**Capstone Project 1 – Part 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?

**Solution:
Quarter 1 Aduit Report
( Requirements Gathering):**

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| **Stage** | **Quarter 1 Audit Report (Requirement Gathering phase)** |
| **Completed**  | 10 weeks (week 1 to week 10) |
| **Check list** | Business Requirement template (BRD) |
|   | Elicitation results report |
|   | Duplicate requirements report |
|   | Grouping of functionalities/ features - client signoff |
|   | Email Communication - To, cc, Bcc |

**Quarter 2 Audit Report (Requirement Analysis phase):**

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| **Stage** | **Quarter 2 Audit Report (Requirement Analysis phase)** |
| **Completed**  | 7 weeks (week 16 to week 23) |
| **Check list** | UML Diagrams |
|   | Business to functional requirements mapping |
|   | Client signoff-documents |
|   | RTM document version control |
|   | Email communication- To, cc, bcc |

**Quarter 3 Audit Report Design:**

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| **Stage** | **Quarter 3 Audit Report Design** |
| **Completed**  | 7 weeks (week 30 to week 37) |
| **Check list** | Utilization of tools |
|   | Documentation evidence on client communication |
|   | Stakeholder MOM (Minutes of Meeting) |
|   | Email Communication- To, cc, bcc |

**Quarter 4 Audit Report (Development (Coding) & Testing):**

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| **Stage** | **Quarter 4 Audit Report (Development (Coding) & Testing)** |
| **Completed**  | 40 weeks (week 40 to week 80) |
| **Check list** | Joint Application Development (JAD) session report |
|   | End user manual preparation document |
|   | BA and Developer MOM |
|   | Test case summary |
|   | Training report to end users |
|   | Lessons learnt document |
|   | Email communication - T0, cc, bcc |

**Question 2:** 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 )

**Solution:**

1. What Elicitation Techniques to apply:
We have many elicitation techniques to apply and used to gather requirements. Some of them are: Brainstorming, Document Analysis, Reverser Engineering, Focus Groups, Observations, JAD, etc.,
2. How to do Stakeholder Analysis RACI/ILS, What Documents to Write:
Stakeholder analysis can be done by using the RACI matric involves identifying stakeholders and defining their roles and responsibilities within the project. Identify the stakeholders, define roles and responsibilities, create the RACI matrix, assign RACI roles.
3. What Documents to Write:
Business Requirement Document (BRD), Functional Requirements Document (FRD), Use case Documentation, Test Case Documents & etc.,
4. What process to follow to Sign off on the Documents:
Sign off to be taken on Software Requirement Specification (SRS) as this is the primary and important document. Sign off can be taken using Email confirmation from the client.
5. How to take Approvals from the Client:
Approvals from the client taken by establishing a formal meeting to keep them informed about the project and get continuous feedback.
6. What Communication Channels to establish n implement:
Regular Meetings – Weekly status meetings, Bi-weekly sprint reviews and monthly stakeholder updates.
7. How to Handle Change Requests:
Once the change request has been raised from the stakeholder’s end that must be documented in the change request form, Do impact analysis, Approval process and documentation.
8. How to update the progress of the project to the Stakeholders:
Stakeholders can be updates on the project progress in the communication channels in weekly status reports, monthly review meetings.
9. How to take signoff on the UAT- Client Project Acceptance Form:
To take the sign off on the User Acceptance Testing (UAT), BA must do UAT preparation, conduct UAT, fix issues, acceptance form, final review meeting & obtain sign off.

**Question 3:** Explain and illustrate 3-tier architecture?

**Solution:** 3-Tier Architecture has 3 layers:
1. **Application Layer:** Screens, Pages, Validations on Page, Company Specific logic, Functionality
 **Example**: E-commerce website.

2. **Business Logic Layer:** All Re-usable components, frequently changing components, governing body rules & regulations, compliances
 **Example**: Printer, payment gateway, mail servers, RBI rules for Banks

3. **Database Layer**: Database components connecting to databases.
 **Example**: MYSQL, Oracle database

 Screens, pages, client computer
 \_\_\_\_\_\_\_\_\_\_\_\_\_ **Application Layer** \_\_\_\_\_\_\_\_\_

 Printer, Payment gateways, mail servers
 Application servers
 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Business Logic Layer**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 MYSQL server, Oracle database
 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Database Layer**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



**Question 4:** Business Analyst should keep What points in his/her mind before he frames a Question to ask to the Stakeholder **Solution:
5W1H Technique:** The 2W1H framework is a useful tool for gathering information and understanding a situation by answering questions about who, what, where, why and how.
> If we need to extract consistent requirements then probe in these directions. 5W1H is considered as tool of business analysts.

**SMART Technique:** A well-formed requirement should comply with SMART
Specific
Measurable
Attainable
Realistic / Relevant
Traceable / Time bound

**RACI:** RACI chart help define and clarify roles and responsibilities within a team by outlining who specific duties. RACI stands for responsible, accountable, consulted and informed. These are the main codes that appear in a RACI chart, used to describe the roles played by team members and stakeholders in the production of the BRD.

**3-Tier Architecture:** 3-Tier architecture helps to find out the different layers in any business model regarding what comes where in 3 different layers. The 3 layers in this model are: Application Layer, Business Logic Layer and Database layer.

**Use Cases:** Use case can be used to describe the functionality of a system in a horizontal way. That is, rather than merely representing the details if individual features of your system, use case can be used to show all of its available functionality.

**Use case Specs:** A use case specification is a detailed document that outlines requirements of a system by describing how different users(actors) will interact with the system. Essentially providing how the system should function from user perspective.

**Activity Diagrams:** Activity diagrams are one of the five diagrams in the UML for modelling the dynamic aspects of system. An activity diagram is essentially a flowchart, showing flow of control from activity to activity. Speaks of all the activities which are happening in the system through system perspective but not actor perspective.

**Models:** There are5 types of models
1. Domain Model: A Domain model is also known as conceptual modelling. A conceptual model depicts the concepts (Ideas, things or objects) that are easily identifiable in the problem description.
2. Conceptual Model:
3. Data Model
4. Data Flow Diagram and (DFD)
5. Entity Relationship Diagram (ERD)

**UML:** UML stands for Unified Modelling Language, which is a standardized way of diagramming and modelling software systems to aid in design, development and communication between team members.

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

**Solution:** There are various types of Elicitation techniques for the requirements gathering. They are as follows:

**Brainstorming:** Brainstorming can be done either individually or in groups. The ideas collected during the brainstorming session are reviewed or analysed.

> Brainstorming is an effective way to generate lots of ideas on a specific issue and then determine which idea is the best solution.

 **Document Analysis:** Document analysis is done through reading a document and understanding the product, process and project.

**Rever Engineering:** Reverse Engineering is also called back engineering. The process of extracting knowledge or design information from anything man-made and re-producing it or re-producing anything based on the extracted information.

> The process often involves in disassembling something and analysing its components and working in detail. Majorly used in migration projects.

**Focus Groups:** A Focus group is a means to elicit ideas and attitudes about a specific product, service or opportunity in an interactive group environment.

**Observations:** Observing, shadowing users or doing a part of their job, can provide information of existing process, inputs and outputs.

**Workshops:** A requirement workshop is a structured approach to capture requirements. A workshop may be used to scope, discover, define, prioritize and reach closure on requirements for the target system.

**JAD (Join Application Development):** Application developed through JAD has higher customer satisfaction and less number of errors as user is directly involved in the development process.

**Interview:** Interview of a user and stakeholder are important in creating a software.

> An interview is a systematic approach where interviewee is going to ask relevant questions related to software and documenting the response.

**Prototyping:** Prototyping is an attractive idea for complicated and large systems for which there is no manual process or existing system to help determining the requirements.

**Questionnaire / Survey:** Questionnaire / Survey can be useful for obtaining limited system requirements details from the users / stakeholders, who have minor input or are geographically remote. **Use Case Specs:** A use case specification is a detailed document that outlines requirements of a system by describing how different users(actors) will interact with the system. Essentially providing how the system should function from user perspective.

**Question 6:** Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques? **Solution:** The following elicitation techniques can be used in the current project.

**Brainstorming**: Brainstorming can be one of the impactful elicitation techniques in this project as this technique gives ideas to be collected to review and analyse later which can be used in building the business model.

**Document Analysis:** Document analysis would be one of the important techniques in the current project to get the requirements, thoughts and ideas of the stakeholder referring the provided document.

**JAD (Joint Application Development):** This is also one of the most important techniques as it directly involves users which results in less errors and more customer satisfaction.

**Use Case Specs:** Use Case Specs can be used in this project as this techniques gives clear detailed document of the requirements how a system should function from the user perspective.

**Question 7:** Make suitable Assumptions and identify at least 10 Business Requirements.

**Solution:**

**BR001** – Manufacturers should be able to create login id and password to log in.
**BR002** – Manufacturers should be able to upload and display their products in the application
**BR003** – Farmers should be able to create login id and password to login.
**BR004** – If the Farmers are new users, they can create a new account by submitting their email ID and creating a password.
**BR005** – Farmers should be able to browse through the products catalogue once they visits website.
**BR006** – Farmers should be able to search products in fertilizers, seeds, pesticides
**BR007** – Farmers should be able to get an option if they want to buy the products now or buy-later option
**BR008** – Farmers should be able to use easy payment options such as Cash on Delivery (COD), UPI, Credit / Debit Card
**BR009** – Farmers should get a email confirmation once the order is placed regarding their order status.
**BR010** – Farmers should get deliver tracker to track the whereabouts of their order.
 **Question 8:** List your assumptions
**Solution:
Assumption 1**:Farmers can login using Facebook or Google Account.
**Assumption 2**: Farmers has knowledge on Farming products like fertilizers, seeds, pesticides.
**Assumption 3**: Online shopping is increasing in all the industries. Farmers also prefer online shopping for farming products.
**Assumption 4**: Manufacturers keeps on updating the new and updated stock for the farmers
**Assumption 5**: Farmers have UPI accounts or cards to make payment processing safe and secure.
**Assumption 6**: Designers design the user friendly and easy to understand UI / UX for farmers.

**Question 9:** Give Priority 1 to 10 numbers (1 being low priority – 10 being high priority) to these Requirements after discussions with the stakeholders.
**Solution:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement ID** | **Requirement Name** | **Requirement Description** | **Priority** |
| BR001 | Manufacturers Login | Manufacturers should be able to create login id and password to log in. | 9 |
| BR002 | Manufacturers upload their products | Manufacturers should be able to upload and display their products in the application | 10 |
| BR003 | Famer Login | Farmers should be able to create login id and password to login.  | 9 |
| BR004 | Farmer Registration | If the Farmers are new users, they can create a new account by submitting their email ID and creating a password.  | 8 |
| BR005 | Product Browsing | Farmers should be able to browse through the products catalogue once they visit website. | 10 |
| BR006 | Product Search | Farmers should be able to search products in fertilizers, seeds, pesticides | 9 |
| BR007 | Buy Now / Buy Later | Farmers should be able to get an option if they want to buy the products now or buy-later option | 7 |
| BR008 | Payment Option | Farmers should be able to use easy payment options such as Cash on Delivery (COD), UPI, Credit / Debit Card | 10 |
| BR009 | Order Confirmation | Farmers should get a email confirmation once the order is placed regarding their order status. | 8 |
| BR010 | Order Tracking | Farmers should get deliver tracker to track the whereabouts of their order. | 9 |

**Question 10:** Draw use case diagram **Solution:**

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**Question 11:** Prepare use case specs for all use cases.
**Solution:** Below are the use case specs for all the use cases.

**1. Use Case: Sign Up
Actors:** Farmer, Manufacturers
**Description**: Allows new users to register on the platform
**Preconditions:** The user must not have an existing account.
**Basic Flow:**
 a. user enters name, email and password.
 b. System validates inputs and creates an account
 c. Confirmation note on the screen.
**Post Conditions:** The user account created

**2. Use Case: Login
Actors:** Farmer, Manufacturer
**Description**: Allows existing users to access their account
**Preconditions**: The user muse be registered
**Basic Flow:**
 a. User enters email and password
 b. System validates the credentials
 c. User logged in
**Postconditions**: User access their account.

**3. Use Case: Browse Products
Actors:** Farmer **Description:** Farmers can explore available products from catalogue
**Preconditions:** User is logged in
**Basic Flow:**
 a. user navigates to the product catalogue
 b. System showcase available products
**Postconditions:** Products are displayed

**4. Use Case: Search Products
Actor:** Farmer: Enables farmers to search products
**Description** Preconditions: The user must Logged in
**Basic Flow:**
 a. User enter search section (Fertilizer, Seeds, Pesticides)
 b. System displays results
**Postconditions**: Search results are displayed

**5. Use Case: Buy Now / Buy Later
Actor:** farmer
**Description**: Farmers will get an option to buy immediately or buy them later.
**Preconditions**: User must select a product.
**Basic Flow:** a. user selects Buy Now or Buy Later
 b. If Buy Now, proceeds to payment
 c. If Buy Later, product will be added to buy later section
**Postconditions**: The purchase is completed or added to buy later.

**6. Use Case: Make Payment
Actor:** Farmer
**Description**: Allows farmers to complete payment transaction.
**Precondition**: User must have selected the product for payment
**Basic Flow:**
 a. User selects payment method (COD, UPI, Credit/Debit Care)
 b. Payment gateway process the payment
**Postconditions**: Payment Successful and order is placed.

**7. Use Case: Order Confirmation
Actors:** Main Server, Farmer
**Description:** Sends an email confirmation after placing the order.
**Preconditions:** Order must be placed successfully
**Postconditions:** user receives order confirmation email

**8. Use Case: Manufacturer Manage Product
Actor:** Manufacturer
**Description:** Manufacturer manages products
**Preconditions:** Manufacturer must be logged in
**Basic Flow:**
 a. Manufacturer adds, updates products or remove
 b. System update changes
**Postconditions:** Product details are updated

**9. Use Case: Delivery Assignment
Actor:** Database Admin
**Preconditions:** Order muse be placed
**Basic Flow:**
 a. Admin assigns a delivery agent
 b. System updates tracking details
**Postconditions:** Order is ready for shipment
**10. Use Case: Deliver Order
Actors:** Delivery Agent
**Preconditions:** Order must be assigned to a delivery agent
**Basic Flow:**
 a. Delivery agent receives order details
 b. Delivery agent delivers the order
**Postconditions:** Order marked as delivered and email sent.

**Question 12:** Activity diagrams **Solution:
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