**Q.1. 4 Quarterly Audit Plan for this project**

**Answer -**

|  |  |
| --- | --- |
|  | Requirement Gathering phase 15 weeks (week 1 to 15) |
| Stages |  |
| Completed | 10 weeks |
| Check list | BRD Documents |
|  | Elicitation results reports |
|  | Duplicate Requirement Check |
|  | Grouping of functionality / Feature Sign off |
|  | Email Communication |

|  |  |
| --- | --- |
|  | Requirement Analysis phase 13 weeks (week 16 to 29) |
| Stages |  |
| Completed | 7 weeks |
| Check list | UML Diagrams |
|  | Business to Functional Requirement mapping |
|  | Client Signoff - Documents |
|  | RTM Documents version control |
|  | Email Communication |

|  |  |
| --- | --- |
|  | Requirement Analysis phase 10 weeks (week 30 to 40) |
| Stages |  |
| Completed | 7 weeks |
| Check list | Utilization of Tools |
|  | Documented Evidence on client communication |
|  | Stakeholder MOM |
|  | Email Communication |

|  |  |
| --- | --- |
|  | Development 30 weeks (week 40 to 70) |
| Stages |  |
| Completed | 20 weeks |
| Check list | JAD Session Report |
|  | End User preparation document |
|  | BA and developer MOM |
|  | Email Communication |

|  |  |
| --- | --- |
|  | Testing 20 weeks (week 58 to 78) |
| Stages |  |
| Completed | 20 weeks (week 58 to Week 78) |
| Check list | Test Case Summary |
|  | Training report to end users |
|  | Lessons Learnt Document |
|  | Email Communication to CC BCC |

**Q.2. BA Approach Strategy**

**Answer -**

**Steps to Complete the Project:**

1. **Project Planning and Initiation:**
   * Conduct a kick-off meeting to define project scope, objectives, and deliverables.
   * Identify key stakeholders and form the project team.
2. **Requirement Elicitation Techniques to Apply:**
   * **Interviews:** Conduct one-on-one interviews with key stakeholders like Mr. Henry, Peter, Kevin, Ben, and farmers to gather detailed requirements.
   * **Surveys/Questionnaires:** Distribute surveys to a broader group of farmers and manufacturers to gather additional insights.
   * **Workshops:** Organize workshops to facilitate discussions and refine requirements with stakeholders and the project team.
   * **Focus Groups:** Conduct focus groups with farmers to understand their needs and challenges.
   * **Document Analysis:** Review existing documents related to agricultural practices and product procurement.
3. **Stakeholder Analysis:**
   * Identify all stakeholders and classify them based on their influence and interest in the project.
   * Create a Stakeholder Matrix to map their impact on the project.
   * Develop a communication plan to keep stakeholders informed and engaged.
   * **RACI Matrix:**
   * Define the roles and responsibilities using the RACI (Responsible, Accountable, Consulted, Informed) matrix for key activities. (Refer to the previous RACI matrix provided).
4. **Documents to Write:**
   * **Business Requirements Document (BRD):** Capture all business requirements and stakeholder needs.
   * **Functional Requirements Document (FRD):** Detail the specific functionalities the system should have.
   * **Technical Specifications Document:** Outline the technical aspects, including system architecture and design.
   * **Use Case Diagrams and Descriptions:** Document how users will interact with the system.
   * **User Stories:** Create user stories to capture specific requirements from the user’s perspective.
   * **Test Plan and Test Cases:** Develop a plan for testing the system and detailed test cases.
5. **Process to Sign Off on the Documents:**
   * Review each document with relevant stakeholders to ensure accuracy and completeness.
   * Conduct formal review meetings to gather feedback and make necessary revisions.
   * Obtain written approval/sign-off from key stakeholders and project sponsors.
6. **Taking Approvals from the Client:**
   * Schedule regular meetings with the client (Mr. Henry and committee members) to present the progress and documents.
   * Address any concerns or changes requested by the client promptly.
   * Obtain formal written approval for each phase of the project.
7. **Communication Channels to Establish and Implement:**
   * **Email:** For formal communications and document sharing.
   * **Project Management Software :** For tracking tasks and progress.
   * **Video Conferencing :** For virtual meetings and discussions.
   * **Instant Messaging :** For quick and informal communications.
   * **Weekly Status Reports:** Share progress updates with all stakeholders.
8. **Handling Change Requests:**
   * Implement a structured change management process.
   * Evaluate the impact of each change request on scope, timeline, and budget.
   * Document the change request and obtain approval from the project sponsor before implementation.
   * Update project documents and communicate changes to all stakeholders.
9. **Updating Progress to Stakeholders:**
   * Provide regular updates through weekly status reports.
   * Conduct bi-weekly or monthly review meetings to present progress and discuss any issues.
   * Maintain a project dashboard for real-time tracking of progress and key metrics.
10. **Taking Sign-Off on the UAT - Client Project Acceptance Form:**
    * Conduct User Acceptance Testing (UAT) sessions with the client and end-users.
    * Document any issues or bugs identified during UAT and resolve them promptly.
    * Once UAT is completed successfully, present the Client Project Acceptance Form for sign-off.
    * Obtain formal written approval from the client, indicating their acceptance of the final deliverable.

**Q.3. 3 Tier Architecture**

**Answer -**

A 3-tier architecture is a well-established software design pattern that separates the application into three distinct layers, each with its own responsibilities. This separation promotes modularity, maintainability, and scalability of the application. Let's illustrate the 3-tier architecture with reference to the Online Agriculture Products Store case study.

**1. Presentation Layer:**

* **Description**: This is the topmost layer and serves as the user interface. It is responsible for interacting with the end-users (farmers and manufacturers) and presenting the data in a user-friendly format.
* **Components**:
  + Web Application Interface: Web pages accessible via browsers.
  + Mobile Application Interface: Mobile app screens accessible on smartphones and tablets.
* **Technologies**: HTML, CSS, JavaScript, React, Angular, Flutter (for mobile apps).

**2. Application Layer (Business Logic Layer):**

* **Description**: This middle layer contains the core functionality of the application. It processes user inputs, makes logical decisions, and performs business operations.
* **Components**:
  + Authentication and Authorization: Manages user login and permissions.
  + Product Management: Handles product listings, updates, and deletions.
  + Order Management: Manages order placement, tracking, and status updates.
  + Payment Processing: Handles secure payment transactions.
* **Technologies**: Java, Spring Boot, Node.js, .NET, Python, Ruby on Rails.

**3. Data Layer:**

* **Description**: This bottom layer is responsible for data storage and management. It interacts with the database to retrieve, store, and update data as required by the application layer.
* **Components**:
  + Database: Stores user information, product details, orders, and transaction records.
  + Data Access Objects (DAOs): Interfaces for accessing and manipulating the database.
* **Technologies**: MySQL, PostgreSQL, MongoDB, Oracle, SQL Server.

**Illustrative Example for Online Agriculture Products Store:**

**1. Presentation Layer:**

* Farmers access the web/mobile application to browse products.
* Manufacturers log in to add new products or update existing ones.
* The user interface displays product listings, shopping cart, and order history.

**2. Application Layer:**

* When a farmer selects a product to purchase, the application layer validates the user session.
* The business logic processes the order, calculates the total cost, and initiates the payment process.
* Upon successful payment, the order management module updates the order status and sends notifications to the farmer and manufacturer.

**3. Data Layer:**

* The data layer retrieves product information from the database to display on the user interface.
* It stores new orders, payment transactions, and user feedback.
* The database maintains records of all user interactions, product details, and order statuses.

**Q.4. BA Approach Strategy For Framing Question**

**Answer -**

As a Business Analyst, using the 5W1H (Who, What, When, Where, Why, How) technique along with the SMART (Specific, Measurable, Achievable, Relevant, Time-bound) criteria can help frame comprehensive and effective questions. These techniques ensure that the questions cover all essential aspects and lead to clear, actionable, and achievable requirements. Below are the questions framed using these techniques, followed by their justifications.

**5W1H Questions:**

1. **Who** are the primary users of the Online Agriculture Products Store?
   * **Justification**: Identifies the target audience, ensuring that the system meets the needs of farmers and manufacturers.
2. **What** specific features and functionalities do you expect from the online platform?
   * **Justification**: Clarifies the system's requirements and ensures all desired functionalities are documented.
3. **When** do you expect the platform to be fully operational and start delivering value to users?
   * **Justification**: Helps in setting realistic project timelines and understanding stakeholder expectations for delivery.
4. **Where** will the platform be primarily used, and do you anticipate any regional challenges?
   * **Justification**: Identifies geographical constraints and ensures the platform is tailored to the target regions' needs.
5. **Why** do you believe an online platform is the best solution for the challenges faced by farmers?
   * **Justification**: Understands the underlying reasons for the project, ensuring alignment with the strategic goals.
6. **How** will the success of the Online Agriculture Products Store be measured?
   * **Justification**: Establishes clear criteria for success and ensures measurable outcomes.

**SMART Questions:**

1. **Specific**: What specific products (fertilizers, seeds, pesticides) should be available on the platform, and what are their necessary attributes?
   * **Justification**: Ensures detailed requirements for each product type, helping in accurate product listing and categorization.
2. **Measurable**: How many users (farmers and manufacturers) do we aim to onboard within the first six months?
   * **Justification**: Sets a quantifiable target for user acquisition, helping measure platform adoption and growth.
3. **Achievable**: What resources and support are necessary to achieve the project goals within the 18-month timeline?
   * **Justification**: Assesses the feasibility of project goals and ensures adequate resource allocation.
4. **Relevant**: How does this platform align with the broader goals of improving agricultural productivity and supporting rural development?
   * **Justification**: Ensures the project stays aligned with the strategic objectives and delivers relevant benefits.
5. **Time-bound**: What are the key milestones and deadlines for each phase of the project, including requirement gathering, development, and testing?
   * **Justification**: Establishes a clear timeline, ensuring the project stays on track and meets its deadlines.

**Examples of Applying These Questions:**

1. **Who** are the primary users of the Online Agriculture Products Store?
   * **Stakeholder (Peter, Kevin, Ben)**: "Our primary users are the farmers in our village and surrounding areas who need better access to agricultural products."
2. **What specific features and functionalities do you expect from the online platform?**
   * **Stakeholder (Mr. Henry)**: "We need a user-friendly interface, secure payment options, product search functionality, and real-time order tracking."
3. **When do you expect the platform to be fully operational and start delivering value to users?**
   * **Stakeholder (Mr. Dooku)**: "We aim to have the platform operational within the next 18 months, with key functionalities ready by the first year."

By framing questions using the 5W1H and SMART techniques, we can gather comprehensive and actionable requirements that are clear, measurable, and aligned with the project goals. These techniques help ensure that all aspects of the project are considered, leading to better planning and execution

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**Q.5. Elicitation Techniques**

**Answer -**

1. Brainstorming: A group technique used to generate ideas and gather input from stakeholders. It encourages open and creative thinking to explore potential solutions or identify requirements

.2. Document Analysis: Reviewing existing documentation, such as business plans, process flows, and user manuals, to extract relevant information and identify gaps or areas for improvement.

3. Requirements Workshops: Conducting facilitated sessions with stakeholders together requirements, clarify doubts, resolve conflicts, and ensure collaboration among participants

.4. Interviews: One-on-one or group discussions with stakeholders to gather detailed information, understand their perspectives, and uncover specific requirements.

5. Focus Groups: Gathering a selected group of stakeholders to discuss specific topics or areas of interest. The group dynamics encourage interaction and exchange of ideas, providing valuable insight

6. Observation: Actively observing stakeholders' work environment, processes, and activities to gain a deeper understanding of their needs, challenges, and workflows.

7. Prototyping: Creating a visual representation or interactive model of the proposed solution to gather feedback, validate requirements, and facilitate stakeholder understanding.

8. Questionnaires and Surveys: Distributing structured questionnaires or surveys to stakeholders to gather quantitative or qualitative data and opinions on specific topics or requirements

.9. User Stories: Capturing requirements from the user's perspective in a concise narrative format, focusing on the user's goals, actions, and expected outcomes.

10.Prototyping: Creating a visual representation or interactive model of the proposed solution to gather feedback, validate requirements, and facilitate stakeholder understanding.

11.Use Cases: Describing interactions between actors (users) and the system to illustrate how the system should behave and what actions it should support

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

**Answer -**

Justification of the selection of these elicitation techniques:

● Prototyping: Prototyping enables visualization, feedback, and refinement of the user interface and functionalities, ensuring a user-friendly application

.● Use Case Specs: Use case specifications help in capturing the specific interactions and functionalities required for the online store, facilitating effective communication and transactions between farmers and manufacturers.

● Document Analysis: Document analysis assists in understanding the existing challenges faced by farmers and extracting requirements from the given scenario and any available documentation related to agriculture and farming practices

.● Brainstorming: Brainstorming encourages active participation from stakeholders and facilitates the generation of diverse ideas and requirements, ensuring comprehensive coverage of the stakeholders' needs

**Q,7. 10 Business Requirements**  
  
**Answer -  
  
Identified Business Requirements for the Online Agriculture Products Store**

**BR001 – Farmers should be able to search for available products in fertilizers, seeds, and pesticides.**

* **Justification**: Ensures that farmers can efficiently find the products they need using the search functionality.
* **Stakeholder Input**: Kevin emphasized the need for a search option for farmers to locate specific products easily.

**BR002 – Manufacturers should be able to upload and display their products.**

* **Justification**: Allows manufacturers to list their products, making them available for purchase by farmers.
* **Stakeholder Input**: Mr. Henry mentioned the necessity of a product catalog where manufacturers can display their products.

**BR003 – User Login and Registration for all users (Farmers and Manufacturers).**

* **Justification**: Enables secure access to the platform for all users.
* **Stakeholder Input**: Mr. Henry stressed the importance of having a login system for all users, while Peter specified the need for a login requirement before buying or adding products to a buy-later list.

**BR004 – Product Catalog for fertilizers, seeds, and pesticides.**

* **Justification**: Provides a structured and comprehensive listing of all available products.
* **Stakeholder Input**: Mr. Henry indicated the need for a detailed product catalog.

**BR005 – Easy-to-use payment gateway including COD, Credit/Debit card, and UPI options.**

* **Justification**: Enhances user experience by providing multiple payment options.
* **Stakeholder Input**: Ben highlighted the necessity for an easy-to-use payment gateway with multiple payment options.

**BR006 – Order confirmation email upon successful purchase.**

* **Justification**: Keeps users informed about their order status.
* **Stakeholder Input**: Kevin mentioned that users should receive an email confirmation regarding their order status.

**BR007 – Delivery tracking for users to track the whereabouts of their orders.**

* **Justification**: Provides real-time updates on the delivery status, improving transparency and user satisfaction.
* **Stakeholder Input**: Kevin suggested the inclusion of a delivery tracker for users to monitor their orders.

**BR008 – Farmers should be able to create and manage a buy-later list.**

* **Justification**: Allows farmers to save products for future purchases, improving user convenience.
* **Stakeholder Input**: Peter mentioned that farmers should be able to add products to a buy-later list after logging in.

**BR009 – User-friendly interface for browsing products.**

* **Justification**: Ensures that the platform is easy to navigate, even for users with limited technical skills.
* **Stakeholder Input**: Kevin emphasized the importance of an intuitive interface for browsing products.

**BR010 – Secure data storage and privacy protection.**

* **Justification**: Protects user data and ensures compliance with data protection regulations.
* **Stakeholder Input**: All stakeholders expressed the need for secure data storage and privacy protection.

These business requirements, derived from stakeholder input, will guide the development and ensure that the Online Agriculture Products Store meets the needs and expectations of its users.

These business requirements, derived from stakeholder input, will guide the development and ensure that the Online Agriculture Products Store meets the needs and expectations of its users.

**Q.8. – Assumption**  
  
**Answer –**

1. **Social Media Login Integration:**
   * **Assumption:** Users (farmers and manufacturers) can log in or register using their Google or Facebook accounts.
   * **Justification:** This assumption ensures ease of access and reduces the barrier to entry by allowing users to use existing credentials.
2. **Internet Accessibility:**
   * **Assumption:** Farmers and manufacturers have reliable access to the internet, either through mobile data or broadband connections.
   * **Justification:** The success of the online platform relies on consistent internet access for browsing products, placing orders, and tracking deliveries.
3. **Basic Digital Literacy:**
   * **Assumption:** Users possess basic digital literacy skills, including the ability to navigate a website or mobile app and perform online transactions.
   * **Justification:** Ensures users can effectively interact with the platform without requiring extensive training.
4. **Mobile Compatibility:**
   * **Assumption:** The platform is fully compatible with mobile devices, including smartphones and tablets.
   * **Justification:** Many farmers and manufacturers may primarily use mobile devices to access the platform, making mobile compatibility crucial for user adoption.
5. **Support Availability:**
   * **Assumption:** There is a dedicated customer support team available to assist users with any issues or queries they may encounter.
   * **Justification:** Ensures users receive prompt assistance, improving their overall experience and satisfaction with the platform.

These assumptions help set the context for the project and establish a foundation for the development and implementation of the Online Agriculture Products Store. If any of these assumptions prove to be incorrect, it may impact the project's approach and require adjustments.

**Q.9. – This project Requirements Priority**   
  
**Answer –**

|  |  |  |  |
| --- | --- | --- | --- |
| **Request ID** | **Request Name** | **Request Description** | **Priority** |
| BR001 | Farmers should be able to search for available products | Ensures that farmers can efficiently find the products they need using the search functionality | 6 |
| BR002 | Manufacturers should be able to upload and display their products | Allows manufacturers to list their products, making them available for purchase by farmers | 6 |
| BR003 | User Login and Registration for all users | Enables secure access to the platform for all users | 8 |
| BR004 | Product Catalog for fertilizers, seeds, and pesticides | Provides a structured and comprehensive listing of all available products | 5 |
| BR005 | Easy-to-use payment gateway | Enhances user experience by providing multiple payment options (COD, Credit/Debit card, UPI) | 5 |
| BR006 | Order confirmation email upon successful purchase | Keeps users informed about their order status | 3 |
| BR007 | Delivery tracking for users | Provides real-time updates on the delivery status, improving transparency and user satisfaction | 1 |
| BR008 | Farmers should be able to create and manage a buy-later list | Allows farmers to save products for future purchases, improving user convenience | 2 |
| BR009 | User-friendly interface for browsing products | Ensures that the platform is easy to navigate, even for users with limited technical skills | 1 |
| BR010 | Secure data storage and privacy protection | Protects user data and ensures compliance with data protection regulations | 1 |

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**Q.10 Use case diagram**

**Answer -**

A screenshot of a diagram

Description automatically generated

**Q.11. .Prepare use case specs for all use cases**

**Answer –**

**Description**: The farmer can browse the catalog of fertilizers, seeds, and pesticides.

**Actors**: Farmer

● Preconditions:

● Farmer is logged in.

● Post conditions:

● The products catalog is displayed.

**Use Case: Search Products**

**Description: The farmer can search for specific products within the catalog.**

● Actors: Farmer

● Preconditions:

● Farmer is logged in.

● The products catalog is displayed

.● Post conditions:

● Search results matching the entered query are displayed.

**Use Case: User Login**

**Description: The farmer or manufacturer can log in to their account.**

● Actors: Farmer, Manufacturer

● Preconditions:

● None●

 Post conditions:

● User is authenticated and logged in.

**Use Case: User Registration**

**Description: A new farmer or manufacturer can create a new account.**

● Actors: Farmer, Manufacturer

● Preconditions:

● None

● Post conditions:

● New user account is created.

**Use Case: Add to Buy-Later List**

**Description: The farmer can add products to a buy-later list for future purchase.**

● Actors: Farmer

● Preconditions:

● Farmer is logged in.

● The products catalog is displayed.

● Post conditions:

● Selected products are added to the buy-later list

**.Use Case: Make Purchase**

**Description: The farmer can make a purchase of selected products.**

● Actors: Farmer

 ● Preconditions:

● Farmer is logged in.

● The products catalog is displayed.

● Post conditions:

● Purchase transaction is completed.

**Use Case: Payment Process**

**Description: The farmer can choose and complete the payment for the purchase.**

● Actors: Farmer

● Preconditions:

● Farmer has selected products for purchase.

● Post conditions:

● Payment is processed and confirmed.

**Use Case: Order Confirmation**

**Description: The system sends an email confirmation to the farmer regarding the order status.**

● Actors: System

● Preconditions:

● Purchase transaction is completed.

● Post conditions:

● Email confirmation is sent.

**Use Case: Delivery Tracking**

**Description: The farmer can track the delivery status of their order.**

● Actors: Farmer

● Preconditions:

● Farmer has made a purchase and received order confirmation.

● Post conditions:

● Delivery status is displayed.

These use case specifications provide a more detailed understanding of each use case’s purpose, actors involved, preconditions, and post conditions. They serve as foundation for further analysis, design, and development of the online agriculture products store.

**Q 12 Activity Diagram**

**Answer –**

A diagram of a product

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