1. **4 Quarterly audits are planned Q1, Q2, Q3, Q4, Q5 for this project. What is your knowledge on how these audits will happen for a BA?**

|  |  |
| --- | --- |
| **Stage** | **Requirement Gathering Phase** |
| **Status** | Completed |
| **Checklist** | BRD Template |
|  | Elicitation results report |
|  | Duplicate requirements report |
|  | Grouping of functionalities/features - Client sign off |

|  |  |
| --- | --- |
| **Stage** | **Requirement Analysis Phase** |
| **Status** | Completed |
| **Checklist** | UML Diagrams |
|  | Business to Functional Requirements Mapping |
|  | Client signoff |
|  | RTM Document Version Control |

|  |  |
| --- | --- |
| **Stage** | **Design Phase** |
| **Status** | Completed |
| **Checklist** | Utilization of Tools |
|  | Documented evidence on client communication |
|  | Stakeholder MOM |

|  |  |
| --- | --- |
| **Stage** | **Development Phase** |
| **Status** | Completed |
| **Checklist** | Creating detailed checklist of requirements |
|  | Creating timeline and task with list of deliverables and deadlines |
|  | Meeting with Project Development Team |

|  |  |
| --- | --- |
| **Stage** | **Testing Phase** |
| **Status** | Completed |
| **Checklist** | Meeting with testers to check on possible outcome |
|  | Discussion with QA team on the details such as automation code, where to store the automation code and who will need access to it, who's running the tests, and writing test cases |
|  | Meeting with QA Team to identify where the tests will run |

1. **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)

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

**Answer –**

**What elicitation technique to apply** – As a BA, I would apply various elicitation techniques such as interviews, workshops, surveys and observations to gather requirements from stakeholders. This will help in understanding their needs, problems and expectations related to the online agricultural product store.

**Stakeholder Analysis RACI/ILS** –

**What documents to write** –

* Scope
* In-scope features/services
* Out-scope features/services
* Solution Architecture Diagram
* Technology Specifications
* FRD – Functional and non-functional
* BRD
* Project timeline
* Risks and mitigation plan
* Change management
* Standard terms and conditions

**Process to follow to sign off on the documents** –

Project sign off is typically executed during the contract closure phase – the company presents the results of the work done to the client and then, after getting the necessary acceptance from them, should get a client statement to verify that the job was completed.

* Name of the project
* All relevant dates
* Key roles in the project
* Project deliverables

**How to take approvals from the client?**

Establish a formal process to obtain approvals from client at different stages of the project. This may include conducting review meetings, walkthroughs and obtaining written acceptance on deliverables.

**What communication channels to establish and implement** –

* Face to face communication/ In person meeting
* Video conferencing
* Phone calls
* Emails
* Text messages
* Online messaging platforms

**How to handle change requests?**

To handle change requests, develop a process to manage change requests.

This includes –

* Documenting change requests
* Assessing their impact on project
* Scope, timeline and budget
* Obtaining appropriate approvals before implementing changes

**How to update the progress of the project to the Stakeholders?**

Provide regular progress updates to stakeholders, including the project manager, technical team and committee members. This can be done through status reports, dashboards and meetings to ensure transparency and keep stakeholders informed.

**How to take signoff on the UAT- Client Project Acceptance Form**

User Acceptance Testing (UAT) is a type of testing performed by the end of the end user or the client to verify/accept the software system before moving the software application to the production environment.

UAT is done in the final phase of testing after functional, integration and system testing are done. Deliverables for UAT testing are Test Plan, UAT Scenarios and Test Cases, Test Results and Defect Log.

Once execution is over, and as many defects as possible are resolved, it is time to sign off on UAT and go live. The sign-off approval indicates that the change meets business requirements and is ready for deployment.

Business Analysts or UAT Testers needs to send a sign off mail after the UAT testing. After signoff, the product is good to go for production.

1. **3-Tier Architecture**

**Explain and illustrate 3-tier architecture.**

**Answer –**

3-tier architecture, also known as multi-tier architecture, is a software design pattern that divides an application into three interconnected layers: presentation layer, business logic layer and data storage layer. This architecture separated the concerns of user interface, business processing, and data management, allowing for scalability, modularity, and maintainability of the application.

1. **Presentation Layer** –

The presentation layer is the topmost layer of the architecture and focuses on user interaction. It handles the user interface, user input and presentation logic. This layer is responsible for displaying information to the user and capturing user actions. It typically consists of web pages, user interfaces, forms and client-side scripts. The presentation layer communicates with the business logic layer to retrieve or submit data for processing.

1. **Business Logic Layer** –

The business logic layer (also known as the application layer or middle tier) contains the core functionality and business rules of the application. It encapsulates the logic and operations necessary to process data and perform specific business functions. This layer orchestrates the flow of data between the presentation layer and the data storage layer. It validates and manipulates data, perform calculations, enforces business rules and executes complex operations. The business logic layer is often implemented using programming languages such as Java, C#, or Python.

1. **Data Storage Layer** –

The data storage layer, also referred to as the data access layer of persistence layer, is responsible for managing data storage and retrieval. It deals with the persistence and retrieval of data from databases or other data sources. This layer interacts with the underlying data storage systems, such as relational databases, NoSQL databases, or file systems, to store and retrieve data. It handles tasks like data access, data manipulation, data querying and data integrity. The data storage layer provides an abstraction for the business logic layer to interact with the data without having to deal with the underlying storage details directly.

1. **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)

**Answer** –

* **5W 1H** –
* **What** – What element should clearly describe the situation, the specific problem, or basically explain the purpose of the method usage. If possible, it should also state the overall goal for implementing the solution that would be identified.
* **Who** – Who refers to the specific people or group relevant to the issue or the situation. It should include the person who discovered the problem, who can possibly solve it, and who will be responsible for implementing the possible solution.
* **Where** – Where element should contain the exact location or position of the recognized issue. It can be a place, facility or even a certain process where the solution is to be implemented.
* **When** – When should include all the components of the situation pertaining to anything related to dates. It should state the timeline, deadline, duration or any other details that could help in the resolution of the problem.
* **Why** – Asking why entails clarifying why the issue, problem or situation at hand occurred. It aims to identify the triggers and rationalizes the occurrence of an issue or a problem. It explains in detail the reason and objectives behind the need for action or why there’s a need to do the 5W1H method in the first place. The last W is also often asked five times to discover the root cause of the situation and to prevent it from recurring.
* **How** – How, as the last element of the method, species the steps on how the identified plans should be carried out. It should also include all the resources, tools, methods, means and even the expenditure needed for the endeavours to be effective.

To summarise, asking these questions enables those who will use the 5W1H method to get to the bottom of things by systematically structuring thoughts and emphasizing important information. Consequently, this can help recognize potential issues and possible solutions related to the scenario.

* **SMART – Specific, Measurable, Attainable, Relevant and Time – Bound**
  + Specific – A strategy to set s specific goal
  + Measurable – Measuring the process or procedure of attaining a goal at each phase
  + Attainable or Achievable – Concept of deciding whether a goal is achievable or not
  + Relevant – Relevant to the other same business goals
  + Time – Bound – To set a specific period to achieve the target goal
* **RACI –**

Stakeholders analysis can be done by RACI Matrix

R- Responsible

1. Accountable

C- Consulted

I- Informed

In this project, the stakeholders and their roles as below –

1. Mr. Henry – Accountable – He has been owner of this project by initiating it. He is accountable for its success till the end
2. Mr. Pandu – Accountable – As financial head, he is accountable for project finance
3. Mr. Dooku – Consulted – He is Project Coordinator. He provides good coordination with everybody in the project
4. Peter, Kevin & Ben – Consulted – Consulted for requirement gathering and other information as stakeholders
5. APT IT Solutions – Responsible – Responsible for project delivery
6. Mr. Karthik – Responsible – Responsible for project delivery
7. Mr. Vandanam – Responsible – Responsible for managing the project and its successful completion
8. Juhi, Teyson, Lucie, Tucker, Bravo – Responsible – Responsible for the development of the project
9. Mr. Mike – Responsible – Responsible for network infrastructure required for the project
10. Mr. John – Responsible – Responsible for database management of the project
11. Mr. Jason and Ms. Alekya – Responsible – Responsible for testing of the final project as running well without any bug or error

* **3 Tier Architecture**
  + Use Case Specs

Use Case Description: A user login to system to access the functionality of the system

Actors: Hanery, PM, all the stakeholders

Pre-condition: System must be connected to the network

Post-condition: After a successful login a notification mail is sent to the User mail id

|  |  |
| --- | --- |
| **Actors** | User |
| **Requirement Definition** | User will be able to browse through the website |
| **Pre-Condition** | User has successfully logged in to the app |
| **Post-Condition** | User will be able to browse through the website |
| **Business Rules/Logic** | User will be able to register/login to the application. If user has not enabled Two Factor Authenticator, after login user will get 'Secure your Account' popup window. On the click on 'Enable Two Factor Authentication', user will be able to set 2FA for his account & redirected on 'Secure you Account' page. Condition - User will be able to skip Two Factor Authentication by clicking on 'skip, I'll do this later'. On the click on 'Skip, I'll do this later', popup will be disabled for a week. If user has not enabled 2 factor authentication in a week's time, popup will appear on dashboard aftre login. |

1. **Elicitation Techniques**

**As a BA, what elicitation techniques are you aware of?**

**Answer –**

* **Document Analysis** – Reviewing existing documentation, such as business plans, process flow, and user manuals, to extract relevant information and identify gaps or areas for improvement.
* **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 insights.
* **Observation** – Actively observing stakeholders’ work environment, processes and activities to gain a deeper understanding of their needs, challenges and workflows.
* **Workshops** – Conducting facilitated sessions with stakeholders to gather requirements, clarify doubts, resolve conflicts and ensure collaboration among participants.
* **Interview** – One-on-one or group discussions with stakeholders to gather detailed information, understand their perspectives and uncover specific requirements.
* **Prototyping** – Creating a visual representation or interactive model of the proposed solution to gather feedback, validate requirements and facilitate stakeholder understanding.
* **Survey/Questionnaire** – Distributing structured questionnaires or surveys to stakeholders to gather quantitative or qualitative data and opinions on specific topics or requirements.
* **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.
* **Use Case specs** – Describing interactions between actors (users) and the system to illustrate how the system should behave and what actions it should support.

1. **This project elicitation techniques**

**Which Elicitation Techniques can be used in this project and justify your selection of elicitation techniques?**

**Prototyping, Use case Specs, Document Analysis, Brainstorming**

**Answer –**

Based on the given project scenarios, the following elicitation techniques can be used:

Prototyping: Prototyping can be utilized to gather feedback and validate the requirements for the online agriculture product store. As the application needs to be user friendly, creating a prototype can help visualize the user interface and functionalities. It allows stakeholders, including Mr. Henry’s friends and other potential users, to provide feedback on the proposed solution and make necessary refinement before development.

Use Case Specs: Use case specifications can be employed to capture the interactions and sequences of actions between the various actors (farmers, actors and the online store) and the system being developed. By documenting use cases, the project team can identify the specific functionalities and requirements needed to facilitate the communication and transactions between farmers and manufacturers. Use case specs provide a structured approach to elicit, validate and prioritize the requirements for the online store.

Document Analysis: Document analysis can be useful to understand the existing challenges faced by farmers and the requirements expressed by Mr. Henry’s friends. Analysing any available documentation such as reports on agricultural issues, farming practices or market research, can provide insights into the specific problems related to procuring fertilizers, seeds and pesticides. It helps in identifying the key pain points and requirements that the online store needs to address.

Brainstorming: Brainstorming sessions can be conducted with the stakeholders, including Mr. Henry, Peter, Kevin and Ben, to gather their perspectives and insights. The session can focus on discussing the challenges faced by farmer, potential features and functionalities of the online store, and any additional requirements that may arise during the discussion. Brainstorming encourages collaboration and creativity, allowing for the exploration of innovative solutions and capturing comprehensive requirements.

Justification for the selection of these elicitation techniques:

* Prototyping: Prototyping enables visualization, feedback and refinement of the 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.

By using these elicitation techniques, we can gather a range of requirements, validate them through feedback and discussions and ensure that the online agriculture product store addresses the needs of the farmers effectively.

1. **10 Business Requirements**

**Answer –**

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

BR002 – Manufacturers should be able to upload and display their products in the application.

BR003 – All users (fertilizers, seeds, pesticides manufacturers and farmers) should be able to login.

BR004 – Online web/ mobile application should display product catalogue of fertilizers, seeds, pesticides and a search option to search for products.

BR005 – Farmer should be able to browse through the products catalogue once they visit the website.

BR006 – Farmers need to login first using their email id and password to make any purchase or add to buy list.

BR007 – Farmers should be able to buy product or add them to buy-later list.

BR008 – A fresh user should be able to create a new account by submitting their email id and creating a secure password.

BR009 – Farmers need to have an easy-to-use payment gateway which should include cash-on-delivery (COD), Card, UPI and Net Banking options.

BR010 – Users must get an email confirmation regarding their order status and a delivery tracker to track the whereabouts of their order.

1. **Assumptions**

**List your assumptions**

**Answers –**

**Assumption 1**: Users can login using Facebook, Google Yahoo account.

**Assumption 2**: Users should have basic technical knowledge to browse websites or make purchase.

**Assumption 3**: Due to boom in online shopping trend, customers will prefer online shopping.

**Assumption 4**: Users should have knowledge on agricultural products, its usage and longevity.

**Assumption 5**: Users should have online accounts for secured payment processing.

1. **This project requirements priority**

**Based on the discussions with the stakeholders, the priority levels for the requirements can be assigned as follows**:

|  |  |  |  |
| --- | --- | --- | --- |
| **Req ID** | **Requirement Name** | **Requirement Description** | **Priority** |
| 1 | User Login System | Users (manufacturers and farmers) should be able to login to access different functionalities. | 3 |
| 2 | Product Catalog | A catalog of fertilizers, seeds, pesticides should be available with detailed information, including pricing and manufacturer details. | 5 |
| 3 | Product Search | Users should be able to search for specific products within the catalog. | 6 |
| 4 | User Registration | Farmers should be able to create an account using their email ID and password. New users can create a new account with email id and password. | 4 |
| 5 | Purchase and Add to Buy-Later List | Farmers should be able to buy products or add them to a buy-later list logging in. | 7 |
| 6 | Payment Gateway | The payment gateway should support multiple options, including COD, credit/debit card and UPI. | 8 |
| 7 | Order Confirmation Email | Users should receive email confirmation regarding their order status. | 9 |
| 8 | Delivery Tracker | A delivery tracker should be available for users to track the progress and location of their orders. | 10 |
| 9 | Web and Mobile Accessibility | The online store should operate as both a web and mobile application for user accessibility. | 1 |
| 10 | CSR Initiative Duration | The project duration should be 18 months as part of the CSR initiative. | 2 |

Please note that the priority levels may vary based on the specific needs and discussions with stakeholders. These priorities provide a general guideline for understanding the relative importance of each requirement. As a business analyst, we should play a crucial role in refining and documenting these requirements and converting them into UML diagrams and screen mock-ups for effective communication with the project team.

1. **Use case diagram – Draw use case diagram**



1. **Use case specs – Prepare use case specs for all use cases**

**Answer –**

Detailed specifications for each of the use cases identified in the use case diagram:

* **Use Case: Browse Products Catalogue**
  + Description: The farmer can browse the catalogue of fertilizers, seeds and pesticides.
  + Actors: Farmer
  + Preconditions: Farmer is logged in
  + Postconditions: The product catalogue is displayed
  + Basic Flow: There has to be category wise list of products mentioned on top side of the webpage dashboard and user can just click it and choose the product they need
  + Alternative Flow: The list of categories may also be mentioned on left hand side tab vertically
  + Exception Flow: Farmer is unable to find the right product as per the season
* **Use Case: Search Products**
  + Description: The farmer can search for specific products within the catalogue.
  + Actors: Farmer
  + Preconditions: Farmer is logged in, the product catalogue is displayed
  + Postconditions: Search results matching the entered query are displayed
  + Basic Flow: the farmer can select the category of product and then find the product that they need
  + Alternative Flow: the farmer can click on search option and type the product that they need
  + Exception Flow: None
* **Use Case: User Login**
  + Description: The farmer or manufacturer can log in to their account.
  + Actors: Farmer, Manufacturer
  + Preconditions: None
  + Postconditions: User is authenticated and logged in
  + Basic Flow: User provides his used id and password to login into his account.
  + Alternative Flow: In case of a new user, user has to provide a new email id to register and then create an account by generating their own password.
  + Exception Flow: Password doesn’t match. Wrong User id or password. No more retries left and account gets locked.
* **Use Case: User Registration**
  + Description: A new farmer or manufacturer can create a new account.
  + Actors: Farmer, Manufacturer
  + Preconditions: None
  + Postconditions: New user account is created
  + Basic Flow: A new user can create a fresh account by using his email id and generating his own password
  + Alternative Flow: Search and buy products as a guest, without creating an account, and by just providing email id, delivery address and making payment
  + Exception Flow: Connectivity issue at remote area
* **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 product catalogue is displayed
  + Postconditions: Selected products are added to the buy-later list
  + Basic Flow: User can choose multiple products and add to cart, which they can buy anytime they want, by making payment.
  + Alternative Flow: None
  + Exception Flow: None
* **Use Case: Make Purchase**
  + Description: The farmer can make a purchase of selected products.
  + Actors: Farmer
  + Preconditions: Farmer is logged in, the product catalogue is displayed
  + Postconditions: Purchase transaction is completed
  + Basic Flow: the actor goes to the buy option, mention address, pincode and select the mode of payment they would use. They can provide card details or net banking details or UPI id.
  + Alternative Flow: the user can also buy as a guest, without creating an account. The user can also select COD option.
  + Exception Flow: card details or otp mismatch. Wrong net banking details or UPI id. Product goes out of stock while making payment.
* **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
  + Postconditions: Payment is processed and confirmed
  + Basic Flow: Users may choose their mode of payment. They can provide card details or net banking details or UPI id.
  + Alternative Flow: Users might select COP option
  + Exception Flow: Payment credential wrong or mismatch
* **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
  + Postconditions: Email confirmation is sent
  + Basic Flow: the system provides the actor a summary of their order. The system records the order and provides the actor with the order number.
  + Alternative Flow: An automated email goes to the users’ email id with order number, order summary and a tracking link
  + Exception Flow: page expires while placing the order. Payment gets declined. Non deliverable remote pin code.
* **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
  + Postconditions: Delivery status is displayed
  + Basic Flow: User gets a mail and a message with the link of order tracking
  + Alternative Flow: User might go to their account and check order status
  + Exception Flow: None

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

1. **Activity Diagrams**

 

  