**QUESTION-1 AUDITS:**

. Audit is nothing but inspection of work for quality and for progress. Generally audits will happen because of the standards either the IT company may be following (or) the client is following (or ) the project is initiating.

During the project progress there will be Internal Audit and External Audits will be conducted.

* Business Analysts are responsible to update the progress of the project to the responsible stakeholders and concerning documents.
* During the audit time they will pick the 5 incidents in the previous project and ask how they have resolved. Whether through mail communication and whose has approved those incidents and they ask for the proof of communication.

As per the case study they have planned for 4 quarterly audits Q1, Q2, Q3 and Q4. The time duration was 18 months for completion of project with fixed bid .

As a BA the project was process through V-MODEL, so the initial use and project can be completed faster and in V- Model testing activities start with the first stage .In these quarters what are the risks they have identified, whet here the same incidents has been explained to the stakeholder or not , if yes mail communication through stakeholder and the BA , they ask for the incidents of various issues.

|  |  |
| --- | --- |
| **Stage** | **Quarter 1 Audit Report( Requirement Gathering Phase)** |
| **Completed** | 10 Weeks ( week 1 to week 10) |
| **Check List** | BRD Template |
| Escalation result report |
| Duplicate requirements report |
| Grouping of functionality / features - client signoff |
| Email communication - TO , CC, BCC |

|  |  |
| --- | --- |
| **Stage** | **Quarter 2 Audit Report( Requirement Analysis Phase)** |
| **Completed** | 7 weeks ( week 11 to week 16) |
| **Check List** | UML diagrams |
| Business to Functional requirements mapping |
| client signoff documents |
| RTM document version control |
| Email communication - TO , CC, BCC |

|  |  |
| --- | --- |
| **Stage** | **Quarter 3 Audit Report( Design)** |
| **Completed** | 7 weeks ( week 17 to week week 23) |
| **Check List** | Utilization of tools |
| Documentation evidence to client communication |
| Stakeholder MOM |
| Email communication - TO , CC, BCC |

|  |  |
| --- | --- |
| **Stage** | **Quarter 4 Audit Report( Development)** |
| **Completed** | 20 weeks ( week 24 to week 44)  |
| **Check List** | JAD session report |
| End user manual preparation document |
| BA and developers MOM |
| Email communication - TO , CC, BCC |

**QUESTION – 2 BA APPROACH STARTEGY:**

* **Elicitation Technique**: Any meeting with the client which has a specific objective we call it as an elicitation technique. We have many elicitation techniques for gathering the requirements –Brainstorming, Document analysis , Reverse Engineering, Focus groups, observations, workshops, JAD Sessions, Interviews , prototyping, Questionnaires and survey forms and use case specs.
* **How to do Stakeholder Analysis RACI :** Stakeholder analysis can be done by using RACI matrix . It involves identifying stakeholders and defining their roles and responsibilities with in a project – identify stakeholders, define roles and responsibilities, create the RACI matrix , Assign the roles .

* **What Documents to Write :**

BA, PM will prepare BRD-Business Requirement Document.

BA will prepare Functional Requirements in FRS

Tech Team will prepare non – functional requirements in SSD(Supplementary Support Document)

BA will add FS + SSD to form SRD (Software requirement specification document )

BA will take sign off document in SRS (Software requirement specification document) from the client .

Once sing off is completed BA will prepare RTM (Reference traceability matrix document) refereeing SRS.

User Case Document

Test Case Document

High Level Design Document

Application Design Document

Solution Document

Low Level Design Document

Component Design Document

Test Documents

 **What process to follow to sign off on the Documents:** Sign off to be take in SRS as this is the primary and important document. Sign off can be taken by using E-Mail confirmation from the client.

* **How to take Approvals from the client :** Establish a formal meeting with the clients to keep them informed and get continuous feedback .
* **What communication channels to establish n implement :**  Regular Meetings – Weekly status meetings, bi-weekly sprint reviews and monthly stakeholder updates.
* **How to Handle Change Requests:** Change request can be handle by configuration management and this is handle by project manager.
* **How to Update the progress of the project to the stakeholders:** Weekly status Reports and Monthly Review Meetings.
* **How to take signoff on the UAT- client project Acceptance Form : UAT** Preparation , Conduct UAT , Fix Issues, Acceptance Form, Final Review Meeting, Obtain Sign- off.

**QUESTION- 3 3-TIER ARCHITECTURE:**

In 3 –tier architecture it consists of 3 years.

1. Application / client / Front end Layer.
2. Business logic layer
3. Data Layer

|  |  |
| --- | --- |
|   Application / client / Front end Layer. | GUI , Web Interface |
|
|
| ↨ |
| Business Logic Layer | Application Programs, Web Pages |
|
|
| ↨ |
| Data Base Server/ Data Layer  | Data Base Management System |
|
|
|

* It is Predominant Software architecture
* Each tier run on its own infrastructure
* They can develop simultaneously and can be updated
* Advantages – Faster Development, Improved Scalability , Reliability and Security.

**Application / client / Front end Layer.**

It is the Top level tier . In this layer we have user interface (UI) . The Top tier interact with the Business logic layer . The duty is to collect the data and display the information.

Software’s used in this layers are HTML, JAVA, CSS JAVA SCRIPTS etc.

**Business Logic Layer:**  Here the business logics are implemented . It is middle level tier. This layer is the heart of the application because were the information is processed . Here the business logics and rules are applied . Communication Through business logic layer and with the data tiers is through **API CALLS** .

Software’s used in this layers are Python , java, perl, PHP , ruby etc.

**Data Layer :**  Here the data is stored and managed. Add, Delete and modify the data will be done in data layer. This tier is having direct communication with business logic layer but not through application layer . if they want to communicate they go through API CALLS.

Software’s used in this layers are RDBM , DBMS etc.

**QUESTION -4 BA APPROACH STRATEGIES FOR FRAMING QUESTIONS:**

1. **5W 1H:**  The tool of business analyst is 5W 1H rule means ( When, where, what , who why and how ) . Where to get the requirements? What is the time frame ? where are the stakeholders ? Why the project implemented ? who are the stakeholders ? How to complete the project ?

Especially in brainstorming session we will write down the ideas in 5W 1H rule only to get the clarity about the project.

1. **SMART:** While validating the requirements we have to identify whether the requirements are specific, measurable , attainable , realistic in nature and it should be time bound . If the requirements are SMART then we have to submit to the client and the client will give you a sing up on document.
2. **RACI:**  RACI Matrix charts helps define and clarify roles and responsibilities within a team by identifying who is responsible, accountable consulted and informed for each task.
3. **3-Tier Architecture:** It is used for Implementation of business logics and the data can be stored and managed . It is User Interface. In this project As a user interface whether customer is comfortable in English, like login, product search, wish list, add to cart payment and delivery the product. In Application layer were the business logics are implemented internally like add , delete . In data base server the data is stored like list of pesticides, fertilizers, and different types of seeds .
4. **UML:**  Unified Modeling Languages – It is know as language of diagrams. It is standardized way of diagramming and modeling software system to design, development and communication between team members. Activity diagrams and use case diagrams are part of UML .
5. **Modeling & page design**- It's a very important part of the question for requirement getting where BA needs to ask a stakeholder about. In what way do you want functioning to look like? The web page functions look like? Functional activity? Payment gateway Complaint and function update.

**QUESTION – 5 ELICITATION TECHNIQUES:**

The meeting Regarding Specific objective then it is called “Elicitation Techniques”. It is Just Meeting with the clients.

* Brainstorming
* Document Analysis
* Reverse Engineering
* Focus Groups
* Observations
* Workshops
* JAD (Joint Application Development )
* Interviews
* Prototyping
* Questionnaires are survey forms
* Use Case Specs
* **Brainstorming:**  The Domain experts or subject matter experts they assemble and for the given challenge they start giving you ideas on how to solve the problem.

**Process for Brainstorming:** Before conducting the session we have to analyze the problem and we have to note it down. Before conducting the session we have to take the approval from your project manager. After approval we have to identify the brainstorming participants in the domain or subject matter experts and send them invitations to participants . If we need 10 participants we have to send the invitation to 15 participants some may attend or some may busy with their works. On a particular date we have to book conference room or book a calendar for the session.

It will take week days or 10 days of time. Why because the participants may be busy with their work. While sending the invitations to the participants we have elaborate the issue in deep or problem where we are facing the issue. Before coming to the session they may come with proper information.

While conducting brainstorming session we have start with our problem like these areas we are getting problem ask them to give ideas. While giving ideas we have to note it down in **“5W 1h” .**  It a tool for Business Analyst.

**5W 1h- (** Who , where, what ,when , why and How ) Segregate the ideas into these sections and you have to rate these ideas and you have to prepare minutes of meetings about the particular brainstorming sessions.

The aim is to solve the particular problem by ideas given by the expert’s and sme’s . There is no guarantee that the problem will be solved.

Challenges Conducting brainstorming session –

1. The participants / Experts/ SME’S may be little bit busy and they may not spend quality time.
2. You may not understand the vocabulary or their ideas because you may be new to session or domain.
3. In such cases you have to use **mind mapping .Mind mapping** means these are like group chat tools and provided by backend.
4. you will be part of session if you have 5 years of experience.
* **Document Analysis :**  When you read any document and understand process or the product we call it as document analysis. It is important elicitation technique we use and it is **compulsory** elicitation technique which we use in any project.
* **Reverse Engineering:** Without knowing the functionality of it but still playing with it to understand the functionality of the particular process we call that approach to be reverse engineering. Reverse engineering approach in migration projects.
* **Focus Groups:**  These people are going to user your project in future. Most of the times they may be aware of the project or they may not be aware of it.

In focus groups they are two types

1) Homogenous Focus Groups

 2) Heterogeneous Focus Groups

Homogenous Focus Groups means the people belongs to same domain

Heterogeneous Focus Groups menas the people belongs to different stakeholders or different domains.

* **Observations:** Asking Questions and understanding about the actions that has been performed. There are two types of observations active and passive. As a business we do both active and passive observations but preferably it is only passive.
* **Workshops:**  They are more practical in nature and they aim to completeness .The time span of the workshops may be 10 days/ 2 weeks/ 5 weeks/ 4 months etc.
* **JAD( JOINT APPLICATION DEVELOPMENT ) :**  As a business analyst we may required to work on technical projects like Networking Projects, DB Projects or Testing Projects like that we may not be aware of what that project is in such a case we take help of network engineer or tester with us to the client and this session is called JAD session.
* **Interviews :**  Any interaction with other person interview understanding the other person view about a particular concept we call it as an interview.

As a BA when and where we will conduct interviews. We will conduct interviews after gathering the requirements. After that while gathering we will get the conflicts.

How to conduct a interview with the stakeholders? – We have to book book appointment with stakeholders

How to approach?

While approaching the client we have two types i.e structured and unstructured.

Structured Means – We note down all the questions like 10,20 30 etc and will ask the stakeholders and will note it down the answers.

Unstructured Means - We know what the problem what the concept is and once we meet the client we will ask the Question and they will answer. Based on answer we will ask the questions . like that it will continue .

While asking questions we have two types i.e open ended and closed ended question. Open ended means Answers will be like explanation . Closed ended means Answers will be Yes/No . These are called as interrogative questions.

* **Prototyping:** Prototyping means showing the sample of the working model.

Generally prototype starts with the reference of the client like CRM Functionality / flowchart like that they ask the model .

Generally we draw by using activity diagrams, flow charts, process flow charts.

Generally prototyping have vertical prototyping and horizontal prototyping all depends on context and situations.

* **Questionnaires are survey forms :**  These are used to interact with more number of stakeholders in a single group.

**Example :** 1000 stakeholders feedback to be collected in standard formats like rating (1,2,3,4,5) , (poor , good , very good, excellent) .

* **Use case specs:**  When the client is giving you the requirements parallel we start drawing use case diagrams and parallel we start using use case specs. If you fix you get lot of ground a lot of questions to ask to the stakeholders very much relevant to what required.

**Example:** customer want a blog with username and password for login .

What do you want ?

* User name & Password
* Who are primary actors and secondary actors
* Post & Pre Requisitions
* Alternate flows, assumptions, input , output and miscellaneous information.

This information is required for development team to develop this further.

**QUESTION – 6 THIS PROJECT ELICTATION TECHNIQUE:**

Based on my knowledge the following are elicitation techniques which are used for this project.

* **Prototyping:** Prototyping means showing the sample of the working model.

It is essential step in creating the requirement functionality . In prototyping the client ask the model and compare with the same. Prototyping is better for enhancing collaboration, minimizing risks, improving user experience, and streamlining the development process

* **Use case specs :** clear documentation of system requirements, improved communication between stakeholders, a structured understanding of user needs, better alignment with business goals, and a solid foundation for system design, development, and testing by providing detailed information about expected system behaviors and outcomes for specific user scenarios.
* **Document Analysis:** Document Analysis is the important elicitation technique we use and it is compulsory elicitation technique we used in every project . the main advantages are gaining deeper context and understanding of business processes, identifying potential areas for improvement, making informed decisions based on qualitative data, uncovering hidden trends and insights from unstructured information, validating existing data, and supporting stakeholder alignment by analyzing relevant documents like reports, contracts, and customer feedback.
* **Brainstorming :**  when the BA is getting a chance to connect with the stakeholders, who are experienced and can share their knowledge. By using brainstorming techniques we can generate a large number of ideas in a short amount of time. Brainstorming is a group elicitation technique where a problem or topic is presented to the group, and participants are asked to produce as many ideas to solve/address the topic as possible. As ideas are presented, a scribe documents the ideas and ensures the participants can see what is being captured.

The main advantage of brainstorming sessions are creativity and innovation improving problem-solving abilities, enhancing team collaboration, and ensuring all team members feel included by allowing them to contribute ideas freely

**QUESTION -7 10 BUSINESS REQUIREMENTS:**

Business requirements are higher-level statements of the goals, objectives, or needs of the enterprise. They describe the reasons why a project has been initiated, the objectives that the project will achieve, and the metrics that will be used to measure its success. Business requirements describe needs of the organization as a whole, and not groups or stakeholders within it.

The 10 Business requirements are

BR001 - Farmer need to register with the application for creating the user id and password.

BR002 – Farmer needs to be login with the help of user id and password.

BR003 - Farmer should able to search the products in the Application.

BR004- Farmer should able to browse the products through catalog.

BR005 - Farmer should add the products to wish list or add to cart.

BR006 – Farmer should add the delivery address like communication address for delivering the product.

BR007 – Farmer should able to make the payment through online mode / offline .

BR008 – Farmer should get the details through mail id, sms for order confirmation.

BR009 – Farmer should get the tracking id details through mode of communication he chooses.

BR010 – Farmer quires should be addressed properly by customer service.

BR011 – Farmer should able to share the products to other people too.

BR012 – Farmer should be able to know the experience of other users with the product they buy from the manufacturer

**QUESTION – 8 ASSUMPTIONS:**

1. User should login through Google account / email id .
2. Farmer should have knowledge to see the details of pesticides, fertilizers and seeds from the manufacturer.
3. Farmers should be able to buy or wish-list.
4. They should be able to make payments online.
5. Customers should be informed once the order is placed successfully
6. Customer should be able to track the product dispatched details through link.
7. Customer queries should be addressed for better customer service
8. Customer should be able to share the products with other people too.
9. Customers should be able to know the experience of other users with the product they buy from the manufacturer.

**QUESTION – 9 THIS PROJECT REQUIRMENTS PRIORITY:**

|  |  |  |  |
| --- | --- | --- | --- |
| Req Id | Business Requirement | Req Description | Priotiy |
| BR001 | Product Search | Farmer should able to search the required fertilizers/ pesticides/ seeds. | 7 |
| BR002 | Product Availability | Farmers should be able to see the fertilizers and pesticides details from the manufactures | 9 |
| BR003 | Product Visibility | they should able to search specific required product | 8 |
| BR004 | Wish list Box | they able to add the products to wish list | 5 |
| BR005 | Methods of Payments | they can able to make payment through different modes like UPI/ Prepaid cards/ Net banking and they can opt for cash on delivery | 9 |
| BR006 | Order confirmation status | customer should get confirmation through mail or sms once the order placed successfully | 9 |
| BR007 | Tracking of ordered product | Customer should able to track the delivery of the product | 9 |
| BR008 | customer wish list cart | customer can add their chosen products to wish list for later buying it | 3 |
| BR009 | customer service | Quires should be addressed within the TAT . | 6 |
| BR010 | product review | They should experience product and they should share the product to other farmers also | 7 |

**QUESTION – 10 USE CASE DIAGRAM:**

**QUESTION – 11 USE CASE SPECIFICATIONS:**

1. Use case Name : UC0001- LOGIN
2. Use case Description : Login to the application by using user id , password for purchase of products.
3. Actors : Primary actor – New Customer, Existing customer ;

 Secondary Actor- Database, courier delivery boy.

1. Basic Flow : 1. Customer will register with the site .

 2. He will login to the site using his/her user id and password.

 3. After successful login customer will go to home page were

 he/she finds the search option for searching the particular

 pesticides/ fertilizers/ seeds.

 4. Customer will choose which brand of pesticides/ fertilizers/ seeds required for his/her usage .

 5. How much quantity they want they will add to the cart .

 6. After adding to cart they will choose the address which they want

 it to delivered.

7. After choosing the address it asks for proceed for payment.

8. Customer has option to choose different types of payment

methods like UPI, Prepaid Cards, Net banking and cash on

delivery.

9.After successful payment customer will confirmation regarding the

order status through email and sms.

10. Post confirmation customer will get the tracking details through

email and sms through which he/she can track the details of the

product.

1. Alternate Flow:

1.While login to the site using their user id and password if they

enter the incorrect details like user id / password they have the

option to choose forget password / forget user id.

 6. Exceptional Flow :

1. After login they are unable to get the exact product from which manufacture he want to choose then he will call to our customer care .

2. They will guide the same through the link which they sent through registered mail id.

3. Customer may get error in payment issues like using card details like entering the wrong pin/ cvv / exp date etc.

4. Customer unable track the delivery status then will contact through customer care for further details.

1. Pre Condition : User should register successfully into portal.
2. Post Condition :Successfully able to login the account
3. Assumptions :User should have awareness of computer knowledge; knowledge on English ; manufacturer details ,
4. Constrains :user name should not be names .
5. Dependencies : user should exists – registration mandatory .
6. Inputs and Outputs :inputs – user name and password; outputs – errors, order status and tracking status.
7. Business Rules : user name – it should be unique ; password – it should be strong with 12 characters (1 letter should be upper case, 1 special characters , numbers should be used ) . No reputation of DOB, Names, mobile number and sequence numbers ( 123456789) , repeated numbers ( 112233445566) .

**QUESTION – 12 ACTIVITY DIAGRAMS: **