**Capstone Project 1 – Part 2**

Q1. 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 ?

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| --- | --- |
| Stage | Requirement gathering phase – 15 weeks (Week 1 to week 15) |
| Completed | 10 weeks (1 week to 10 week) |
| Checklist | BRD Template |
|  | Elicitation result report |
|  | Duplicate requirement report |
|  | Grouping of functionalities/Features-client sign off. |

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| --- | --- |
| Stage | Requirement analysis phase – 13 weeks (week 16 to week29) |
| Completed | 7 weeks (week 16 to week 23) |
| Checklist | UML Diagram |
|  | Business Functional Requirement mapping |
|  | Client Signoff. |
|  | RTM Document version control |

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| Stage | Design – (Week 30 to week 40) |
| Completed | 7 Weeks (Week 30 to week 37) |
| Checklist | Utilization of tools |
|  | Documented evidence on client communication. |
|  | Stakeholders MOM |

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| --- | --- |
| Stage | Development Phase – 40Weeks (Week 40 to Week 70) |
| Completed | 20 Weeks (Week 50 to week 70) |
| Checklist | JAD session report |
|  | End user manual preparation |
|  | Email Communication to – cc, bcc |

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| Stage | Testing 20 Weeks (Week 58 to Week 78) |
| Completed | 20 Weeks (Week 58 to Week 78) |
| Checklist | Test case summary |
|  | Training reports to end user |
|  | Lessons learnt document |

For a BA, Internal audit will go through the

Are the project is progressing with the company’s objectives or not.

Weather various risks has been managed effectively by BA.

What all process can be improve are suggested.

Are the process are been followed properly by BA.

Q2. Before the Project is going to Kick Start, The Committee asked Mr Karthik to submit BA Approach Strategy.

Write BA Approach strategy (As a business analyst, what are the steps that you would need to follow to complete a project – What Elicitation Techniques to apply, how to do Stakeholder Analysis RACI/ILS, What Documents to Write, What process to follow to Sign off on the Documents, How to take Approvals from the Client, What Communication Channels to establish n implement, How to Handle Change Requests, How to update the progress of the project to the Stakeholders, How to take signoff on the UAT- Client Project Acceptance Form )

Your Team,

Project Manager - Mr Vandanam Senior Java Developer - Ms. Juhi.

Java Developers - Mr Teyson, Ms Lucie, Mr Tucker, Mr Bravo Network Admin - Mr Mike

DB Admin - Mr John.

Testers - Mr Jason and Ms Alekya

BA-You

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

* Elicitation Techniques: Conduct interviews with the stakeholders (Mr. Henry, Mr. Pandu, Mr. Dooku, Peter, Kevin, Ben) to gather the requirements. Organize focus group sessions to understand the needs of the remote area farmers. Review existing systems and documents to gather additional information. Conduct surveys and questionnaires to gather a wider perspective.
* Stakeholder Analysis: Conduct RACI (Responsible, Accountable, Consulted, Informed) or ILS (Involved, Lead, Support) analysis to determine the roles and responsibilities of each stakeholder. Identify the key stakeholders and prioritize their requirements. Establish effective communication channels with the stakeholders to keep them informed about the progress of the project
* Documents: Write a Requirements Document (RD) to outline the functional and non-functional requirements of the project. Create a Business Requirements Document (BRD) to provide a detailed description of the project's objectives, scope, and deliverables. Prepare a Project Charter to define the project's goals, deliverables, timeline, and budget. Develop a Use Case Document to describe the processes and workflows involved in the project.
* Sign Off: Obtain sign-off from the stakeholders on the Requirements Document, Business Requirements Document, Project Charter, and Use Case Document. Ensure that the stakeholders understand and agree with the requirements, scope, and objectives of the project.
* Approvals: Obtain the client's approval on the project deliverables, budget, timeline, and approach. Ensure that the client's expectations are aligned with the project's goals and objectives. Communication Channels: Establish a regular communication schedule with the stakeholders to keep them informed about the project's progress. Create a communication plan to outline the channels and methods of communication. Schedule regular status meetings with the stakeholders to discuss the project's progress and address any issues or concerns.
* Change Requests: Handle change requests in a structured and systematic manner. Evaluate the impact of each change request on the project's scope, timeline, and budget. Obtain approval from the stakeholders before implementing the change request.
* Progress Updates: Keep the stakeholders informed about the project's progress through regular status reports and progress meetings. Highlight any risks or issues that need to be addressed. Provide regular progress updates to the stakeholders and seek their feedback.
* UAT Sign-off: Conduct User Acceptance Testing (UAT) to validate the project's deliverables. Obtain sign-off from the client on the UAT results and the Project Acceptance Form. Ensure that the project meets the client's expectations and requirements.

Q3. Explain and illustrate 3-tier architecture?

* Presentation Layer: The presentation layer is the top layer of the architecture and is responsible for presenting the user interface to the end-users. It also known as the user interface layer or the client layer. This layer handles the interaction between the user and the system.
* Application Layer: The application layer is the middle layer of the architecture and contains the business logic of the system. It also known as the logic layer or the server layer. This layer manages the application logic, data validation, and data processing. It communicates with the presentation layer and the database layer.
* Database Layer: The database layer is the bottom layer of the architecture and is responsible for managing the data storage and retrieval. It also known as the data layer or the server layer. This layer is responsible for storing and retrieving data from a database management system (DBMS). The database layer provides an interface for the application layer to access and manipulate data.

Q4. 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)

Here is a summary of points a Business Analyst should keep in mind before framing questions to ask stakeholders:

* 1.5W1H: Ask questions about the Who, What, When, Where, Why, and How of the project.
* 2. SMART: Ensure that questions are Specific, Measurable, Achievable, Relevant, and Time- bound.
* 3. RACI: Understand the roles and responsibilities of all stakeholders involved in the project.
* 4.3 Tier Architecture: Understand the system architecture and how data flows between different layers of the applications.
* 5. Use Cases: Develop a deep understanding of how the application will be use by various users.
* 6. Use Case Specs: Develop detailed documentation outlining specific requirements and expected behaviour for each use case.
* 7. Activity Diagrams: Create visual representations of how different activities and processes will flow within the application.
* 8. Models: Use various models to help stakeholders better understand the system, such as data models and sequence diagrams.
* 9. Page designs: Create mock-ups and wireframes of the application's user interface to better understand user needs and preferences.

We will use SMART approach here for the following reasons. It provides a framework for setting and achieving goals that are specific, measurable, achievable, relevant, and time-bound. By using this approach, the Business Analyst can ensure that the questions they ask stakeholders are:

* Specific: They should be clear and concise, focusing on the key issues at hand.
* Measurable: They should allow for quantifiable results, such as metrics or key performance indicators (KPIs), that can be used to measure progress.
* Achievable: They should be realistic and feasible, taking into account the resources and constraints of the project.
* Relevant: They should be aligned with the project goals and objectives, and address the stakeholders' needs and concerns.
* Time-bound: They should have a specific deadline or timeline attached to them, to ensure that they are completed in a timely manner.

Q5. As a Business Analyst, What Elicitation Techniques you are aware of? ( BDRFOWJIPQU)

1. Brainstorming:

a. This technique used to gather good numbers of idea from the group of people.

b. Through this technique we can come up with very innovative ideas and requirements

c. It can be done with group of 8-12 people and come up with solution of specific point

2. Documentation

a. Documentation about your current system or process, which can provide solution for new system.

b. This technique most usable for every elicitation technique.

c. Document analysis sources include pre-existing project plans, system specifications, process documentation, market research dossiers, customer feedback, meeting minutes, and user manuals

3. Reverse Engineering

a. Understanding a product or system by going from the end of the project to the beginning of the project

b. This technique most use where system migrate one to another.

c. There two types of Reverse engineering

i. Black Box: The system or product study without examining its internal system.

ii. White Box: The inner working of the system/product are studied.

4. Focus group

a. A focus group means elicit ideas and solution about specific product or service.

b. A focus group has 6-12 participant.

c. There two types of focus group.

i. Homogeneous – Individual with similar characteristics.

ii. Heterogeneous – Individual with diverse background

5. Observation

a. Observing showing user or event doing part of their job.

b. It can provide information of existing process, input and output.

c. There are two types of observation

i. Passive/Invisible: in this approach business analyst observe the subject matter working through business routine with interfering of their work, they use to notes about the process and his or her observation

ii. Active/Visible: In this approach while business analyst observes the current process takes notes of the process and having conservation about the process as well

6. Workshops:

a. This is a structured meeting attended by multiple stakeholders. Typically, it’s facilitated either by the business analyst. The business analyst may work with a group of stakeholders to develop a model.

b. Workshop is structure way to capture requirements.

7. JAD (Joint Application Development)

a. It involves collaboration between stakeholders and system analyst to identify need or requirements of the software.

b. JAD allows you to resolve difficulties more simply and produce better, error-free software.

8. Interview

a. Interview of users and stakeholders are important in create wonderful software

b. It is systematic approach to elicit information from person or group of people.

c. Interviewee asking relevant question and documenting the responses

d. There should be open-ended and closed ended question to seek more information about the process.

9. Prototyping

a. Showing the sample of working model, activity diagram, flowchart, screen mock-up through that elicit the requirements.

10. Questioner

a. This technique useful for obtain limited system requirement details from user.

b. By using this you can connect with more numbers of stakeholders and seek their opinion or salutation

c. Questions should base on high priority risks. Questions

11. Use cases specs

a. Early designs, mock-ups, prototypes with real users. User testing helps you to find out if the potential design will be usable

b. The components of the use case design include three major things Actor, Use cases, use case diagram

Q6. Which Elicitation Techniques can be use in this Project and justify your selection of Elicitation Techniques?

Prototyping

Use case Specs

Document Analysis

Brainstorming

Q7. Make suitable Assumptions and identify at least 10 Business Requirements.

|  |  |  |  |
| --- | --- | --- | --- |
| Requirement. ID | Requirement. Name | Requirement. Description | Priority |
| BR001 | User Interface | The application should have a user-friendly interface that is easy to navigate and use | 1 |
| BR002 | Security | The application should have a robust security system to protect user data and prevent unauthorized access | 2 |
| BR003 | Functionality | The application should allow farmers to create profiles and add details about their crop yields | 3 |
| BR004 | Functionality | The application should allow farmers to list their crop yields for sale and set prices | 4 |
| BR005 | Functionality | The application should allow buyers to search for and view available crop yields and prices | 5 |
| BR006 | Functionality | The application should allow buyers to place orders and make payments online | 6 |
| BR007 | Reporting | The application should generate reports on the total sales, revenue, and profits generated by the farmer | 7 |
| BR008 | Integration | The application should integrate with payment gateways and shipping providers for seamless order processing and delivery. | 8 |
| BR009 | Support and Performance | The application should have a fast and responsive interface to ensure a smooth user experience | 9 |
| BR010 | Scalability | The application should be able to handle a large number of users and transactions without performance issues | 10 |

Q8. List your assumptions.

* The stakeholders would have all the idea around the business requirements before the first stage of the project.
* The stakeholder would attend all the meetings on time as per the decided schedule.
* All the users would have the basic knowledge to use the application.
* All the necessary data would be available for the technical team to use and prepare the designing and development stage.
* The common resources like – mobile devices and internet connection would be available for the users.
* The application would be develop within the given timeframe and decided budget.
* There would be no un-ethical work involve while working on this project.
* All the third-party stakeholders would co-ordinate properly at each stage of the project.
* The logistics and delivery will be done seamlessly in all the location of the users.
* The overall users of the application would increase with time.

Q9. 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 | Farmers 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 |

Once the requirements are finalize, 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.

|  |  |  |  |
| --- | --- | --- | --- |
| Req. ID | Req. Name | Req. Description | Priority |
| BR001 | Accessibility | Application should be accessible via desktop and mobile. | 1 |
| BR002 | Ease of use | Application must be easy to use for all the farmers and manufacturers. | 2 |
| BR003 | Language | The application should have multiple languages. | 3 |
| BR004 | Search and Filter | The user should be able to search all the available options and add a filter to it. | 4 |
| BR005 | Data logging | The manufactures should be able to upload all the details with bifurcation. | 7 |
| BR006 | System Update | The application should update the details about the availability of the products real time. | 6 |
| BR007 | Privacy | The application should be able to protect all the personal data uploaded by the user | 5 |
| BR008 | Tracking | The application should support the method to track the order and provide the delivery date/day update. | 8 |
| BR009 | Support and Feedback | There should be a system to provide pre-sales and post-sales report to user for the effectiveness of the application. | 10 |
| BR010 | Notification and alert | The application should be able to send the notification and Important updates. | 9 |

Q10. Draw use case diagram

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Farmer Data

Bank

Manufacturer

Q11.Prepare use case specs for all use cases.

1. Use case Document for “Login” to the agriculture store.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC001 | | | |
| Use Case Name | User Login | | | |
| Created by | Mr. Daniel | Last updated by | | November 1st 2024 |
| Data Created |  | Last Revision Date |  | |
| Actor | Farmer, Manufacturer, Admin | | | |
| Description | This use case describes how the user can login. | | | |
| Pre-Condition | 1. The user must have internet connectivity. 2. The user must have registered account to login to the application. | | | |
| Post-condition | 1. The user successfully logged in and redirect to the dashboard of the application. | | | |
| Normal Flow | 1. User navigates to the login page of the online agriculture store 2. The login page ask for the username/phone number/email address and password. 3. The user enters the credentials and click on the login button. 4. The system verifies the credentials and redirects the user to the dashboard. | | | |
| Alternative flow | 1. In case the user fails to login successfully, the system will show an error message for “ Invalid credentials” 2. System will then provide an option for “Forgot user ID/ Password” 3. The user is ask to re-enter their credentials. | | | |
| Exception | 1. If the user forgets their password. 2. If internet connectivity is not working. 3. If application facing some technical issues. | | | |
| Frequency of use | High | | | |
| Assumption | 1. It is assume that the user has register on the application. 2. It is assume that the user knows the credentials correctly. | | | |

1. The use case document for “Searching Products” on the online agriculture store.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC002 | | | |
| Use Case Name | Search Product | | | |
| Created by |  | Last updated by | |  |
| Data Created |  | Last Revision Date |  | |
| Actor | Farmer | | | |
| Description | This use case describes how farmers would search the products. | | | |
| Pre-Condition | 1. The user must be log into the application. 2. The user must have the data uploaded by the manufacturers. | | | |
| Post-condition | 1. A farmer was able to search for desired product. | | | |
| Normal Flow | 1. The user clicked on the search bar on the dashboard of the application. 2. The user enters a keyword like “seed” and click on the search button. 3. The application would show the complete list of similar/related products. 4. User can click on the any product to see complete details and specification. | | | |
| Alternative flow | 1. In case no product match with the keyword search, the application would redirect to the page that will show “no product found” 2. The user can try search with different keyword. | | | |
| Exception | 1. If the internet connectivity is not working. 2. If the application facing some issues. | | | |
| Frequency of use | High | | | |
| Assumption | 1. The product database matches with the keyword search by the user. 2. The user has knowledge to use the search option and applying filter to the searched list of product. | | | |

1. Use case document for “Adding product in the cart” on the agricultural store.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC003 | | | |
| Use Case Name | Add product in the cart. | | | |
| Created by |  | Last updated by | |  |
| Data Created |  | Last Revision Date |  | |
| Actor | Farmer | | | |
| Description | This use case describes how the farmers would add the product in cart. | | | |
| Pre-Condition | 1. The user must be log in to the application. 2. The application must have the details of the product in the systems inventory. 3. The user has already reach to the desired product through the search option. | | | |
| Post-condition | 1. The user successfully add product in the cart. | | | |
| Normal Flow | 1. User searches for the desired product on the search option. 2. The application shows a list of all the similar related products. 3. The user selects the product they want to purchase. 4. The system displays complete details and specification of the product including, product name, quantity in option, price, other specification and manufacturer seller details. 5. User clicks on add to cart button. 6. The product gets added to the cart with the details Product name, price and quantity. 7. The system displays the message that product is added to the cart. | | | |
| Alternative flow | 1. In case the user wants to change the product after adding a product to the cart. 2. User wants to change the quantity selected to the product. | | | |
| Exception | 1. If the product is out of stock. 2. If the application facing some technical issues. | | | |
| Frequency of use | High | | | |
| Assumption | 1. The user has knowledge to add the product to the cart. 2. The product details are up to date and application is showing the “in stock and out of stock” products properly. | | | |

1. Use case document for “making payment” on the online agriculture store.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC004 | | | |
| Use Case Name | Making payment | | | |
| Created by |  | Last updated by | |  |
| Data Created |  | Last Revision Date |  | |
| Actor | Farmer | | | |
| Description | This use case describes how the farmers would make payment for the products available in the cart | | | |
| Pre-Condition | 1. The user must be log in to the application. 2. The user must have added product in the cart. 3. The application should have secure options to make payment. | | | |
| Post-condition | 1. The farmer has successfully made the payment for the products. | | | |
| Normal Flow | 1. The user searched and added the products to the cart to checkout. 2. The system displays the total amount to be paid for all the products added to the cart. 3. User click on the option “Proceed to pay” 4. The applications shows different methods to make the payment as:  * Cash on delivery * Card Payment – Debit card/ Credit Card * UPI  1. The user select an option and click on the pay now button. 2. The system process the payment through the payment gateway. 3. The payment gateway confirms the transaction and sends a response to the system. 4. The system displays c confirmation message: “Payment Successful! Your order has been placed” 5. The user receives an order confirmation with a receipt via email/SMS | | | |
| Alternative flow | 1. In case user wants to change the payment method, the application would show an option to go back to the previous page. 2. In case, the user wants to add any discount available on the product. | | | |
| Exception | 1. If the payment fails after go on the pay now through the desired gateway of payment, the application would ask to “retry to make payment after sometime” 2. In case, payment is interrupted due to any bank technical issues. 3. In case, the sufficient balance is not available in the chosen payment method. | | | |
| Frequency of use | High | | | |
| Assumption | 1. The user has knowledge to use different payment method. 2. The user would have sufficient amount in their bank account to make the required payment. | | | |

1. Use case document for “Product delivery” from order received by manufacturers through online agricultural store.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Use Case ID | UC005 | | | |
| Use Case Name | Product delivery | | | |
| Created by |  | Last updated by | |  |
| Data Created |  | Last Revision Date |  | |
| Actor | Farmer, manufacturer and delivery partner. | | | |
| Description | This use case describes the process of delivering purchased product to the user’s designated address after an order has been placed successfully in the system. | | | |
| Pre-Condition | 1. The user has successfully placed an order and completed the payment process. 2. A valid delivery address is provided during the checkout process. 3. Products are available in stock and ready for dispatch. | | | |
| Post-condition | 1. Products are delivered successfully to the customer’s specified address; order status is updated to “Delivered.” | | | |
| Normal Flow | 1. After the order is placed and payment is confirmed, the system generates a unique order ID. 2. The system assigns the order to the logistics/delivery partner. 3. The logistics team receives the order details including the delivery address and product information. 4. The warehouse staff prepares the product for shipment, including secure packaging and labelling. 5. The delivery partners collect the package and update the system with the shipment status. 6. The system sends a notification to the shipment tracking details. 7. The delivery partner deliver the product to the user’s specified address. 8. Upon successful delivery, the system updates the order status to “Delivered” and notifies the user. | | | |
| Alternative flow | 1. In case, the user wants to change the address of the product delivery. 2. In case, the delivery is delayed due to some reasons. | | | |
| Exception | 1. If delivery fails due to the incorrect address of the product delivery. 2. In case the user receives any damaged/ missing product after the delivery of the product, the user reports the issues to customer support and the system initiates a replacement or refund process as per the return policy. | | | |
| Frequency of use | High | | | |
| Assumption | 1. The customer provides an accurate delivery address and contact details. 2. The delivery partner provides timely delivery services. 3. The products are dispatched within the given timeline at the time of order placing. | | | |

Q12. Activity Diagrams.

1. Activity Diagram: User login

Invalid log in/password

Enter Loin credential

Successfully Logged In

1. Activity Diagram – Search Product.

No

System Displays product lists

Product Name

Other Filter

Price

Enter keyword in the search bar

Go to search Bar

1. Activity Diagram: Add product to cart.

No product found

System shows message – item added to the cart

Item/Product Selected

Item/Product Selected

Search for product

1. Activity Diagram: Make payment for the product added in the cart.

Order Confirmed

Price displayed in the application

Choose payment method

COD

Wallet

Card

UPI

Application confirms the payment

Order ID Generated

Inventory updated

Application confirms the payment

1. Activity Diagram: Delivery partner delivers the order.

Product status is updated to delivered

Order is pick by the delivery partner.

Delivery Partner gets the notification about the new order

Feedback shared by the customer

SMS/Email confirmation received

Order is pack by manufacturer

Order is delivered to the customer