business goals.
- Change Control Board (CCB): If applicable, the change request will be escalated to the CCB for approval before implementation.

8. Updating Progress to Stakeholders

- Weekly Reports: Provide stakeholders with weekly status reports, highlighting progress against milestones, risks, issues, and any critical decisions that need to be made.
- Dashboard Updates: Use a project management tool to track and display progress in real-time, allowing stakeholders to check the status of key tasks.

9. Sign-off on UAT (User Acceptance Testing)

- Test Plan Review: I will ensure that the testing team has a clear test plan and that test cases are aligned with the business requirements.
- Client Involvement in UAT: I will coordinate UAT with the client, ensuring they understand the process and are comfortable with the criteria being tested.

- Client Project Acceptance Form: After successful UAT completion, I will ensure the client fills out a Project Acceptance Form, confirming that the project meets their expectations and is ready for final deployment. This form will be used as official sign-off for the completion of the project.

Conclusion:

In conclusion, the BA approach strategy will focus on ensuring effective stakeholder management, rigorous documentation, and clear communication throughout the project lifecycle. By applying best practices in requirements gathering, document sign-offs, and change management, I will ensure that the project meets business goals and client expectations.

Question no.3

Explain and illustrate 3-tier architecture?

3-Tier Architecture: Explanation and Illustration

3-Tier Architecture is a well-established software architecture model commonly used in the development of applications. It divides the application into three distinct layers, each with specific responsibilities. The three tiers are:

1. Presentation Layer (Client Tier)
2. Business Logic Layer (Application Tier)
3. Data Layer (Database Tier)

Each layer communicates with the one directly adjacent to it, and each has its own defined role, ensuring modularity, scalability, and maintainability of the application.

1. Presentation Layer (Client Tier)

- Purpose: This layer is responsible for interacting with the user. It presents the user interface (UI) and handles user inputs.
- Components: Web browsers, mobile apps, desktop applications.
- Responsibilities:
    - Presenting the data to the user.
    - Receiving user requests and passing them to the next layer (Business Logic Layer).
    - Rendering the output received from the business layer.

Example: In a web application, this would be the HTML/CSS/JavaScript code that runs in the browser.

2. Business Logic Layer (Application Tier)

- Purpose: This layer processes the business logic, performs operations on data, and makes decisions based on user input and business rules.
- Components: Application server, business logic modules, processing components.
- Responsibilities:
    - Processing user requests.
    - Handling application-specific business logic (such as calculations, rules, workflows).
    - Communicating with the data layer to retrieve or update data.
    - Returning results to the presentation layer for display.

Example: In a banking application, this layer would calculate the balance, apply interest, or check for account overdrafts.

3. Data Layer (Database Tier)

- Purpose: This layer is responsible for managing data and providing data storage, retrieval, and updates.
- Components: Database servers, file storage systems, cloud storage.
- Responsibilities:
    - Storing data (e.g., in relational databases like MySQL, PostgreSQL, or NoSQL databases like MongoDB).
    - Managing database operations such as queries, updates, and deletions.
    - Ensuring data integrity and consistency.

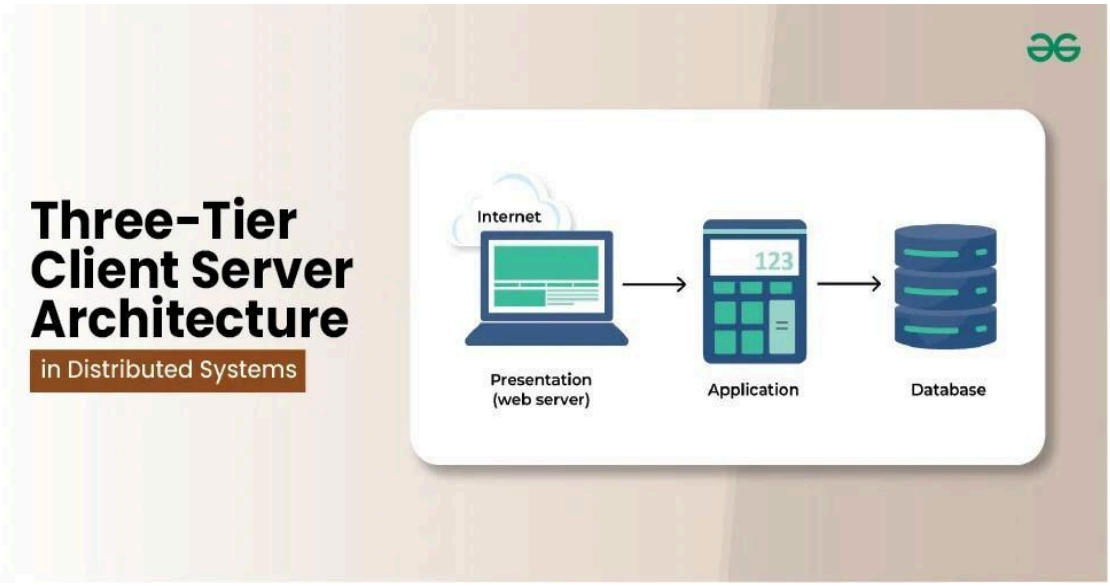
Example: The database in a banking application where customer account details, transactions, and other data are stored.

How the 3-Tier Architecture Works

In a 3-tier architecture, the three layers work together as follows:

1. User Interaction: The user interacts with the Presentation Layer (client-side) via a web page, desktop application, or mobile app.
2. Request Processing: The Presentation Layer sends the user's input (e.g., a request to view an account balance) to the Business Logic Layer.
3. Business Logic Execution: The Business Logic Layer processes the request according to business rules, querying or updating the Data Layer for relevant information.
4. Data Retrieval: The Data Layer performs the necessary database operations, returning data to the Business Logic Layer.

5. Result Display: The Business Logic Layer sends the processed data back to the Presentation Layer, which then displays the information to the user.

6. 

Question no.4

Business Analyst should keep What points in his/her mind before he frames a Question to ask to the Stakeholder (5W 1H – SMART – RACI – 3 Tier Architecture – Use Cases, Use case Specs, Activity Diagrams, Models, Page designs)

Before framing a question to ask stakeholders, a Business Analyst (BA) should keep several key concepts and frameworks in mind to ensure that the questions are clear, relevant, and aligned with the project's goals. These frameworks help in structuring the analysis, ensuring effective communication, and capturing the right information from stakeholders. Here's a breakdown of the key points the BA should consider:

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

The 5W1H framework is a classic approach to gather detailed and specific information. Each element focuses on understanding the different aspects of the problem or situation:

- Who: Who are the stakeholders? Who is impacted by the decision or action? Who will use the system or be involved in the process?
- What: What are the business needs or requirements? What goals do the stakeholders have? What is the expected outcome or deliverable?
- Where: Where will the solution be implemented? Where do the processes take place (physical location, systems, etc.)?
- When: When is the deadline? When do stakeholders expect specific deliverables or milestones?

- Why: Why is this change or solution necessary? Why is this approach preferred over others? What is the business justification?
- How: How will the solution be implemented? How do the stakeholders expect the system to behave?

This ensures that the BA asks questions that cover all essential aspects of the project or business problem, and it helps avoid any gaps in the information gathering process.

SMART (Specific, Measurable, Achievable, Relevant, Time-bound)

The SMART criteria are crucial when framing questions about goals, deliverables, and performance. A BA should ask:

- Specific: Is the requirement or objective clearly defined? Is the question focused on a specific issue?
- Measurable: Can success be measured? How will progress or outcomes be tracked?
- Achievable: Is the goal realistic? Does it take into account constraints such as budget, time, and resources?
- Relevant: Is the question related to the stakeholder's role or the overall project objectives? Does it align with the project's scope and purpose?
- Time-bound: What is the timeline? When do stakeholders expect results or milestones?

By ensuring that the questions meet the SMART criteria, the BA will be able to gather actionable, clear, and focused requirements from stakeholders.

3. RACI (Responsible, Accountable, Consulted, Informed)

RACI is a framework that defines the roles and responsibilities of different stakeholders in relation to a specific task or decision. Before asking questions, a BA should:

- Clarify the RACI roles for the specific process or task.
- Ensure questions are directed to the right person (e.g., asking someone who is Accountable or Responsible for a task).
- Ensure that the Consulted and Informed stakeholders are included in the communication loop, and that the questions are tailored to their roles.

For example, a question about a technical requirement might be best directed to the Responsible party (like the developer), while a question about business justification could go to the Accountable stakeholder (like the business owner).

4. 3-Tier Architecture (Presentation, Business Logic, Data Layers)

The 3-tier architecture provides a structured way to understand how the system will be designed. When asking questions about system requirements, the BA should:

- Ensure the question addresses the appropriate layer of the system:

- Presentation Layer: Questions related to user interface, user experience, and interaction with the system (e.g., "What fields should be displayed on the customer profile page?").
- Business Logic Layer: Questions about business rules, data processing, workflows (e.g., "What are the rules for calculating discount percentages?").
- Data Layer: Questions regarding data storage, retrieval, and integrity (e.g., "What type of database should be used for customer data?").

By framing questions based on the 3-tier architecture, the BA can ensure that stakeholders' inputs are aligned with the system's design and technical needs.

5. Use Cases

Use cases describe how users interact with the system to achieve specific goals. When framing questions related to use cases, the BA should:

- Focus on user roles and the goals they are trying to achieve (e.g., "What are the key actions that the user should be able to perform on the dashboard?").
- Ask about system behavior in different scenarios (e.g., "What should the system do if the user enters an invalid email address during registration?").
- Clarify exceptions or error conditions (e.g., "How should the system respond when there is insufficient inventory to fulfill an order?").

Use case questions help the BA clarify functional requirements and ensure that the system meets the user's needs.

6. Use Case Specifications

The Use Case Specifications detail the flow of events, preconditions, postconditions, and alternate flows for each use case. Before asking questions, the BA should:

- Define the preconditions: What must be true before the use case can begin? (e.g., "Has the user logged in before accessing the payment gateway?")
- Clarify the main flow: What are the steps the user takes to complete the use case? (e.g., "What steps should the user take to place an order?")
- Understand the alternate flows and exceptions: Are there other ways the use case can proceed? What happens if something goes wrong?

By asking questions around these specifications, the BA can ensure the system's functionality is clear and well-defined.

7. Activity Diagrams

Activity diagrams model the workflow of a system or business process. When framing questions related to activity diagrams, the BA should:

- Clarify the sequence of actions or decisions that occur in a process (e.g., "What happens if the user decides to cancel the transaction during checkout?").
- Ask about parallel activities or branching points (e.g., "What happens when the user selects different payment options during checkout?")
- Identify end states: What are the expected outcomes at the end of the process? (e.g., "What happens when the payment is successfully processed?").

These questions help ensure that business processes are captured in the system design, and the correct flow of events is reflected in the system's operation.

8. Models (UML, ERD, etc.)

When using models like UML (Unified Modeling Language) diagrams or Entity-Relationship Diagrams (ERD), the BA should:

- Ask about entities and relationships (for ERDs): "What are the main entities involved in this process, and how are they related?" (e.g., "What are the relationships between Customer, Order, and Payment?")
- For UML diagrams: "How should the system handle different user interactions based on different states?" (e.g., "What happens if the user's account is in an inactive state?")

These questions will help ensure that the visual representation of the system aligns with the requirements.

9. Page Designs

When dealing with page designs, the BA should ask questions to ensure the UI/UX aligns with business needs:

- "What fields and actions should be included on the main user dashboard?"
- "Should the user be able to customize the layout or content of the page?"
- "What is the expected response time when users load the page?"

This ensures that the user interface is designed to meet stakeholder expectations and is user-friendly.

Conclusion

Before framing a question to a stakeholder, a Business Analyst should ensure that the question is:

- Aligned with the business goals and user needs.
- Specific, measurable, and actionable (SMART).
- Directed at the right stakeholder according to their role in the RACI matrix.
- Informed by a clear understanding of the 3-tier architecture, use cases, activity diagrams, and other relevant models. By framing questions carefully, the BA ensures that the responses are valuable, relevant, and contribute to a successful project outcome.

Question no.5

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

Brainstorming

- Description: A creative session where a group of stakeholders or team members generate ideas, solutions, or features around a particular problem or goal.
- Use: Useful for generating a wide range of ideas, particularly in the early stages of a project or when looking for innovative solutions.
- Benefits: Encourages creativity, team collaboration, and out-of-the-box thinking

Storyboarding

- Description: A visual representation (like a comic strip) of a user's interaction with the system, used to explore user experiences, workflows, or product features.
- Use: Effective for illustrating the user journey or visualizing business processes and system interactions.
- Benefits: Provides a visual context, making it easier to understand the user experience, especially in UI/UX design.

Surveys and Questionnaires

- Description: Predefined sets of questions distributed to a wide audience to collect data on specific topics or requirements.
- Use: Suitable for collecting quantitative data from a large group of stakeholders.
- Benefits: Efficient for gathering input from a broad set of stakeholders, can be used for statistical analysis.

Workshops

- Description: Facilitated group sessions involving stakeholders from various departments to gather information, brainstorm solutions, and align expectations.
- Types:
    - Joint Application Development (JAD): A structured workshop focused on requirements gathering.
    - Brainstorming Sessions: Informal workshops designed to generate ideas and solutions.

Interviews

- Description: One-on-one or group conversations with stakeholders to gather detailed information about their requirements, expectations, and concerns.
- Types:
    - Structured Interviews: Following a set of pre-determined questions.
    - Unstructured Interviews: More informal, open-ended conversations to allow stakeholders to provide information freely.

Gap Analysis

- Description: Comparing the current state (as-is) with the desired future state (to-be) to identify gaps that need to be addressed.
- Use: Helps identify areas where improvements or changes are required.
- Benefits: Provides a clear roadmap for identifying problems, prioritizing requirements, and improving processes.

Document Review and Validation

- Description: Reviewing and validating existing requirements, documents, and specifications with stakeholders to ensure correctness and alignment.
- Use: Often performed after requirements gathering to ensure all documentation is accurate and reflects stakeholder needs.
- Benefits: Ensures accuracy, eliminates ambiguity, and reduces misunderstandings before proceeding with development.

Document Review and Validation

- Description: Reviewing and validating existing requirements, documents, and specifications with stakeholders to ensure correctness and alignment.
- Use: Often performed after requirements gathering to ensure all documentation is accurate and reflects stakeholder needs.
- Benefits: Ensures accuracy, eliminates ambiguity, and reduces misunderstandings before proceeding with development.

Question no.6

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

Prototyping, Use case Specs, Document Analysis Brainstorming

For this project, based on the requirements provided and the context of developing a platform for managing fertilizers, seeds, and pesticides for farmers, the following **elicitation techniques** would be

suitable for gathering business requirements. Below, I'll explain each technique and justify its use in the context of the project:

Prototyping

- Description: Prototyping involves creating an early, often incomplete version of the system (prototype) and using it to gather feedback from stakeholders.
- Justification:
    - In this project, a prototype of the user interface (UI) can help stakeholders, such as Mr. Henry and the key stakeholders (Peter, Kevin, Ben), visualize and interact with the product catalog, search functionality, and payment process early in the project.
    - A prototype of the product catalog and search functionality can allow farmers and manufacturers to provide feedback on layout and usability, which will inform refinement of requirements and design.
    - A prototype for the payment gateway and order tracking functionalities can also be created to test user interaction and workflow before full-scale development.

Use Case Specifications

- Description: Use case specifications describe how users (actors) interact with the system to achieve a specific goal, capturing the functional requirements of the system.
- Justification:
    - This technique is highly valuable in this project since the functionality needs to be clearly outlined, especially for actions such as logging in, browsing products, searching for products, adding products to a "buy-later" list, placing an order, and tracking delivery.
    - Use case specifications would help define specific interactions such as:
        - Farmer Login: Steps to log in as an existing user or create a new account.
        - Product Search: How a farmer can search for products and browse the catalog.
        - Payment: Workflow for selecting the payment method (COD, Credit/Debit, UPI).
        - Order Confirmation: Sequence of steps from order placement to email confirmation.
        - Delivery Tracking: How the farmer can track the status of their order.
    - This will ensure that the business requirements such as BR001 (farmers should be able to search for products) and BR002 (manufacturers should be able to upload and display their products) are captured clearly in the functional context.

- Mitigation: Implement a user-friendly interface and provide extensive training for farmers. Conduct pilot testing in select areas to ensure farmers understand how to use the platform.

2. Risk: Delivery and Logistics Challenges

- Mitigation: Partner with established logistics companies experienced in delivering to remote locations. Implement a robust order tracking and communication system.

3. Risk: Technological Barriers

- Mitigation: Ensure that the platform is lightweight and accessible, even in areas with limited internet connectivity. Provide offline access or SMS-based alternatives if necessary.

4. Risk: Product Quality Assurance

- Mitigation: Implement strict quality checks and only partner with reputable manufacturers who meet predefined standards.

Key Success Factors

- User Adoption: A simple, intuitive interface will encourage widespread usage among farmers, even those with limited technical experience.
- Timely Delivery: Partnering with reliable delivery services will ensure that products reach farmers in a timely manner.
- Quality of Products: Ensuring that only reputable manufacturers list their products on the platform will maintain product quality.
- Post-launch Support: Ongoing training and support for farmers to help them navigate the platform and troubleshoot any issues.

Conclusion

- The online agriculture product store project is a strategic CSR initiative aimed at improving the lives of farmers in remote villages by providing them access to essential agricultural products. The project aligns with Mr. Henry's goal of helping others achieve their dreams while leveraging technology to solve a critical problem. With a strong financial plan, clear objectives, and effective risk mitigation strategies, this project promises to significantly enhance agricultural productivity and community welfare in the target regions.

Question no.7

Make suitable Assumptions and identify at least 10 Business Requirements.

10 Business Requirements for the Online Agriculture Product Store:

1. User Registration and Authentication:

- Farmers, manufacturers, and delivery personnel must be able to register and log in securely to the platform. The registration should include personal details (for farmers) or business details (for manufacturers).

2. Product Listing and Search:
    - Manufacturers must be able to add, update, and manage their agricultural product listings (seeds, pesticides, fertilizers) on the platform.
    - Farmers should be able to search for products based on categories, price range, and location.
3. Product Details and Reviews:
    - Each product should have detailed descriptions, including ingredients (for fertilizers and pesticides), usage instructions, and quality certification.
    - Users (farmers) should be able to leave ratings and reviews based on their experience with the product.
4. Order Placement and Tracking:
    - Farmers should be able to select products, add them to a cart, and place an order with the option to schedule delivery.
    - The platform should allow farmers to track the status of their orders (e.g., processing, shipped, delivered).
5. Payment Integration:
    - The platform should support secure payment processing, allowing multiple payment methods like cash on delivery (COD), online banking, or mobile wallets.
6. Inventory Management for Manufacturers:
    - Manufacturers must be able to track inventory levels for each product and get notified when stock is low, ensuring they can manage demand efficiently.
7. Delivery and Logistics Integration:
    - The platform should integrate with third-party logistics providers to manage product deliveries to farmers' locations.
    - The delivery system should include delivery status updates (shipped, in transit, delivered) and estimated delivery dates.
8. Customer Support and Query Resolution:
    - There should be a customer support feature (live chat, helpdesk) to handle queries, complaints, and product returns, ensuring a smooth user experience.
9. Multi-Language Support:

- The platform should support multiple languages to accommodate farmers from different regions. Languages should include major regional languages (e.g., Hindi, Tamil, Telugu, etc.) in addition to English.

10. Analytics and Reporting for Manufacturers:
    - Manufacturers should have access to sales reports, order history, and customer insights to analyze their product performance and make data-driven decisions about stock and marketing strategies.

Explanation of the Business Requirements:

1. User Registration and Authentication:
    - This ensures that the platform has a secure system for verifying and managing users, both farmers and manufacturers, so they can perform actions based on their roles.
2. Product Listing and Search:
    - This allows manufacturers to showcase their products and gives farmers a robust search feature to quickly find what they need.
3. Product Details and Reviews:
    - Detailed product information and reviews enhance trust in the products being sold, which is critical for users who may be purchasing unfamiliar products.
4. Order Placement and Tracking:
    - The ability to place orders and track them ensures transparency and helps manage expectations, improving the overall customer experience.
5. Payment Integration:
    - Offering different payment options is crucial for increasing convenience, trust, and user adoption, especially in a region where cash payments might be more common.
6. Inventory Management for Manufacturers:
    - This helps manufacturers maintain smooth operations by notifying them when inventory is running low, avoiding delays in fulfilling orders.
7. Delivery and Logistics Integration:
    - Integrating logistics ensures that farmers receive their orders in a timely manner, which is essential for agricultural products that may have specific timing needs (e.g., planting seasons).
8. Customer Support and Query Resolution:
    - Effective customer support is essential to maintain a good relationship with farmers and resolve issues promptly, which is critical for retaining users.

9. Multi-Language Support:
    - Localizing the platform for different languages allows it to cater to a diverse user base, increasing accessibility and usability for farmers from various regions.
10. Analytics and Reporting for Manufacturers:
    - This feature helps manufacturers monitor sales, assess demand, and optimize inventory and marketing strategies, leading to better business decisions and product availability.

These business requirements will help ensure that the platform is user-friendly, meets the needs of farmers, provides a seamless experience for manufacturers, and is scalable as the project evolves.

Question 8 –

List your assumptions:

Here is a list of assumptions made for the Online Agriculture Product Store project:

1. User Base:

- The primary users of the platform will be farmers and manufacturers of agricultural products (fertilizers, seeds, pesticides).
- Farmers may be non-technical and may have limited experience with using online platforms, so the system must be user-friendly and intuitive.

2. Product Categories:

- The platform will offer a wide range of agricultural products, including fertilizers, seeds, and pesticides, sourced from multiple manufacturers and suppliers.

3. Product Inventory:

- Manufacturers will be responsible for updating and managing their own product listings, including inventory details such as quantity, price, and product descriptions.

4. Delivery System:

- The platform will provide a delivery service where products purchased by farmers will be shipped to their location.
- Third-party logistics will be used to handle the delivery of the products, and delivery schedules will depend on the farmers' location.

5. Payment Methods:

- The platform will support multiple payment methods, including Cash on Delivery (COD), online banking, and mobile wallets to cater to the preferences of farmers and manufacturers.

6. Internet Access:

- The farmers have basic internet access, though they may be using low-bandwidth connections in remote areas. The platform should be optimized for slower internet speeds and mobile access.

7. Platform Accessibility:

- The application will be available as a web application and a mobile application to reach farmers and manufacturers across different devices.

8. User Interface:

- The user interface of the platform will be designed in a simple and intuitive way to ensure ease of use for farmers, including those who may not be very tech-savvy.

9. Multilingual Support:

- The platform will support multiple languages to accommodate users from different regions, ensuring the application is accessible to a broader audience of farmers.

10. Regulatory Compliance:

- The platform will comply with local agricultural regulations, including the sale and distribution of fertilizers, seeds, and pesticides, ensuring that all products sold are safe and meet industry standards.

11. Data Security:

- The platform will implement strong security protocols to protect sensitive user data, such as payment information, personal details, and transaction history.

12. Product Availability:

- The product listings on the platform will reflect real-time availability. Manufacturers will need to manage their inventory and ensure that stock information is always up to date.

13. Order Management:

- The platform will provide order tracking features, allowing farmers to view the status of their orders from placement through to delivery, with real-time updates on shipping.

14. Customer Support:

- A customer support system will be available to handle issues like product returns, order inquiries, and technical support for users.

15. Marketing and Notifications:

- The platform will include features for product promotions, discounts, and notifications to keep farmers informed about new products, offers, and order updates.

16. Mobile Network Coverage:

- The mobile version of the application assumes that farmers will have basic mobile network coverage, allowing them to access the platform via mobile data or Wi-Fi.

17. Testing and Feedback:

- The platform will undergo user acceptance testing (UAT), with farmers providing feedback on its usability and functionality to ensure it meets their needs.

18. Scaling:

- The platform is expected to be scalable, capable of handling a growing number of users and expanding product listings as demand increases.

19. Collaboration with Third-Party Logistics:

- The platform will collaborate with third-party delivery partners to facilitate the transportation of agricultural products from manufacturers to farmers.

20. Training for Farmers:

- While the platform will be designed to be intuitive, it is assumed that some farmers may require basic training or guidance to navigate the system, especially in terms of order placement and payment methods.

These assumptions provide a baseline for understanding the project's requirements, potential challenges, and expected outcomes, ensuring that the development team can plan and implement a solution that is functional, scalable, and meets the needs of the stakeholders.

Question no.9

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

Once the requirements are finalized, as a business analyst, one of the major roles is to act as a liaison between the client and the project team. To gather the requirements correctly from the client side and then to deliver those requirements to the project team in a way they understand. To make the project team understand the requirements, you need to convert those requirements into UML diagrams and screen mock-ups.

Priority List of Requirements:

Req ID	Req Name	Req Description	Priority
BR001	Farmer Search for Products	Farmers should be able to search for available products in fertilizers, seeds, pesticides.	8
BR002	Manufacturers Upload their Products	Manufacturers should be able to upload and display their products in the application.	8

BR003	Product Details and Reviews	Each product should have detailed descriptions and user reviews for farmers to make informed decisions.	7
BR004	Order Placement and Tracking	Farmers should be able to place orders and track them from placement to delivery.	10
BR005	Payment Integration	The platform should support multiple payment methods such as COD, online banking, mobile wallets.	10
BR006	Inventory Management for Manufacturers	Manufacturers should be able to track inventory levels and receive low stock notifications.	6
BR007	Delivery and Logistics Integration	The platform should integrate with third-party logistics to manage delivery.	9
BR008	Customer Support and Query Resolution	A customer support feature should be available for resolving issues and answering queries.	8
BR009	Multi-Language Support	The platform should support multiple languages to cater to farmers from different regions.	7
BR010	Analytics and Reporting for Manufacturers	Manufacturers should be able to view sales reports and product performance analytics.	5

Using UML Diagrams and Mock-ups to Communicate Requirements:

Once these requirements are finalized and prioritized, you, as the Business Analyst, will be tasked with effectively communicating them to the development team. Here's how you can break down the requirements:

1. UML Diagrams:

- Use Case Diagram:

    - Show the interactions between the Farmer, Manufacturer, Admin, and System (e.g., Order Placement, Product Upload, Payment).

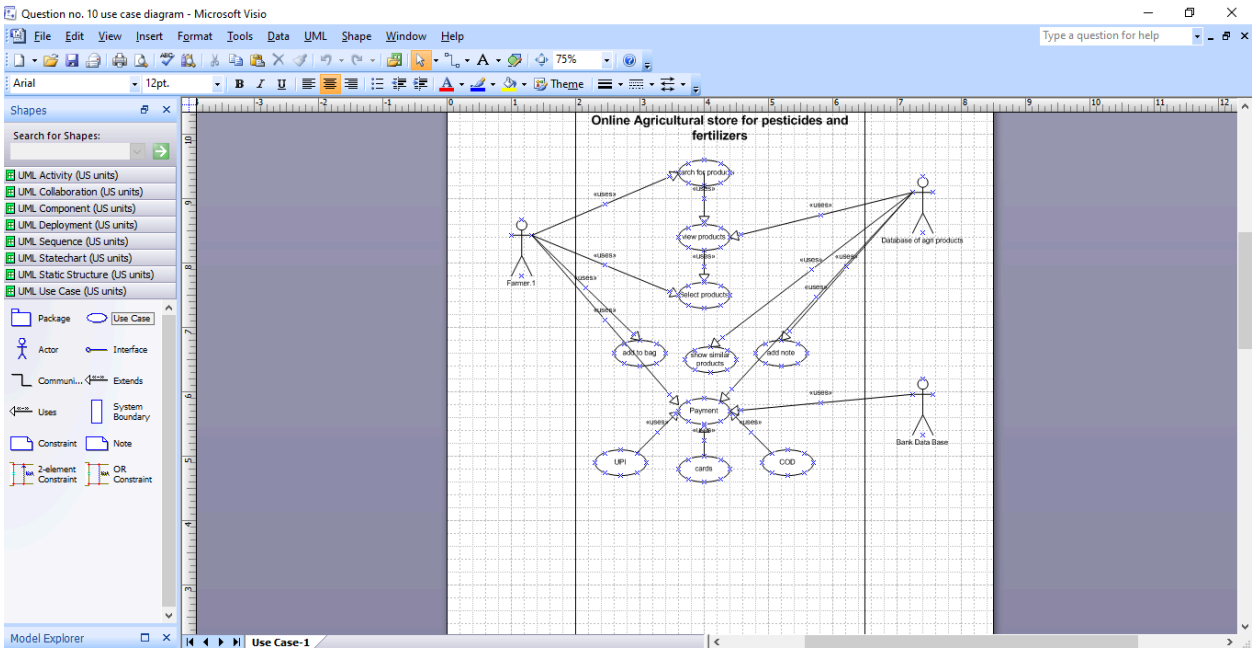
- Activity Diagram:
    - For key processes like Order Placement, illustrate the steps from product selection to payment and order tracking.
- Class Diagram:
    - Identify key entities such as User, Product, Order, Payment, Manufacturer, and Delivery, along with their attributes and relationships.
- Sequence Diagram:
    - For specific workflows like Product Search or Order Placement, show the sequence of interactions between objects in the system (e.g., Farmer searches, Manufacturer uploads products).

2. Screen Mock-ups:

- Homepage: Showcase search bar, product categories, and top products.
- Product Search Results Page: Include filters (e.g., type of product, price), search results, and product details.
- Product Detail Page: Display images, detailed descriptions, reviews, and the option to add to cart.
- Cart Page: Display selected products, pricing, and checkout button.
- Checkout Page: Input for shipping details, payment options, and order summary.
- Order Confirmation Page: Order ID, estimated delivery date, and order tracking.

These diagrams and mock-ups will serve as a communication bridge between stakeholders and the development team. They will help ensure everyone has a clear understanding of the project's objectives, scope, and requirements before development begins.

Question 10 – Use Case Diagram



Question no.11

Prepare use case specs for all use case

Below is the Use Case Specification for all the identified use cases in the Online Agriculture Product Store project. Each use case describes a specific function, including actors, description, preconditions, postconditions, and the flow of events.

Use Case ID:	UC001
Actor(s):	Farmer
Description	Farmers should be able to search for available products such as fertilizers, seeds, and pesticides.
Preconditions:	• Farmer is logged into the system. • The system has an active internet connection to fetch product data.
Postconditions:	• Products are displayed based on the search query.

Flow of Events:	1. The Farmer enters a search query in the search bar (e.g., product name or category). 2. The System fetches matching results from the product database. 3. The System displays a list of relevant products with their details (name, price, description).

3. Use Case: Add Products to Cart

Use Case ID: UC003 **Actor(s): Farmer** **Description: Allows farmers to add products to their shopping cart.** **Preconditions:**
• **Farmer is logged into the system.**
• **The product is available for purchase.**
Postconditions:
• **The product is added to the cart.**
Flow of Events:
• **Basic Flow:**
1. **The Farmer selects a product they wish to buy and clicks on the "Add to Cart" button.**
2. **The System adds the product to the cart and updates the cart count.**
3. **The Farmer can view the updated cart.**
• **Alternative Flow:**
1. **If the product is out of stock, the System disables the "Add to Cart" button**

2. .

4. Use Case: Place Order

Use Case ID: UC004 **Actor(s): Farmer** **Description: The farmer places an order after selecting products in the cart.** **Preconditions:**
• **The farmer has added products to the cart.**
• **The cart contains at least one product.**
Postconditions:
• **An order is created in the system.**
• **The order status is marked as "Pending."**
Flow of Events:

- **Basic Flow:**
    1. **The Farmer clicks on the "Place Order" button in the cart.**
    2. **The System asks the Farmer to provide shipping and payment details.**
    3. **The Farmer enters the required details (shipping address, payment method).**
    4. **The System processes the payment and creates an order.**
    5. **The System sends an order confirmation to the Farmer.**
- **Alternative Flow:**
    1. **If payment fails, the System prompts the Farmer to retry with a different payment method.**

5. Use Case: Track Order

Use Case ID: UC005
Actor(s): Farmer
Description: Farmers can track the status of their placed orders.
Preconditions:

- **The farmer has placed at least one order.**
- **The order status is being updated in the system.**

Postconditions:

- **The farmer can view the current status of the order.**

Flow of Events:

- **Basic Flow:**
    1. **The Farmer navigates to the "Order History" page.**
    2. **The System displays a list of the Farmer's orders along with their current status (e.g., "Processing," "Shipped," "Delivered").**
    3. **The Farmer selects a specific order to view more details.**
- **Alternative Flow:**

6.

Use Case: Make Payment

Use Case ID: UC006
Actor(s): Farmer
Description: The farmer makes a payment for an order placed in the system.
Preconditions:

- **The order is created and is ready for payment.**
- **The system supports various payment methods.**

Postconditions:

- **The payment is processed and the order is confirmed.**

Flow of Events:

- **Basic Flow:**
    1. **The Farmer selects a payment method (COD, Credit/Debit Card, Mobile Wallet).**
    2. **The System processes the payment via the chosen method.**
    3. **The System confirms the payment and updates the order status to "Paid."**

- **Alternative Flow:**
    1. **If the payment fails, the System prompts the Farmer to select a different payment method or try again.**

7. Use Case: Upload Products

Use Case ID: UC007
Actor(s): Manufacturer
Description: Manufacturers upload their products to the platform for sale.
Preconditions:

- **The manufacturer is logged into the system.**
- **The manufacturer has valid product data.**

Postconditions:

- **The product is available for purchase by farmers.**

Flow of Events:

- **Basic Flow:**
    1. **The Manufacturer navigates to the product upload section.**
    2. **The Manufacturer enters product details (name, description, price, category).**
    3. **The System validates the product data and confirms the upload.**
    4. **The System adds the product to the product catalog.**
- **Alternative Flow:**
    1. **If the product data is invalid, the System prompts the Manufacturer to correct the errors.**

8. Use Case: Manage Product Inventory

Use Case ID: UC008
Actor(s): Manufacturer
Description: Manufacturers manage the inventory of their products.
Preconditions:

- **The manufacturer is logged into the system.**
- **The manufacturer has uploaded products.**

Postconditions:

- **Product inventory is updated.**

Flow of Events:

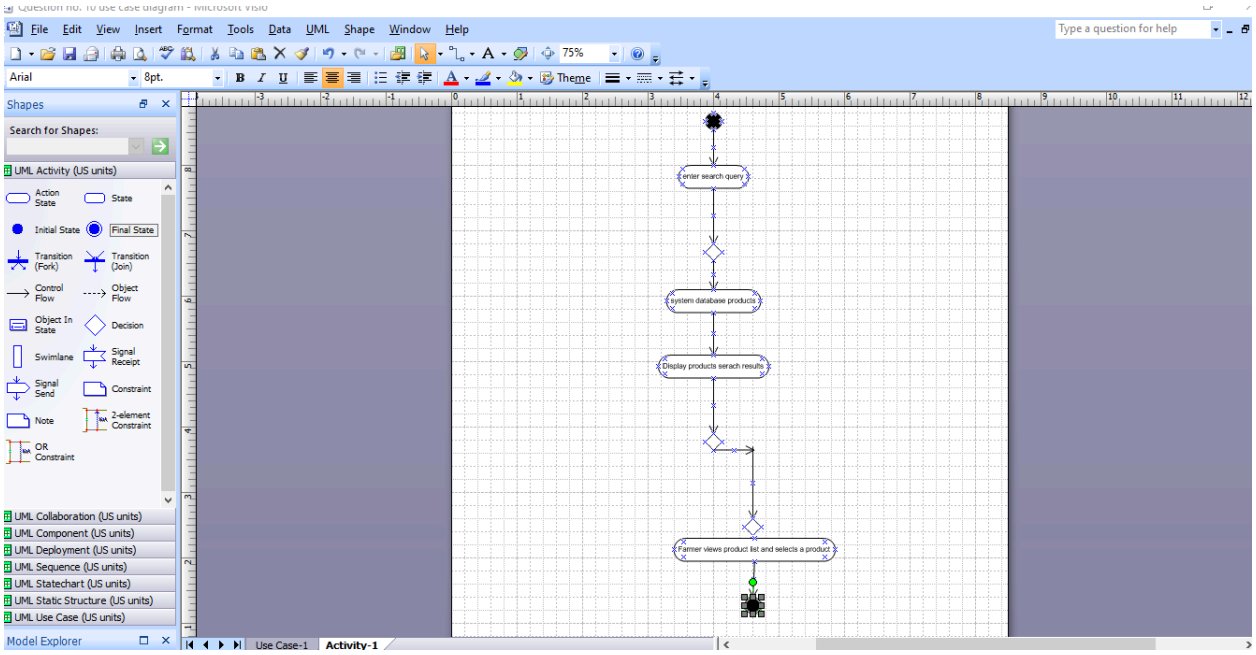
- **Basic Flow:**
    1. **The Manufacturer navigates to the product management section.**
    2. **The Manufacturer updates the stock level for each product.**
    3. **The System updates the product availability status in real-time.**
- **Alternative Flow:**
    1. **If the stock goes below the minimum threshold, the System sends a notification to the Manufacturer.**

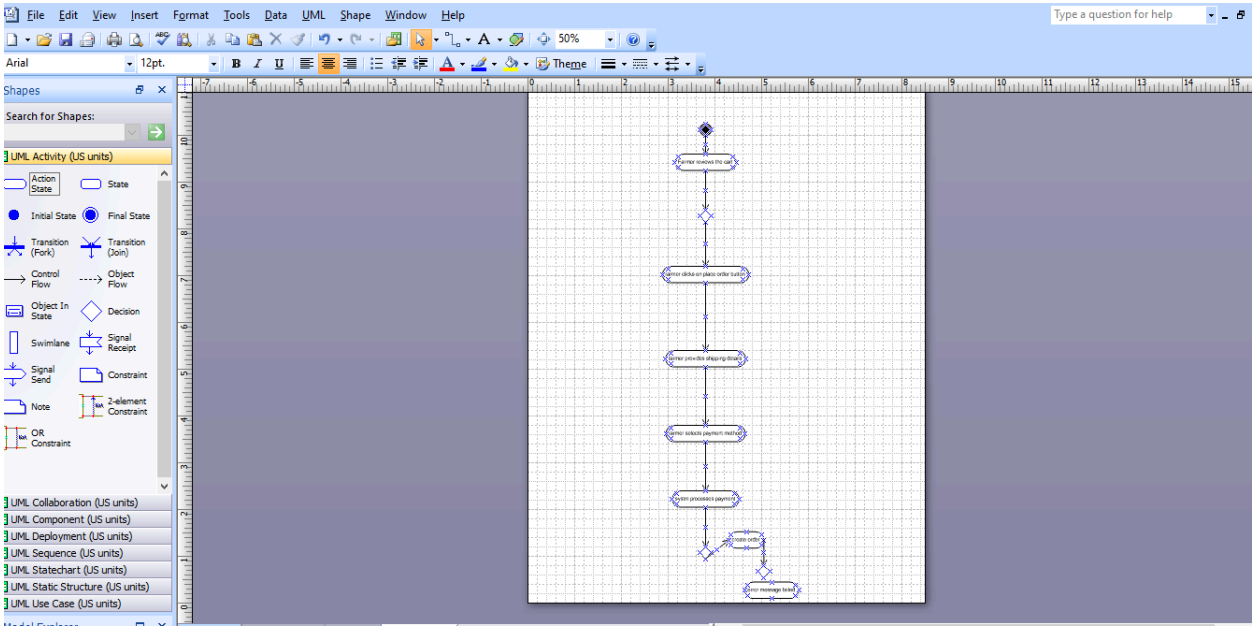
9. Use Case: Manage Users

Use Case ID: UC009 **Actor(s): Admin** **Description: Admin manages user accounts (both farmers and manufacturers).** **Preconditions:**
• **The admin is logged into the system.**
Postconditions:
• **User account information is updated or modified.**
Flow of Events:
• **Basic Flow:**
1. **The admin navigates to the user management section.**
2. **The admin selects a user and updates their account details or status.**
3. **The System confirms the changes.**
• **Alternative Flow:**
1. **If the user account is locked or suspended, the admin can unlock or activate the account.**

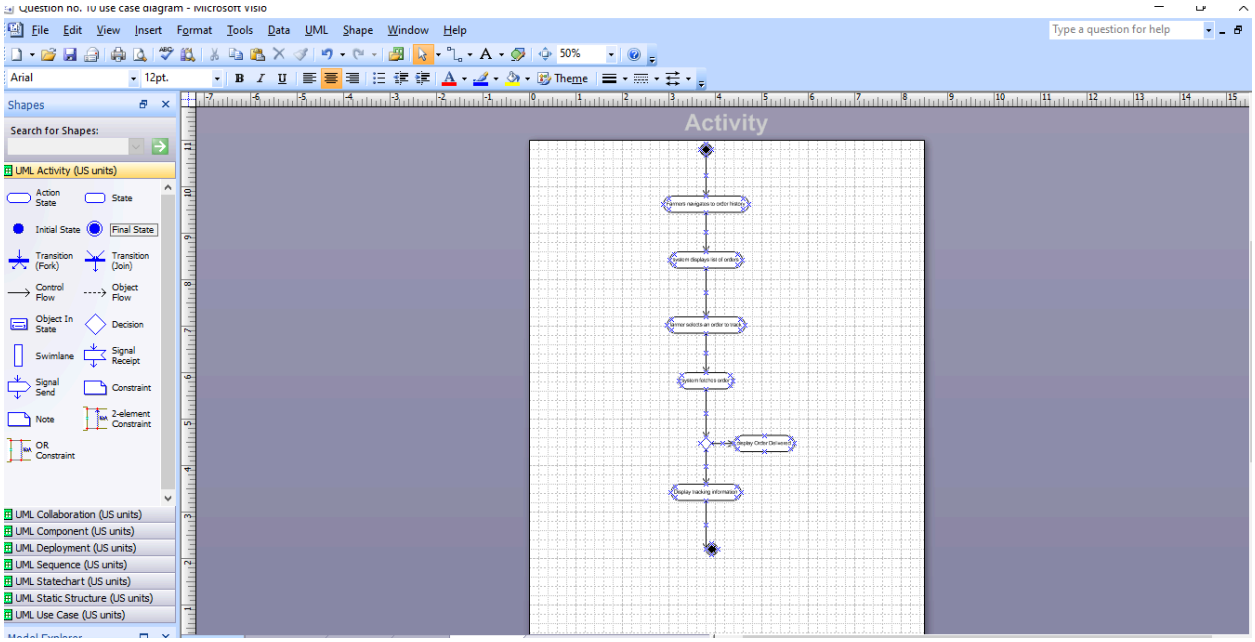
Question 12 – (minimum 5) Activity Diagrams –

Activity Diagrams for the main processes involved in the Online Agriculture Product Store project. Each diagram represents a key workflow that the system needs to support, and each process is visualized through an activity diagram with steps, decisions, and flow of actions.





Activity Diagram: Upload Product (Manufacturer)


Question no. 10 use case diagram - Microsoft Visio
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Arial
12pt.
Theme
Shapes
Search for Shapes:
UML Activity (US units)
Action State
State
Initial State
Final State
Transition (Fork)
Transition (Join)
Control Flow
Object Flow
Object In State
Decision
Swimlane
Signal Receipt
Signal Send
Constraint
Note
2-element Constraint
OR Constraint
UML Collaboration (US units)
UML Component (US units)
UML Deployment (US units)
UML Sequence (US units)
UML Statechart (US units)
UML Static Structure (US units)
UML Use Case (US units)
Activity