**Capstone Project 2**

**Question 1 Audits**

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 ?

**Answer :** BA roles in Audits is to ensure that business needs aligns with system functionalities, Identify gaps and track requirement changes, maintain documentation and update BRD, FRD, process flow and traceability matrix, provide insights to improve system for better user adoption and business success

**Q1 Audit (Initial Planning & Requirement Gathering Review)**

Review and validate if all business requirements (from farmers, manufacturers, and stakeholders) are properly documented.

Ensure the Business Requirement Document (BRD) and Functional Requirement Document (FRD) are completed and signed off.

Verify stakeholder engagement, interviews, and workshops conducted for requirement gathering.

Identify gaps or missing requirements that need further clarification.

Document risks, constraints, and dependencies identified in this phase.

**Q2 Audit (Design & Development Review)**

Check if the system design aligns with business requirements.

Review the UI/UX prototypes or wireframes to ensure user-friendliness for farmers.

Ensure that functional and non-functional requirements (scalability, security, usability) are being addressed.

Validate traceability matrix to ensure each requirement is mapped to development and test cases.

**Q3 Audit (Testing & Quality Assurance Review)**

Review test cases and scenarios created by testers (Jason & Alekya).

Verify if the system is tested against business requirements and functional specifications.

Ensure User Acceptance Testing (UAT) is conducted with stakeholders (Peter, Kevin, and Ben).

Validate that defects are tracked, categorized, and resolved.

Check compliance with regulatory standards (data security, user privacy).

**Q4 Audit (Pre-Deployment & Post-Implementation Review)**

Ensure all deliverables are completed as per business and functional requirements.

Validate training materials and user guides for farmers and manufacturers.

Conduct a final business validation to ensure all major requirements are met.

Review performance benchmarks and system stability reports.

**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 Analysis RACI/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 )

Your Team

|  |  |  |
| --- | --- | --- |
|  | Project Manager - Mr Vandanam Senior Java Developer - Ms. Juhi |  |
| Java Developers - Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo Network Admin - Mr Mike |
|  | DB Admin - Mr John. |  |

BA - You

Testers - Mr Jason and Ms Alekya

Technical Team have assembled to discuss on the Project approach and have finalised to follow 3-tier architecture for this project.

**Answer**

**Elicitation Techniques to Apply:**

To gather requirements effectively, I will use:

* Workshops – Conduct joint discussions with farmers, manufacturers, and the committee.
* Interviews – One-on-one discussions with key stakeholders (Peter, Kevin, Ben, Mr. Henry, and Mr. Karthik).
* Surveys & Questionnaires – Collect insights from potential users (farmers).
* Document Analysis – Study existing agriculture platforms and industry reports.

 **Stakeholder Analysis (RACI Matrix & ILS)**

**Stakeholder Roles & Responsibilities:**

| Stakeholder | Role | Responsibility |
| --- | --- | --- |
| Mr. Henry | Sponsor | Provides funding |
| Mr. Pandu | Financial Head | Budget approvals |
| Mr. Dooku | Project Coordinator | Tracks project progress |
| Peter, Kevin, Ben | Stakeholders | Provide farmer requirements |
| Mr. Karthik | Delivery Head | Ensures timely project delivery |
| Mr. Vandanam | Project Manager | Manages execution & resources |
| Technical Team | Developers & Admins | Implements the application |
| Mr. Jason, Ms. Alekya | Testers | Ensure quality & performance |
| Business Analyst (Me) | BA | Bridges business and tech teams |

 RACI Matrix (Responsible, Accountable, Consulted, Informed) will be used to define clear responsibilities.
 ILS (Influence, Legitimacy, Support) Analysis will be done to understand stakeholder impact.

**Documents to Prepare & Approval Process**

**Documents to Write:**

1. Business Requirements Document (BRD) – Captures business goals and objectives.
2. Functional Requirements Document (FRD) – Defines features and system functionalities.
3. Technical Requirement Specifications (TRS) – Prepared with developers to define system architecture.
4. Process Flow Diagrams & Wireframes – Visual representation of workflows.
5. Traceability Matrix (RTM) – Maps requirements to development and testing.
6. User Stories & Use Cases – Scenarios for farmer and manufacturer interactions.
7. Test Cases & UAT Sign-off Document – Defines validation criteria for project acceptance.

**Approval Process for Sign-Off:**

* BRD & FRD reviewed by Mr. Henry & Mr. Karthik → Approved by the Committee
* Technical documents reviewed by Project Manager & Developers
* Client sign-off required before moving to development

**Process to Follow for Document Sign-Off**

**1: Prepare & Review the Document :** Drafts the document BRD, FRD Internal review by the Project Manager (Mr. Vandanam) and the Development Team to ensure accuracy an Necessary modifications are made based on feedback.

**2: Submit for Stakeholder Review** : The document is shared with relevant stakeholders (Mr. Henry, Mr. Pandu, Mr. Dooku, and Peter, Kevin, Ben). A review meeting is scheduled to discuss concerns or suggestions. Stakeholders provide feedback, and required changes are incorporated.

**3: Final Approval Request :** Once updates are made, the revised document is re-shared. A formal Document Approval Email is sent to key stakeholders. A deadline for review and approval is mentioned.

**4: Obtain Sign-Off :** Stakeholders provide final approval via email confirmation or digital signature.A Sign-Off Sheet (with document name, version, date, and approver details) is created.

**Process for Client Approvals**

* Ensure the document or deliverable is reviewed internally**.** Ensures that the deliverable aligns with business goals and functional requirements.
* Submit documents to client via the approved communication channel.
* Schedule review meetings with the client. Address feedback and update documents accordingly.
* Obtain final approval via email or a digital signature.

**Communication Plan & Progress Tracking**

**Communication Channels to Establish:**

| **Communication Type** | **Medium** | **Frequency** |
| --- | --- | --- |
| Daily Standups | MS Teams/Zoom | Daily |
| Stakeholder Updates | Email/Meetings | Bi-Weekly |
| Project Status Report | Dashboard/Reports | Monthly |
| Risk Management Reviews | Internal Meetings | Quarterly |

**Change Management & Handling Change Requests**

1. Any change request (CR) submitted must be documented in a Change Request Form.
2. The impact analysis will be done to assess budget, timeline, and scope impact.
3. Committee reviews the change and either approves/rejects based on feasibility.
4. Once approved, developers incorporate changes into the system.

**Process for Updating Stakeholders on Project Progress**

**1: Define the Reporting Frequency & Format**

Before starting updates, agree with stakeholders on:

* Reporting Frequency: Weekly, Bi-Weekly, or Monthly
* Update Format: Email, Report, Dashboard, Meeting, or Presentation
* Communication Channels: Email, Slack, Microsoft Teams, Jira, or SharePoint

**2: Identify Key Metrics to Report**

1. Project Progress: % completion of tasks/milestones
2. Tasks Completed: List of major deliverables finished
3. Pending Tasks: Features or deliverables still in progress
4. Risks & Issues: Challenges and blockers affecting progress
5. Change Requests: Any changes in requirements or scope
6. Budget & Timeline Status: Whether the project is on track

**3: Use Visual Reports & Dashboards**

**4: Conduct Regular Stakeholder Meetings**

**5: Send a Formal Progress Report to Stakeholders**

**6: Log Updates in Project Repository**

**Testing, UAT, & Client Sign-Off**

Steps for UAT & Project Acceptance:

1. Test Execution – QA team validates functionalities based on test cases.
2. User Training – Farmers & manufacturers trained via demos.
3. Client UAT Sign-Off – Committee reviews final system and signs the UAT Client Project Acceptance Form.
4. Go-Live – The application is officially launched.

**Question : 3 3 - Tier Architecture**

**Explain and illustrate 3 tier architecture**

3-tier architecture is a software design pattern that organizes an application into three separate layer with its own responsibilities Application layer, Business logic and data Layer. This architecture makes application faster, more secure, and easier to manage

1️. Application Layer (User Interface - UI) : What the user sees and interacts with.
2️. Business Logic Layer (Application Server) : Processes data and applies rules.
3️. Data Layer (Database Server) : Stores and retrieves data.

**For example restaurant:**

1️Customer (UI Layer) – Orders food from the waiter.
2️Waiter (Business Layer) – Takes the order to the kitchen.
3️Kitchen (Database Layer) – Prepares the food and sends it back.

**Question 4 : BA Approach strategy for framing questions**

**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)**

**1. 5W 1H Framework**

Before asking questions, structure them using **Who, What, When, Where, Why, and How** to ensure comprehensive coverage.

 **Who** – Who are the users of the application? (Farmers, manufacturers, admin)
 **What** – What are the core functionalities needed? (Product listing, buying process, logistics)
 **When** – When should each phase be delivered? (Timelines, MVP)
 **Where** – Where will the application be hosted? (Cloud, on-premise)
 **Why** – Why is this project important? (Bridging supply chain gaps for farmers)
 **How** – How will transactions and deliveries be handled? (Payments, logistics)

**2. SMART Criteria for Requirement Gathering**

Specific – What functionalities are a must-have?

 Measurable – How will we track the success of the platform? (Farmer adoption rate, sales metrics)
Achievable – Are there technical limitations or budget constraints?
Relevant – Does each feature align with the goal of supporting farmers?
Time-bound – What are the deadlines?

**3. RACI Matrix (Roles & Responsibilities)**

Clarify **who is Responsible, Accountable, Consulted, and Informed** in decision-making.

| Role | Name | Responsibility |
| --- | --- | --- |
| Sponsor | Mr. Henry | Project funding & vision |
| Financial Head | Mr. Pandu | Budget approval |
| Project Coordinator | Mr. Dooku | Stakeholder coordination |
| Delivery Head | Mr. Karthik | Ensuring project completion |
| Project Manager | Mr. Vandanam | Managing execution |
| Developers | Juhi, Teyson, Lucie, Tucker, Bravo | Coding & implementation |
| Network Admin | Mr. Mike | Infrastructure setup |
| DB Admin | Mr. John | Database design & maintenance |
| Testers | Jason, Alekya | Application testing |
| Stakeholders | Peter, Kevin, Ben | Providing farmer requirements |

**4. 3-Tier Architecture Alignment**

Understand the system’s technical structure and how each layer will function.

 **Presentation Layer (UI/UX)**

* What user-friendly features should be included for farmers? (Language options, voice search)
* How should the UI be structured for ease of navigation?

 **Business Logic Layer (Processing & Rules)**

* What business rules will be applied for transactions? (Discounts, bulk purchases)
* How will order tracking be implemented?

 **Data Layer (Storage & Security)**

* What data must be stored? (Farmer profiles, product details, order history)
* How will security be managed for payments and personal details?

**5. Use Cases & Diagrams for Functional Clarity**

How user interact with system

 Use Cases – Farmers browsing, purchasing, and tracking orders.
 Use Case Specs – Pre/post conditions for each interaction.
 Activity Diagrams – Order placement workflow, approval process.
 Data Models – Entity relationships for products, farmers, and transactions.
 Page Designs – Wireframes of key screens.

**Question 5 : As a Business Analyst, What Elicitation Techniques you are aware of? ( BDRFOWJIPQU)**

1. B – Brainstorming : Brainstorming is Used to generate new ideas and solutions by gathering inputs from multiple stakeholders. The ideas are analysed and relevant included in the system requirement. Usually brainstorming is used in identifying all possible solutions to problems.
2. D – Document Analysis : Involves analyzing existing documents, reports, policies, and workflows to extract useful insights. Best for understanding legacy systems, regulatory requirements, and business rules.
3. R – Reverse Engineering : Examining an existing system, process, or software to understand how it works and derive requirements. Used for modernizing or replacing an outdated system.
4. F – Focus Groups : A focus group is a structured discussion involving a selected group of people to obtain feedback on a particular product, service, idea, or issue. The topic of the focus group plays a critical role in determining who should be recruited because participants must have relevant experiences, knowledge, or opinions about the subject.
5. O – Observation : Observing the user or even doing there part of job can provide information of the process, inputs and outputs. If the user is unable to explain their responsibilities or their requirement for the new system. Two basic approaches passive or active observation.
6. W – Workshops : Workshops are structured way for capturing the requirement. It is a defined duration sessions with multiple stakeholders to gather, clarify and document requirements making sure everyone is on the same page, participants typically includes representatives from various department development, marketing, IT, end users sales and SME.
7. J – Joint Application Development (JAD) : A structured workshop method involving business and technical teams working together.
8. I – Interviews : Conducting one-on-one or group discussions to gather detailed insights from stakeholders. Interviewee ask relevant question and document the requirement. Interviews provide opportunity to explore and clarify topics in detail.
9. P – Prototyping : Developing mockups, wireframes, or working models to gather feedback early in the development process.Best for validating UI/UX and functional requirements. But only mock ups will not help process related requirement also need to gather
10. Q – Questionnaires & Surveys : Distributing structured forms with specific questions to collect insights from the user or stakeholder who have minor input or geographically remote. The design of questionnaire and types of questions are important and can influence the answers , so care is needed.
11. U – User Stories : Capturing requirements in the form of simple, user-centric narratives.

**Question 6**

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

**1. Prototyping :** Since farmers and manufacturers are new to technology, a visual representation of the system will help them understand how the platform will work .Prototyping ensures early feedback on the UI/UX, making the application more user-friendly for farmers. Helps in identifying usability issues and modifying features before actual development.

**2. Use Case Specification :** Clearly defines how users (Farmers, Manufacturers, Admins) will interact with the system. Helps developers and testers understand functional requirements in a structured way. Ensures completeness by specifying preconditions, postconditions, and alternate flows for each scenario.

**3. Document Analysis :** Since agricultural products have regulations (certifications, pricing, transport rules), studying relevant government guidelines and existing e-commerce platforms is crucial. Helps identify industry best practices and ensure the system complies with legal requirements. Provides insights into features and processes used in similar platforms (e.g., Amazon for farming products).

**4. Brainstorming :** Encourages creative ideas from different stakeholders (Farmers, IT Team, Finance Team) about features, logistics, and business model. Helps in identifying challenges and innovative solutions (e.g., offline mode for poor internet areas). Allows cross-functional teams to collaborate on defining priorities.

**Question 7 : Business Requirement**

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

 BR001 – The system should allow Farmers, Manufacturers, and Admins to register and log in.

 BR002 – Farmers should be able to browse available products (fertilizers, seeds, pesticides).

 BR003 – Farmers should be able to place an order for selected products.

 BR004 – The system should allow multiple payment methods for order processing.

 BR005 – Farmers should be able to track their order status in real-time.

 BR006 – Manufacturers should be able to manage their profile information.

 BR007 – Manufacturers should be able to upload, manage, and display product details.

 BR008 – Admins should be able to manage user accounts (Farmers, Manufacturers).

 BR009 – Admins should be able to manage and track all orders.

 BR010 – Admins should be able to generate reports for sales, users, and orders.

 BR011 – The system should allow delivery tracking and updates for orders.

**Question 8 : List your assumptions**

* Users (Farmers, Manufacturers, Admins) will have **internet access** to use the platform.
* Users will log in using email and password, with an OTP option.
* Manufacturers will upload and manage their products.
* Products will be grouped into fertilizers, seeds, and pesticides.
* Farmers can search, filter, and sort products easily.
* Payments can be done using Credit/Debit Cards, UPI, Net Banking, and Wallets.
* The system will provide real-time order tracking
* Admins need to monitor user activities and generate reports.
* The application will work on both Web and Mobile, Product images and order details will be stored in the cloud.
* Passwords will be encrypted for security.
* Email notifications will be used for order confirmations.

**Question 9 : Project requirement priority**

**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** |
| --- | --- | --- | --- |
| BR001 | User Registration & Login | The system should allow Farmers, Manufacturers, and Admins to register and log in. | 10 |
| BR002 | Browse Product Catalog | Farmers should be able to browse available products (fertilizers, seeds, pesticides). | 8 |
| BR003 | Place Order | Farmers should be able to place an order for selected products. | 10 |
| BR004 | Process Payment | The system should allow multiple payment methods for order processing. | 9 |
| BR005 | Track Order | Farmers should be able to track their order status in real-time. | 8 |
| BR006 | Manage Profile | Manufacturers should be able to manage their profile information. | 7 |
| BR007 | Add Product Details | Manufacturers should be able to upload, manage, and display product details. | 9 |
| BR008 | Manage Users | Admins should be able to manage user accounts (Farmers, Manufacturers). | 7 |
| BR009 | Manage Orders | Admins should be able to manage and track all orders. | 8 |
| BR010 | Generate Reports | Admins should be able to generate reports for sales, users, and orders. | 7 |
| BR011 | Manage Delivery | The system should allow delivery tracking and updates for orders. | 9 |

**Question 10 : Use case diagram**

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**Question 11 : Prepare use case specs**

**1. Use Case: Place Order**

Actors: Farmer
Description: Allows farmers to place an order for agricultural products.
Preconditions:
 Farmer must be logged into the system.
 Products must be available in stock.
Flow of Events:

1. The farmer selects a product from the product list.
2. The system displays product details (price, availability, description).
3. The farmer adds the product to the cart.
4. The farmer proceeds to checkout.
5. The system requests payment details.
6. The system processes the payment (includes Process Payment use case).
7. The system confirms the order and provides a tracking number.
Postconditions:
 Order is placed successfully.
 The order status is set to Processing.

**2. Use Case: Process Payment**

Actors: Farmer, Payment System
Description: Handles the payment processing for an order.
Preconditions: Farmer must have a valid payment method.
The total order amount must be calculated.
Flow of Events:

1. The farmer selects a payment method (Credit Card, UPI, Net Banking, etc.).
2. The system sends payment details to the Payment System.
3. The Payment System verifies and approves the transaction.
4. The system updates the order status to "Paid."
5. A confirmation message is sent to the farmer.
Postconditions:
 Payment is successfully processed.
 The order is updated in the system.

**3. Use Case: Track Order**

Actors: Farmer
Description: Allows farmers to track the status of their orders.
Preconditions: The order must be placed successfully.
Flow of Events:

1. The farmer logs into the system.
2. The farmer navigates to the Order History page.
3. The system displays the list of orders with their status.
4. The farmer selects an order to view its detailed status.
5. The system retrieves real-time delivery status (includes Manage Delivery use case).
6. The system displays the estimated delivery date and current location.
Postconditions:
 The farmer successfully views the order status.

**4. Use Case: Add Product Details**

Actors: Manufacturer
Description: Allows manufacturers to add new agricultural products to the system.
Preconditions: The manufacturer must be logged into the system.
 The manufacturer must have permission to add products.
Flow of Events:

1. The manufacturer selects Add Product from the dashboard.
2. The system prompts for product details (name, category, price, stock, images).
3. The manufacturer fills in the details and submits the form.
4. The system validates the input and saves the product in the database.
5. The system confirms that the product has been added successfully.
Postconditions:
The product is available for farmers to browse and purchase.

**5. Use Case: Manage Delivery**

Actors: Delivery Team
Description: Allows the delivery team to manage and update the status of product deliveries.
Preconditions: Orders must be placed and assigned for delivery.
Flow of Events:

1. The system assigns an order to the delivery team.
2. The delivery team views order details (address, items, estimated delivery time).
3. The team updates the status at each stage (Dispatched, Out for Delivery, Delivered).
4. The system updates the farmer’s tracking page accordingly.
5. Once delivered, the system marks the order as Completed.
Postconditions:
 The order is marked as Delivered in the system.
 The farmer receives a notification about the successful delivery.

**Question : 12 Activity diagram**

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