CAPSTONE PROJECT 2

Question 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 ?

Quaterly audits for projects typically involve around the evaluating progress, performance and adherence to processes over each quarter (Q1,Q2,Q3,Q4). For a Business Analyst, these audits may focus on specific aspects of their role at different stages of the project lifecycle.

Below are the points that might covered in the quarterly audits of a BA

**Q1 AUDIT from week 1 to week 13 Requirement gathering phase.**

|  |  |
| --- | --- |
| STAGE | REQUIREMENT GATHERING PHASE 13 WEEK (WEEK 1 TO WEEK 13) |
| COMPLETED | 10 WEEKS |
| CHECKLIST | BRD Documents- functional specification |
|  | Elicitation result report |
|  | Duplicate requirement report |
|  | Grouping of functional features |
|  | Email communication to CC,BCC |
|  |  |

**Q2 AUDIT fom week 14 to week 27 Requirement analysis phase**

|  |  |
| --- | --- |
| STAGE | REQUIREMENT ANALYSIS PHASE 13 WEEK (WEEK 14 TO WEEK 27) |
| COMPLETED | 9 WEEKS |
| CHECKLIST | UML Diagram |
|  | Requirement clarity and completeness |
|  | Business to requirement functional mapping |
|  | Conflicts resolution |
|  | Client sign off documents |
|  | Traceability |

**Q3 AUDIT From week 28 to week 43 Design and Development support**

|  |  |
| --- | --- |
| STAGE | DESIGN AND DEVELOPMENT |
| COMPLETED | 6 WEEKS |
| CHECKLIST | Requirement clarification |
|  | Tools utilization |
|  | Stakeholder communication in the form of MOM |
|  | Email communication |
|  | All documented evidence |

Q4 AUDIT From week 44 to week 60 Testing and delivery support

|  |  |
| --- | --- |
| STAGE | TESTING AND DELIVERY SUPPORT |
| COMPLETED | 7 WEEKS |
| CHECKLIST | Test case alignment and related document |
|  | UAT support |
|  | Defect analysis |
|  | Email communication |

Question 2 – BA Approach Strategy - 6 Marks

Before the Project is going to Kick Start, The Committee asked Mr Karthik to submit BA Approach strategy.

ANSWER

A) As a BA the apporoach will depend upon the projects nature, objectives and stakeholder involves

It is essential for follow the framework for successful completion of project

BA APPROACH STRATEGY

1.Understand projects Goals and scope

2.Stakeholder Engagement

3.Choose analytical tools

4.Tailor the approach

B) ELICITATION Technique: As a BA, choosing right elicitation techniques depends upon the factors like project scope, stakeholder preferences, and the level of detailed required.

We can use some common eleicitation techniques and when they are most useful

**1.INTERVIEWS**

**2WORKSHOPS**

**3 SURVEYS/QUESTIONNAIRES**

**4DOCUMENT ANALYSIS**

**5 OBSERVATION**

**6 BRAINSTORMING.**

C) Stakeholder analysis using RACI AND ILS Framework can help BA define the role responsibilities and stakeholder influence effectively

**1 RACI MATRIX**

RACI Stands for Responsible,Accountable,Consulted, Informed

We need to identify the key stakeholder involvement and assign roles as per the RACI MATRIX

In this project the RACI MATRIX Could be



ILS Framework for stakeholder analysis here ILS stand for Interest, Level of influence,Support.

This framework help assess stakeholder impact and their likelihood for supporting or opposing the project

In this project here example

|  |  |  |  |
| --- | --- | --- | --- |
| Stakeholder | INTEREST | INFLUENCE | SUPPORT |
| Project sponsor Mr henry | HIGH | HIGH | SUPPORTIVE |
| Delivery head Mr Karthik | MEDIUM | MEDIUM | NEUTRAL |
| External regulator | HIGH | LOW | RESISTANCE |

D) As a BA we will be responsible for managing and creating variety of documents to ensure the successful execution some documents to write as a BA are

**1 Business case document**

**2 stakeholder analysis**

**3 Requirements documents such as BRD,FRD and NON functional requirement document**

**4process models**

**5 use case/user stories**

**6 prototypes**

**7 GAP analysis**

**8test case document**

**9 change request document**

**10 lesson learnt document**

E )AS a BA we need to follow some formal steps for document signoff

Like stakeholder validation, approval workflow, formal sign off with proper email communication with the client

F) AS a BA for establishing effective communication channels for ensuring clarity, alignment and **success in project the choice of channel is depend upon stakeholder which could be**

**Email**

**Meetings**

**Instant Messaging Tools**

**Project management tools, Dashboards etc**

G) AS a BA to handle change request it is an important responsibility of a BA as it ensures that the project stay aligned with stakeholder needs while minimizing the risks. However we need to follow certain path to manage the change request which is step by step

1 acknowledge the request

2 analyze the request

3 gather stakeholder input

4 prepare a recommendation

5 obtain approval

6 implemet the change

7 monitor and evaluate

H) As a BA , Updating stakeholders about project is crucial for transparency , alignment and ensuring project success

We can update stakeholder on a regular schedule through a regular frequency choosing an appropriate method like emails, meeting , project management tools or dashboards

1. As a BA taking signoff on UAT is an importance task we need to prepare UAT client project acceptance form
2. Complete UAT activities
3. Communicate the form to client
4. Discuss and address concern
5. Request sign off
6. Communicate completion

Question 3 – 3-Tier Architecture - 5 Marks

Answer

A three tier architecture is a common design pattern in software development that divides the application into three distinct layers or tiers. This separation ensures scalability , maintainability , and flexibility of the system. In which the layers are

1. **Presentation layer ( user interface layer)**

This layer is responsible for interacting with the user as it provides the interface through which the user input data and views the output. Components of UI could be web browser, mobile app, or desktop and technology could be javascript framework, HTML,CSS etc

We can take example as if a login page where user enters their credentials

1. **Application layer ( Logic/ Business Layer)**

This tier handles the business logic, rules and processes, it controls the applications by processing the user inputs and interacting with the database

Components of this layer are applications server or middleware

Technologies used are JAVA, Python, .NET ETC

EXAMPLE Authentication logic that verifies the user credentials in the login form

1. **Database layer (data tier)**

This layer is responsible for managing and storing data. It receives queries from the application layer and returns the requested data.

Components of database server databases like MySQL, MongoDB etc

Example storing the user credentials in the database and retrieving them when needed.

Question 4 – BA Approach Strategy for Framing Questions – 10 Marks

Answer

As a BA, Framing effective questions for stakeholders is vital for gathering accurate information, understand requirements and build strong communication befor eframing questions we need to keep some key points in mind

1. **Understand the objective**

Clearly identify the purpose of the questions like what information you need and why it is important

1. **Know your stakeholder**

Consider the stakeholder backgroung , expertise, and interest

Tailor your question with the level of knowledge and involvement in the project

1. **Be clear and concise**

Avoid jargon, technical terms or overly complex language unless necessary

Frame your question so that it is easy to understand and answer

1. **Focus on open-ended questions**

Use open ended questions to encourage discussions and gather deatail insight for example what challenges you foresee with this requirement ?

1. **Prioritize and sequence questions**

Start with broader questions to set context and gradually move to specifics

Group related questions to maintain a logical flow

1. **Anticipate follow ups**

Think about potential follow up questions based you might receive

Be ready to dig deeper if the response is unclear or incomplete.

1. **Stay neutral and non leading**

Avoid framing questions in a way suggests or limit s possible answers

Instead of “You prefer option A,right? ,ask “ what are your thoughts on options A and B?”

1. **Contextualize your questions**

Provide proper context to help stakeholders understand the intent behind the question

For example: “to streamline the billing process, could you explain the current approval workflow?

1. **Focus on problem solving**

Phrase questions to understand the problems not just the symptoms

Example : “what business outcome are you aiming to achive?”

1. **Listen and adapt**

Be an active listener and adapt your questions based on the conversations workflow

Allow stakeholders the time and space tp express their ideas freely.

The 5W 1H framework is relevant for business analyst to analyze document and solve problem effectively

Here how it applies

**WHO**: identify the stakeholders

**WHAT**: Define the problem , the objectives and requirement

**WHER**E: determine the geographical,virtual or departmental scope of the problem

**WHEN**:Set timelenes, milestones,and deadlines

**WHY**: Explore the rationable behind the need for the solution or requirement

**HOW**:Dive into the methodologies, tools, and processes to be used for the analysis or implementation

**SMART**

SMART is a concept often used in the SDLC to create clear, actionable objectives and ensure effective project management

Here’s how SMART applies:

**Specific**: Goals and requirement should be clearly defined and unambiguous.

**Measurable**: objectives must be quantifiable so progress can be tracked and evaluated.

**Achievable**: set realistic and feasible goals considering the resouces, timeline and constraint of the project

**Relevant**: Ensure goals align with the overall business objective and add value to the project

**Time Bound**: establish deadlines or timeframes for achieving objectives.

Usecase

1. **3 TIER ARCHITECTURE**

The system’s architecture will have three main layers: presentation (application), logic (business logic) and database layers.

* **Presentation/Application Layer (UI/UX):** 
  + How should the user interface look (simple, intuitive, mobile-friendly)?
  + What features are important for user interaction (easy search, product descriptions, checkout process)?
* **Logic Layer (Business Logic):** 
  + How should the logic for order processing work (inventory checks, payment gateway)?
  + What business rules must be followed (product availability, delivery conditions)?
* **Data Layer (Database):** 
  + What data needs to be stored (user profiles, product inventory, order history)?
  + How will the data be accessed and managed (database security, query optimization)?

1. **Use Cases & Use Case Specifications:**

A **use case** is a description of how a system or application will be used to accomplish a specific goal from the perspective of an end user. It outlines the interactions between the user (referred to as an "actor") and the system to achieve a particular task or objective.

* **Use Case Examples:**
* A farmer browses products and adds items to their cart.
* A manufacturer submits new product details to the platform.
* An admin monitors and approves product listings.
* **Use Case Specifications:**
  + Define the flow of each use case (normal and alternative flows).
  + What are the preconditions (e.g., user must log in to place an order)?
  + What are the postconditions (e.g., order is placed, and farmer gets a confirmation)?

1. **Activity Diagrams:**

Activity Diagrams are a type of Unified Modelling Language (UML) diagram that visually represents the flow of control or activities in a system. They show the sequence of steps in a process or workflow and how they are connected, helping to model the dynamic aspects of a system. Activity diagrams are commonly used in the analysis and design phases to understand how processes work, identify potential bottlenecks, and ensure all workflows are accounted for. They are especially useful for representing business processes, use case flows or system interactions in a simplified, visual way. They also help to model the flow of actions, such as the order process, product submission and product delivery.

**For example:**

* **Farmer Ordering Flow:**
  + Browse products → Add to cart → Checkout → Payment → Delivery.
* **Manufacturer Product Submission:**
  + Log in → Add product details → Submit for review → Product approval

1. **Models:**

* Create **Entity-Relationship Models (ERMs)** to visualize how data entities interact.
* Create **Class Models** to map out the structure of the application and its components.
* **State Diagrams** could be useful for visualizing the various states of an order (pending, shipped, delivered).

1. **Page Designs:**

* Develop wireframes and mock-ups for the user interface (UI), focusing on the ease of use for farmers.
* Define which pages are essential (product pages, order summary, account management, etc.) and how they will flow.
* Ensure that the design is mobile-friendly, as many farmers in remote areas might use mobile phones for access.

**Conclusion:**

As a Business Analyst, before framing any questions, ensure you have a clear understanding of these areas and adapt your questions accordingly to gather comprehensive requirements. Always consider the 5W 1H framework for clarity, SMART for goal setting, RACI for roles and responsibilities, and the 3-tier architecture for the system design. Additionally, create use cases, activity diagrams, models, and page designs to ensure that the system will be both functional and user-friendly.

An **Elicitation Technique** is a method or approach used by a Business Analyst (BA) to gather information and requirements from stakeholders in order to understand their needs, expectations, and preferences. The goal of these techniques is to collect comprehensive and accurate data that will guide the development of a solution, such as a product, system or process.

Elicitation is a critical part of the requirements gathering process, as it ensures that all relevant stakeholder needs are captured and understood. The techniques can vary in terms of formality, interaction and depth of information they provide. Some common elicitation techniques include interviews, workshops, brainstorming sessions, surveys, document analysis, observations and prototypes, among others.

In essence, these techniques help a Business Analyst engage with stakeholders, facilitate communication and ensure that the project meets the expectations of everyone involved.

As a Business Analyst, I am aware of several elicitation techniques that can help gather requirements and understand stakeholders' needs effectively. The acronym **BDRFOWJIPQU** stands for various methods used in the requirements gathering process. Below are the elicitation techniques that correspond to this acronym:

1. **B** - **Brainstorming**: This technique involves bringing stakeholders together to generate ideas and solutions to a problem. It's typically done in a collaborative and open manner where ideas are freely discussed without judgment.
2. **D** - **Document Analysis**: This involves reviewing existing documentation to understand current processes, systems or business requirements. This helps the business analyst gather information from already available sources, such as reports, user manuals or previous project documents.
3. **R** - **Requirements Workshops**: A structured group session where stakeholders are invited to discuss and define their needs and expectations for a project. Workshops encourage active participation and collaboration, which can help refine and finalize requirements.
4. **F** - **Focus Groups**: This technique involves selecting a group of people who represent the target audience and gathering feedback from them. Focus groups are typically used to understand users' opinions, behaviours and perceptions.
5. **O** - **Observation**: Also known as "Job Shadowing," this technique involves observing how users interact with current systems or processes. This helps identify inefficiencies or opportunities for improvement.
6. **W** - **Workshops**: Similar to requirements workshops but can be more interactive, involving hands-on activities to design or build aspects of the solution, like user interfaces or workflows.
7. **J** - **Joint Application Development (JAD)**: A highly structured and collaborative meeting technique used to gather requirements, design systems or improve processes. It involves stakeholders, business users and IT team members working together intensively for a short period.
8. **I** - **Interviews**: Conducting one-on-one or group interviews with stakeholders to gather detailed information. This is one of the most common techniques for eliciting requirements and understanding the needs of various stakeholders.
9. **P** - **Prototyping**: Creating a mock-up or prototype of the system or product for stakeholders to interact with. This can help clarify requirements by giving stakeholders something tangible to review and provide feedback on.
10. **Q** - **Questionnaires/Surveys**: These tools help gather information from a large number of stakeholders in a standardized format. This technique is particularly useful when working with dispersed or large groups of users.
11. **U** - **Use Cases/Scenarios**: This technique involves defining how users will interact with the system or product by describing specific scenarios and workflows. It helps clarify the functional requirements of the system from the user's perspective.

By using these elicitation techniques, a Business Analyst can gather accurate and comprehensive requirements that align with the needs and expectations of all stakeholders involved in the project.

**QUESTION NO 5**

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

**ANSWER**

**Prototyping**

**Use case Specs**

**Document Analysis**

**Brainstorming**

For the **online agriculture product store** project, several elicitation techniques can be used to gather requirements from stakeholders, including **Prototyping**, **Use Case Specs**, **Document Analysis**, and **Brainstorming**. Below is a justification for selecting each of these techniques:

* + **Prototyping**
* **Justification**:
  + Prototyping is highly beneficial for a project like this, where there are different types of users, including farmers and manufacturers, who will interact with the application in various ways.
  + By developing a working prototype of the application, stakeholders (such as Peter, Kevin, Ben and other farmers) can provide feedback on the interface, user experience and functionality.
  + It helps stakeholders visualize the system early in the development process, ensuring that the solution aligns with their needs and expectations.
  + The iterative nature of prototyping allows for continuous improvements based on user feedback, which is crucial for refining the application's features and usability.
  + **Use Case Specs**
* **Justification**:
  + **Use Case Specifications** are essential for defining the interaction between users (farmers, manufacturers) and the system. This technique will provide clear and detailed descriptions of the different ways users will interact with the online store.
  + Use cases will capture the business processes, such as how a farmer selects a product (fertilizer, seeds, pesticides), how they browse through products and how they make a purchase request.
  + This approach ensures that all functional requirements are clearly understood and documented, minimizing the risk of misunderstandings and helping developers create a system that meets business needs.
  + Use cases also help identify possible user roles and permissions, such as the farmer’s ability to view products and request orders and the manufacturer’s ability to update product listings.
  + **Document Analysis**
* **Justification**:
  + Document analysis is an effective technique for understanding existing processes or requirements. Since there may be some existing records related to the current methods farmers use to procure agricultural products (e.g., order forms, contracts with suppliers or previous business processes), analysing these documents will provide valuable insights.
  + This technique can help identify gaps in the current system, the problems faced by stakeholders (e.g., Peter, Kevin, and Ben), and areas where digital solutions can be introduced. For instance, analysing existing contracts between farmers and manufacturers can reveal terms that need to be addressed in the new online store.
  + Document analysis also helps gather business rules, regulations and other important information that may be important for ensuring the application complies with relevant laws and standards.
    - **Brainstorming**
* **Justification**:
  + **Brainstorming** sessions can be highly productive for gathering initial ideas and exploring potential solutions with stakeholders. In a project like this, where the goal is to create a user-friendly online store for farmers in remote areas, brainstorming can help identify unique requirements and creative solutions.
  + Stakeholders (such as Peter, Kevin, Ben and others) can discuss challenges, share their pain points (e.g., difficulty accessing fertilizers or seeds) and propose features they would like to see in the application.
  + Brainstorming also fosters collaboration among diverse groups, such as the farming community, manufacturers and the development team. It allows for a wide range of perspectives to be considered, ensuring that the application meets the varied needs of all users.
  + Furthermore, brainstorming can be useful in addressing concerns about the user interface, mobile accessibility, and the ways in which the application can make purchasing agricultural products easier.

**Conclusion:**

* **Prototyping** will provide stakeholders with a tangible version of the application to test, validate and give feedback on.
* **Use Case Specs** will clearly define how different users (farmers, manufacturers and admins) will interact with the system, ensuring that functional requirements are well-documented.
* **Document Analysis** will help understand the existing processes and any related documentation that can inform the design and features of the online store.
* **Brainstorming** will be essential for gathering ideas and fostering collaboration, helping the team address the specific needs and problems of farmers and manufacturers.

By using these elicitation techniques, the project team can gather comprehensive, accurate and actionable requirements to build an effective online agriculture product store.

**Fertilizers, seeds, pesticides details from the manufacturers and should be able to display them to the Farmers.**

**To gather the business requirements from the client, you went to SOONY and met Mr. Henry. When Mr. Henry was asked about the project and what are they expecting from the project, Mr. Henry stated that he is expecting to have a login for all its users (fertilizers, seeds, pesticides manufacturers and Farmers), a product catalogue of fertilizers, seeds, pesticides, a search option to search for products, payment process and delivery tracking.**

**After doing the stakeholder analysis, you have found out that Peter, Kevin, Ben are the key stakeholders and you have scheduled an appointment to meet them. After meeting with them and trying to gather the stakeholder requirements, Kevin said that, a Farmer should be able to browse through the products catalogue once they visit the website and need to have a search option so that they can search for any product they need. Peter said that, if a farmer wants to buy any product or add them to buy-later list, they need to login first using their email id and password. If it is a new user, then they can create a new account by submitting their email ID and creating a secure password. Ben added saying that, Farmers needs to have an easy-to-use payment gateway which should include cash-on-delivery (COD), Credit/Debit card and UPI options so that the user’s experience should be better. Kevin mentioned that, a user gets an email confirmation regarding their order status. A delivery tracker to track the whereabouts of their order.**

**Identify Business Requirements (which includes Stakeholder Requirements)**

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

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

Based on the information gathered during the meetings with Mr. Henry, Peter, Kevin, and Ben, here are the **Business Requirements (BR)** that address both the functional needs of the system and the expectations of the stakeholders:

* **Business Requirements (BR)**
* **BR001 – Product Search and Browse**

**Description**: Farmers should be able to search for available products (fertilizers, seeds, pesticides) within the application and they should also be able to browse through the entire product catalogue.

**Stakeholder Requirement**: Kevin emphasized that farmers need the ability to search for products. This aligns with the user experience of making it easy for farmers to find specific products quickly.

* **BR002 – Manufacturer Product Upload and Display**

**Description**: Manufacturers should be able to upload their product details, including descriptions, images, prices and availability and the system should display these products to farmers.

**Stakeholder Requirement**: This was directly mentioned by Mr. Henry, who stated the need for manufacturers to upload product information so that it can be displayed to the farmers. This helps ensure that farmers have access to the latest products available in the market.

* **BR003 – User Login and Registration**

**Description**: Farmers must log in to their accounts to add products to their cart or buy-later list. If the farmer is a new user, they must be able to create an account using their email address and a secure password.

**Stakeholder Requirement**: Peter emphasized the necessity for farmers to log in before making any purchase or adding products to their list. This helps in managing orders and providing a personalized experience.

* **BR004 – Easy Payment Gateway**

**Description**: The application should offer a simple, secure and user-friendly payment gateway, allowing farmers to choose from various payment methods like cash-on-delivery (COD), credit/debit cards and UPI for transactions.

**Stakeholder Requirement**: Ben expressed the need for an easy-to-use payment system to enhance the user experience, ensuring farmers can choose the payment method most convenient for them.

* **BR005 – Order Confirmation and Email Notification**

**Description**: Once a farmer places an order, they should receive an email confirmation about the order status, including the items ordered and the expected delivery date.

**Stakeholder Requirement**: Kevin mentioned that farmers should receive email confirmations to ensure they are aware of their order's status and can track it effectively.

* **BR006 – Delivery Tracking**

**Description**: The system should include a delivery tracker, allowing farmers to track the whereabouts of their orders in real-time.

**Stakeholder Requirement**: Kevin highlighted the importance of having a delivery tracking system so that farmers can know the status of their orders at any time.

* **Summary of Stakeholder Requirements**
* **Kevin**:

Farmers should be able to search for and browse products in the catalogue.

Farmers should receive email confirmation regarding their order status.

Farmers should be able to track their orders with a delivery tracker.

* **Peter**:

Farmers should be required to log in before adding products to their cart or buy-later list.

Farmers should have the option to create an account if they are new users.

* **Ben**:

The payment gateway should include COD, credit/debit card, and UPI payment options.

These **Business Requirements** and **Stakeholder Requirements** clearly outline the essential features and functionalities for the online agriculture product store that will serve both farmers and manufacturers. These requirements ensure that the application will meet user needs, support business operations, and enhance user experience.

**QUESTION 7**

**ANSWER**

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

Here are 10 potential business requirements for the online agriculture product store that Mr. Henry wants to build, along with a few assumptions:

**Assumptions:**

* The application will be accessible on both web and mobile platforms.
* The application will have an easy-to-use interface, as users may not be very familiar with technology.
* The platform will support multiple languages to cater to a wider audience, especially in remote areas.
* Payments can be done via multiple methods, including online and offline (COD).
* Delivery services will be included for product shipping and it will support tracking of orders.
* The manufacturers (companies) will be verified before they can list their products.
* The platform will also include a support/help feature for users who face technical issues.
* Inventory management will be in place to track product availability.
* The system will have security features for protecting sensitive data (user details, financial transactions etc.).

**Business Requirements:**

1. **User Registration and Authentication:**
   * The system must allow farmers and manufacturers to register and log in securely using email, mobile number or social media accounts.
   * The system should support role-based authentication (farmer, manufacturer, admin).
2. **Product Listing by Manufacturers:**
   * Manufacturers must be able to list their products (seeds, fertilizers, pesticides) on the platform by providing essential details such as product name, description, pricing, quantity and delivery details.
   * The system must allow manufacturers to upload product images to enhance visibility.
3. **Product Search and Browsing for Farmers:**
   * Farmers must be able to search for products based on categories (seeds, fertilizers, pesticides), price range and type of crop.
   * Filters should be available to narrow down product selection by manufacturer, product features, price range or ratings.
4. **Product Details and Comparison:**
   * Farmers must be able to view detailed information about the products, including description, usage instructions, ingredients and reviews from other farmers.
   * Farmers should be able to compare similar products in terms of features and pricing.
5. **Shopping Cart and Order Placement:**
   * Farmers should be able to add products to the shopping cart and proceed to checkout.
   * The application should allow farmers to review the products in their cart, adjust quantities and apply any discount coupons before finalizing the order.
6. **Order Management and Delivery:**
   * Farmers must receive an order confirmation notification, including an estimated delivery date.
   * The system must allow for tracking of order status (e.g., processing, shipped, out for delivery) and provide updates to farmers.
   * Delivery charges should be calculated and displayed at the time of checkout.
7. **Payment Integration:**
   * The system should integrate with various payment gateways to allow farmers to make payments through credit/debit cards, UPI and cash on delivery (COD).
   * The system must support secure payment processing to protect user data.
8. **Feedback and Rating System:**
   * Farmers should be able to rate and review products based on their experience.
   * The system should display average ratings for each product, allowing new customers to make informed decisions.
9. **Manufacturer and Product Verification:**
   * The platform must verify the authenticity of manufacturers before they can list their products. This could involve checking licenses, certifications and other legal documents.
   * Manufacturers should be able to update product information, but changes should be reviewed and approved by an admin before being displayed.
10. **Customer Support and Help Desk:**
    * The application must provide a customer support feature for farmers to report issues or get assistance with order tracking, product queries or payments.
    * The system should allow for both live chat and email support, ensuring that users can contact the support team easily.

These requirements will provide the foundation for developing a user-friendly and efficient online agriculture product store.

1. **List your assumptions.**

Here are the assumptions for the project based on the context provided:

* **Multi-Platform Access:**
  + The application will be available on both web and mobile platforms to cater to a larger audience, especially in remote areas where mobile phones are more likely used since farmers may not have access to desktop computers or laptops.
* **User-Friendly Interface:**
  + The application will be designed to be simple and intuitive, as many farmers might not be tech-savvy and would require a straightforward user experience.
* **Multi-Language Support:**
  + The application will offer support for multiple languages to ensure accessibility for farmers from different regions of the country.
* **Payment Methods:**
  + The application will support both online and offline payment methods, including credit/debit cards, UPI and cash on delivery (COD), to accommodate farmers with varying access to digital payment systems.
* **Product Delivery:**
  + The platform will include delivery services to send the purchased products directly to the farmer's location, with order tracking available for farmers.
* **Manufacturer Verification:**
  + Manufacturers (fertilizer, seed and pesticide companies) must go through a verification process before they are allowed to list their products on the platform to ensure legitimacy and quality of products.
* **Inventory Management:**
  + The platform will include an inventory management system that will track the availability of products in real-time, ensuring that farmers can only order products that are in stock.
* **Customer Support:**
  + A helpdesk feature will be available to assist farmers with any technical issues or inquiries they may have regarding the application or their orders.
* **Security Features:**
  + The application will have reliable security measures in place to protect sensitive information, such as personal details, payment information and order history.
* **Order Tracking:**
  + Farmers will be able to track the status of their orders from placement to delivery, ensuring they are informed at each stage of the process.
* **Discounts and Offers:**
  + The platform may offer discounts, promotions or loyalty programs to attract more farmers and encourage repeated purchases.
* **Mobile-Friendly:**
  + The mobile version of the application will be optimized for low-end smartphones, considering that farmers in remote areas may not always have access to high-end devices.
* **Internet Connectivity:**
  + The platform will assume that users have access to the internet, though it will be optimized for lower bandwidth areas where internet speeds may be slower.
* **Product Catalogue Management:**
  + Manufacturers will be responsible for updating product details, but changes will be subject to approval by administrators to ensure product accuracy and consistency.
* **Legal Compliance:**
  + The platform will comply with local agricultural regulations, including certifications and licenses required for selling agricultural products.
* **Product Quality and Certifications:**
* **Product Quality** ensures the product performs well and is safe for use, while **Certifications** provide legal assurance that the product meets recognized standards like Key Certifications Relevant to Agricultural Products such ISO, Organic Certifications, Pest Control Certifications, Global Good Agricultural Practice Certifications (Global GAP), FSSAI, Seed Certifications from Indian Council of Agricultural Research (ICAR) etc.

These assumptions help define the scope and limitations of the project, ensuring that the final product meets the needs of the farmers and manufacturers while adhering to practical considerations.

Top of Form

Bottom of Form

1. **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 | 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 | User Login and Registration | Farmers must log in to their accounts to add products to their cart or buy-later list. If the farmer is a new user, they must be able to create an account using their email address and a secure password. | 10 |
| BR004 | Easy Payment Gateway | The application should offer a simple, secure and user-friendly payment gateway, allowing farmers to choose from various payment methods like cash-on-delivery (COD), credit/debit cards and UPI for transactions. | 10 |
| BR005 | Order Confirmation and  Email Notification | Once a farmer places an order, they should receive an email confirmation about the order status, including the items ordered and the expected delivery date. | 9 |
| BR006 | Delivery Tracking | The system should include a delivery tracker, allowing farmers to track the whereabouts of their orders in real-time. | 9 |

**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.**

As the Business Analyst (BA) for this project, your role will be pivotal in ensuring that the requirements of the clients (Mr. Henry, Peter, Kevin and Ben) are accurately understood and communicated to the project team at APT IT SOLUTIONS. Here are some of the steps and deliverables you will need to focus on as a part of the project:

**1. Requirements Gathering**

You need to conduct multiple sessions with the stakeholders (Mr. Henry, Peter, Kevin and Ben) to gather detailed information about their needs and expectations for the online agricultural product store.

**Key Requirements to Gather:**

* **Farmers' Requirements:**
  + Browsing products (fertilizers, seeds, pesticides) by category.
  + Requesting and buying products (with a user-friendly interface).
  + Ordering products and receiving deliveries at their location.
  + Ability to view product details (name, price, quantity, supplier, description).
* **Manufacturers' Requirements:**
  + Product listing (fertilizers, seeds, pesticides) with details such as description, quantity, price and delivery information.
  + Management of inventory.
  + The ability to update products, prices and availability.
* **Admin and Management Requirements:**
  + A dashboard to manage the products, orders and users.
  + Sales reports and analytics.
  + User management (Farmers, Manufacturers, Admins).

**2. Creating Use Cases and Use Case Diagrams**

Use case diagrams help identify the interactions between the users and the system. You will create use cases that describe how users (Farmers, Manufacturers, Admins) will interact with the system.

**Examples of Use Cases:**

* **Farmer Use Cases:**
  + Browse products.
  + Search for products by name, category or supplier.
  + Place an order.
  + Track order delivery.
  + Review purchased products.
* **Manufacturer Use Cases:**
  + List new products.
  + Update product details.
  + Manage inventory.
  + View orders.
* **Admin Use Cases:**
  + Manage users (Farmers, Manufacturers).
  + View product sales and inventory reports.
  + Approve or reject product listings.

**Use Case Diagram**: This will be used to represent how users interact with the system. Example actors: **Farmer**, **Manufacturer**, **Admin**.

**3. System Requirements Specification (SRS) Document**

You will create a detailed **SRS Document**, which includes:

* **Functional Requirements:** Detailed description of what the system should do (e.g., product search, order tracking, inventory management).
* **Non-Functional Requirements:** Performance, security, scalability and usability aspects of the system.
* **System Architecture:** How different components (frontend, backend, database) will interact.

**4. UML Diagrams**

You will create UML (Unified Modelling Language) diagrams to visually represent the system structure and flow. Here are the key diagrams:

* **Use Case Diagram:** To represent the actors and their interactions with the system.
* **Class Diagram:** To show the system's classes, attributes, methods and relationships between them. This is essential for the developers to understand the structure of the system.
* **Sequence Diagram:** To represent the flow of messages between objects, such as the process of a farmer browsing products, adding them to the cart and placing an order.
* **Activity Diagram:** To show the workflow of activities in a particular process, such as the farmer placing an order and receiving delivery updates.
* **State Diagram:** To show the various states of an object, like a product (Available, Out of Stock etc.).

**5. Wireframes / Screen Mock-ups**

You will need to create **screen mock-ups** or wireframes of the application to provide a visual idea of the user interface (UI). These mock-ups help the team visualize the layout and functionality of each page in the application.

**Some Key Screens to Mock-up:**

* **Home Screen:** Categories of products (fertilizers, seeds, pesticides), search bar.
* **Product Details Page:** Detailed information about the product.
* **Cart Page:** Where farmers review their selected products before purchase.
* **Order Confirmation Page:** Summary of the order and delivery details.
* **Admin Dashboard:** To manage users, orders and products.

**Tools to Use for Mock-ups:**

* **Wireframe Tools:** Figma, Balsamiq or Sketch for creating these mock-ups.
* **UML Tools:** Lucidchart, Visual Paradigm, MS Visio or draw.io for creating UML diagrams.

**6. Communication Between Stakeholders and Project Team**

As the BA, you need to ensure clear communication between all parties involved:

* **For the Client (Mr. Henry, Peter, Kevin and Ben):** Regular updates and clarification sessions about the progress of the project and feedback on the mock-ups and diagrams.
* **For the Development Team (APT IT SOLUTIONS):** Ensuring that all functional requirements are clear and any ambiguities are addressed immediately. You will be the key person translating technical jargon into understandable terms for the client and vice versa.

**7. Test Cases**

Working with **Testers** like Mr. Jason and Ms. Alekya, you'll also help define high-level test cases to ensure the system works as intended. These might include:

* Test cases for user registration and login.
* Test cases for adding products to the cart and placing an order.
* Test cases for verifying the correct delivery information.

**Conclusion:**

Your role as a Business Analyst is crucial in ensuring that all stakeholders are aligned and the project team has a clear understanding of the client’s requirements. By using UML diagrams, wireframes and clear documentation, you will bridge the gap between technical and non-technical teams, ensuring that the online agricultural product store meets the needs of the farmers and manufacturers while delivering value to Mr. Henry’s vision of helping others.

1. **Draw use case diagram.**

To create a use case diagram for the online agricultural product store based on the scenario provided, we can break down the system into several key actors and use cases. Here's a summary of the actors and use cases:

**Actors:**

1. **Farmer**: End users who will purchase fertilizers, seeds and pesticides.
2. **Manufacturer**: Fertilizer, seed and pesticide companies who will list their products for sale.
3. **Administrator**: The person who manages the application, ensuring smooth functioning and managing the system.
4. **Delivery Person**: A person responsible for delivering the products to the farmer's location.
5. **System**: The online application itself which facilitates all the transactions.

**Use Cases:**

1. **Farmer**:
   * Register/Log in to the application.
   * Browse available products (fertilizers, seeds, pesticides).
   * Search for specific products.
   * View detailed product information (product description, price etc.).
   * Select products and add them to the cart.
   * Place order for products.
   * Request delivery to their location.
   * View order history.
   * Track the order status.
2. **Manufacturer**:
   * Register/Log in to the application.
   * Add new products (fertilizers, seeds, pesticides).
   * Edit product details.
   * Remove products.
   * View sales and customer information.
3. **Administrator**:
   * Log in to the admin panel.
   * Approve or reject manufacturer/farmer registration.
   * Manage user accounts (both farmers and manufacturers).
   * Monitor the performance of the system.
   * Generate reports.
4. **Delivery Person**:
   * Log in to the delivery system.
   * Accept delivery requests.
   * Update the delivery status.

**System Use Cases:**

* **System**:
  + Authenticate users (farmers, manufacturers, administrators).
  + Process orders and transactions.
  + Send notifications to users regarding order status.
  + Manage user data securely.





**Here, we mainly concentrate on the Use Case diagrams of the interactions between Primary Actors (Farmer, Manufacturer) and System Admin.**

* **Farmers** can register, browse and select products, view order history, and request delivery.
* **Manufacturers** can add, edit, or remove their products, and view sales data.
* **Administrators** manage the system, user accounts, and ensure smooth operations.
* **Delivery People** are responsible for accepting orders and updating the delivery status.
* The **System** manages all backend processes, such as user authentication, order processing, and sending notifications.

This use case diagram gives a high-level view of the application and its main interactions.

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

**Question no 11**

**answer**

**Use Case Specifications for the Online Agricultural Product Store**

|  |  |
| --- | --- |
| Use Case ID | UC01 |
| Use Case Name | Add Product by Manufacturer |
| Actor(s) | Manufacturer (Fertilizer/Seed/Pesticide Company) |
| Description | This use case allows the manufacturer to add product details (e.g., fertilizers, seeds, pesticides) to the system to be displayed for farmers. |
| Precondition | Manufacturer must be logged in to the system. |
| Basic Flow | 1. Manufacturer logs into the system. 2. Navigates to the 'Add Product' section. 3. Enters product details (name, description, price, quantity, etc.). 4. Submits the product details. 5. The system saves the product information and displays a confirmation message. 6. The new product is available for farmers to browse. |
| |  | | --- | |  |   Alternate Flow | If required fields are missing, the system prompts the manufacturer to fill out the missing details. |
| Postcondition | The product is successfully added to the product catalogue and visible to farmers. |
| Exceptions | 1. System downtime. 2. Invalid product details entered by manufacturer. |

|  |  |
| --- | --- |
| Use Case ID | UC02 |
| Use Case Name | Browse and Select Products (Seeds/Fertilizers/Pesticides) by Farmer |
| Actor(s) | Farmer |
| Description | This use case allows farmers to browse products and select the ones they wish to buy. |
| Precondition | Farmer must be logged into the system. |
| Basic Flow | 1. Farmer logs into the system. 2. Navigates to the 'Browse Products' section. 3. Views available products categorized by fertilizers, seeds, and pesticides. 4. Selects the desired product and views the details. 5. Adds the product to the cart. 6. Submits a purchase request for the selected products. |
| |  | | --- | |  |   Alternate Flow | If no products are available in a category, the system displays a 'No Products Available' message. |
| Postcondition | Farmer’s purchase request is created and the product(s) are added to the cart. |
| Exceptions | 1. No internet connection. 2. Invalid login credentials. |

|  |  |
| --- | --- |
| Use Case ID | UC03 |
| Use Case Name | Place Order and Request Delivery by Farmer |
| Actor(s) | Farmer |
| Description | This use case allows farmers to place an order for the products they selected and request delivery. |
| Precondition | The farmer has added products to their cart and is logged in to the system. |
| Basic Flow | 1. Farmer logs into the system. 2. Navigates to the shopping cart. 3. Verifies the selected products and quantity. 4. Provides delivery information (address, contact details). 5. Confirms the order. 6. The system processes the order and sends an order confirmation along with expected delivery date. |
| |  | | --- | |  |   Alternate Flow | If payment is required, the system prompts for payment method. |
| Postcondition | Order is confirmed and the delivery process is initiated. |
| Exceptions | 1. Invalid delivery address. 2. Payment failure (if applicable). |

|  |  |
| --- | --- |
| Use Case ID | UC04 |
| Use Case Name | Manage User Account (Farmer) |
| Actor(s) | Farmer |
| Description | This use case allows farmers to manage their account details (e.g., update contact details, change password). |
| Precondition | Farmer must be logged in to the system. |
| Basic Flow | 1. Farmer logs into the system. 2. Navigates to 'Account Settings'. 3. Edits contact details (e.g., phone number, email). 4. Changes password if required. 5. Saves the changes. 6. The system confirms the updates and displays a success message. |
| |  | | --- | |  |   Alternate Flow | If the farmer forgets the password, they can initiate a password recovery process. |
| Postcondition | The farmer’s account details are updated. |
| Exceptions | 1. Invalid data entered by the farmer. 2. Network error during update |

|  |  |
| --- | --- |
| Use Case ID | UC05 |
| Use Case Name | Generate and View Order History |
| Actor(s) | Farmer |
| Description | This use case allows farmers to view their past orders and their status (e.g., delivered, pending). |
| Precondition | The farmer is logged in to the system. |
| Basic Flow | 1. Farmer logs into the system. 2. Navigates to 'Order History' section. 3. Views a list of all previous orders. 4. Selects an order to view more details. 5. The system displays order status (delivered, pending, etc.) and other relevant details. |
| |  | | --- | |  |   Alternate Flow | If no orders have been placed yet, the system displays a 'No Orders Found' message. |
| Postcondition | Farmer successfully views their order history. |
| Exceptions | 1. No internet connection. 2. No past orders in the system. |

**QUESTION NO 12**

**Activity diagrams.**

**ANSWER**

AN acitivity diagram is a visual representation of the flow of the activities or actions in the system or process. It illustrate the sequence of activities , decisions, and transitions, showing how different part interact to achive a specific goal

Key elements of activity diagram are

1. **INITIAL NODES**

Shape : filled black circle

Purpose: represent the starting point of the process.

1. **ACTIVITY (ACTION STATE)**

Shape: rounded rectangle

Purpose: denotes a task and function to be performed.

1. **DECISION NODE**

Shape : Diamond

Purpose: Represent a point where decisions is made , leading to different flows based on conditions

1. **TRANSITION (FLOW/ARROW)**

Shape: Arrow.

Purpose: connects activities represent the flow and order of execution

1. **FORK ( PARALLEL SPLIT)**

Shape: Thick horizontal or vertical bar with one arrow in and multiple arrows out

Purpose: Splits a single flow into multiple concurrent activities.

1. **JOIN (PARALLEL MERGE)**

Shape:Thick horizontal or vertical bar with multiple arrows in and one arrow out

Purpose: merge multiple flows into a single flow after parallel execution.

1. **FINAL NODE(END)**

Shape: filled black circle with an outer boundary

Purpose: marks the end of the activity process.

Below are some activity diagram for the above project.











