**Question 1**

**Quarterly** **Audit-** It can be internal as well as external Audits conducted during the project progress as a part of the Quality Assurance procedure that may belong to any standard any standards that the IT Company may follow. It identifies risk project progress and ensures compliance with project plan, budget and requirement.

**Quarter 1 Audit report (Requirement Gathering & Analysis phase)**

* Business requirement template
* Elicitation results report
* UML Diagrams
* Business to functional requirement mapping
* Client- sign off documents
* RTM document version control
* Email communication- to cc, bcc

**Quarter 2 Audit Report (Design)**

* Utilization of tools
* Documented evidence on client communication
* Stakeholder MOM
* Email communication

**Quarter 3 Audit Report (Development)**

* JAD session report
* End user manual preparation document
* BA and developer MOM
* Email communication

**Quarter 4 Audit Report (Testing)**

* Test Case summary
* Training report to end users
* Lessons learnt docs
* Email communications

**QUESTIO-2**

**BA Approach Strategy**

**What Elicitation Techniques to apply**

There are many elicitation techniques used to gather requirements.

* **Interviews**- Conduct one-on-one session with stakeholders
* **Workshops**- Organize group session to brainstorm and prioritize requirements- brainstorming is a group activity where stakeholders comes together to generate ideas, solve problems and identify requirements. The goal is to encourage free thinking and creativity without criticism or judgment. It is used when stakeholders have diverse perspective.
* **Surveys** and **questionnaires**- collecting feedback from a larger group of farmers and manufactures.
* **Observation**- Studying stakeholders observing their daily activities to understand their needs and challenges.
* **Document** **Analysis**- Reviewing existing documents, eg- business plan, statement of work, memos, market research.
* **Prototyping**- BA preparers a prototype how an application look like and present in front of the stakeholders and get their feedbacks.

**How to do Stakeholder Analysis RACI/ILS**

Stakeholder Analysis can be conducted by using the RACI matrix/ **Interest-Influence Matrix (ILS)**

* **Responsible (R)**: Who will perform the task?
* **Accountable (A)**: Who is ultimately answerable?
* **Consulted (C)**: Who needs to provide input?
* **Informed (I)**: Who needs to be kept informed?

**What Documents to Write**

**Business requirement document**

* Outlines high-level business needs and objectives.

**Functional requirements**

* Outlines the functional features of the requirements.

**System Requirement Specification**

* Specify technical and system-level requirements

**Stakeholder analysis document**

* Identifies and analyses stakeholders.

**Use case and user stories**

* Describes how users will interacts with the system

**Test cases and UAT Plan**

* Defines tool scenarios and UAT process

**Change Request Log**

* Tracks and document change request

**What process to follow to Sign off on the Documents**

Sign off to be taken on SRS as this is the primary and independent document. Signoff can be taken by using e-mail confirmation from 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, emails, sprint review, monthly stakeholder’s updates, project management tools.

**How to Handle Change Requests**

Change request comes through Change Control Board). Initially the BA should check the CR whether it is defect from previous installation or not. If it is then it is assigned to the support Team else

BA should do the following

1. **Impact** **analysis**- to measure change to project
2. **Feasibility Study**- check for programs ownership, access to change programs & resource Technical skills
3. **Effort Estimation**- to implement the change in project
4. With the above details BA should discuss and take PM approval and the log this CR into Change Tracker, in change tracker a developer will be assign to work on this

**How to update the progress of the project to the Stakeholders-** Weekly status report, monthly review meeting

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

UAT pre paration, conduct UAT, fix issues, Acceptance form, Final Review meeting, obtain sign-off.

**Question-3**

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

The 3-tier architecture divides the application into 3 logical layers

* **Application layer**- it is the topmost layer of architecture. It handles the user interface components like screen and collects user inputs and how the application looks and feels.
* **Business logic layer**- it is the middle layer of the architecture. It implements business logic and process data. It validates user inputs, process business rules and communicates between application layer and data layer. Example- payments gateway, printers.
* **Database layer**- It is the bottom most layer of architecture. Responsible for storing and retrieving data. Example- MYSQL, Oracle database.

**Question-4**

 **5W 1H**

It is a framework used to gather information about the project, a situation or a solution by framing question.

* **WHO**- It identifies the stakeholders
* **WHAT**- it explains the event, problem or solution like project description
* **WHEN**- Timeline
* **WHERE**-Location
* **WHY**- Purpose
* **HOW**- process

**SMART-** To understand the quality of good requirements. It stands for

* Specific- clearly defined and focused objectives
* Measurable - Quantifiable criteria to track progress
* Attainable- Realistic and achievable goals
* Relevant- Aligned with business needs and project goals
* Time Bound- Defined deadlines for completion

**UML-** Unified modeling Language (UML): The industry-standard language for **specifying, visualizing,** **constructing and documenting software system**. It **simplifies design** and **communication** about the design. UML can be divided into **5 static diagrams** and **4 dynamic diagrams.**

**Question-5**

**Elicitation Techniques –** Requirement elicitation serves the foundation in documenting the requirements.

**Brainstorming-** Brainstorming can be an effective way to generate lots of ideas on a specific issue and then determine which idea-or ideas- is the best solution. Brainstorming is most effective with groups of 8-12 people and should be performed in a relaxed environment. It is utilized in requirements elicitation to gather good number of ideas from a group people. It is used to share new ideas without any discussion, criticism or evaluation. Encourage participants to be creative, share exaggerated ideas, and build on the ideas of others.

**Document analysis -** Document analysis is a systematic method of reviewing and evaluating existing documents related to a business or system. This technique involves examining documents—such as reports, manuals, policies, business process descriptions, user guides, and historical records—to extract requirements and gain insights into current practices, issues, and opportunities for improvement.

**Reverse Engineering-** In situations where the software for an existing system has little or outdated documentation and it is necessary to understand what the system actually does, reverse engineering is an elicitation technique that can extract implemented requirements from the software.

There are two general categories of reverse engineering:

* Black box Reverse engineering- the system/product is studied without examining its internal structure
* White box reverse engineering: the inner workings of the system/product are studied.

**Focus** **Group-**A **Focus Group** is a **requirement elicitation technique** where a selected group of stakeholders, typically 6–12 participants, discuss their expectations, opinions, and needs regarding a system or product. It is facilitated by a **moderator** who ensures productive discussions and captures valuable insights.

**Participants**

* Includes subject matter experts (SMEs), end-users, business analysts, product owners, and other stakeholders.
* Participants should have relevant knowledge and experience.

**Moderator:**

* Leads the discussion, asks open-ended questions, and keeps the conversation focused.
* Ensures all participants contribute equally.

**JAD (Joint application development) -** It is a structured **requirement elicitation technique** that involves **collaborative workshops** with key stakeholders to gather, refine, and document system requirements. It helps in aligning business needs with technical solutions by fostering direct communication between stakeholders and the development team or system analyst.

**Prototyping- It** is a **requirement elicitation technique** where a **working model (prototype)** of the system or product is developed to gather user feedback. This approach helps stakeholders **visualize requirements** and refine system functionalities before full-scale development.

**Questionnaire (Survey) -** It can be useful for obtaining limited system requirements details from users/ stakeholders, who have minor inputs or are geographically remote. The design of the questionnaire (whether off line or web based) and types of questions are important and can influence the answers, so care is needed.

**Question 6**

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

**Use case specification** – This provides a clear, step by step documentation of how users interact with the system. It serves as a precise communication tool between stakeholders and the development team. Regarding validation it ensures all functional scenarios are covered, reducing ambiguity and helping in identifying any missing or conflicting requirement.

**Document** **analysis** - **Justification:**

* **Historical Insight:** Leverages existing documentation to understand current practices and legacy issues that need to be addressed.
* **Cost-Effective:** Reduces the need for extensive primary data collection by using available documents.
* **Baseline for Requirements:** Provides a solid foundation to compare and validate new requirements gathered from other techniques.

**Question-7**

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

|  |  |
| --- | --- |
| BRD001 | The application should provide use friendly interface for both the farmers and manufactures |
| BRD002 | Buyers should be able to log in using their email-id and password |
| BRD003 | New buyers should be able to create new log in account using their email-id and secure through password |
| BRD004 | Buyers should be able to search for available products in fertilizers, seeds and pesticides |
| BRD005 | Manufactures should be able to upload and display their products in the application |
| BRD006 | Product catalog and buyers can search product using key words and filters |
| BRD007 | Application should support multiple payment options- COD,DEBIT/CREDIT,UPI |
| BRD008 | Buyers should be able to place order or add product to buy later |
| BRD009 | Buyers should receive email notification for order confirmation and status updates |
| BRD010 | Tracking order features |
| BRD011 | The platform should ensure secure storage and transmission of user data. |

**Question-8**

**List your assumptions**

* The buyers will have access to internet connectivity/mobile/web
* The platform will have separate login roles for farmers and manufactures
* The platform will be accessible via web and mobile application
* The system will ensure data security and secure transmission of user data
* The platform will integrate with 3rd party services like payment gateways(Razor pay, GPS tracking)

**Questio-9**

**Question 9 – This project Requirements Priority**

|  |  |  |  |
| --- | --- | --- | --- |
| **Reqd ID** | **Reqd Name** | **Reqd description** | **Priority** |
| **BRD001** | User friendly interface | User friendly interface for both farmers and manufactures | 8 |
| **BRD002** | User Login | Login using email id and password | 10 |
| **BRD003** | Product catalog | Product details in product catalog | 9 |
| **BRD004** | Browse product | User should able to browse product | 8 |
| **BRD005** | Search Product  | User should be able to search for products | 9 |
| **BRD006** | Add to cart | User should able to add product to cart to buy later | 6 |
| **BRD007** | Place order | User should be able to place order | 5 |
| **BRD008** | Manufacturer should be able to upload and display their products in the app | Manufacturer should be able to upload and display their products in the product catalog of application. | 10 |
| **BRD009** | Payment options | Multiple payment options- COD,DEBIT/CREDIT/UPI | 7 |
| **BRD0010** | Tracking features | Buyers should be able to track their orders | 4 |
| **BRD011** | Email notification | Buyers should get email notification  | 5 |
|  |  |  |  |

**Question 10- Use case diagram** – UCD is a high level diagram and it shows how user/external interfaces will be interacting with the system. It has four main elements- the actors, the system, the use cases, the lines that represent relationships.

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**Questio-11**

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

|  |  |
| --- | --- |
| Use case id |  |
| Use case spec | **Login** |
| Description | Username, password |
| Actors | farmer, manufacturer |
| Pre-condition | active internet connection, browser compatible |
| Post-condition | home page of actor should be displayed |
| Basic flow | username and password are correct |
| Alternative flow | password wrongUsername wrong P&U wrong |
| Exceptional flow | Forgot password Forgot username |
| Assumptions | Users have basic computer knowledge |
| Constraints | usernames cannot be names |
| Dependencies | user should exit-registration process |
| Inputs-outputs | input- Username n passwordOutput- error code or status flag |
| Business rule | user name- valid n unique email idPassword- 1 cap, 1 small, 1num,1 special- last 5 words cannot be repeated, password- min 8, max-16 |
| Mis info | Browser compatible |

|  |  |
| --- | --- |
| Use case id |  |
| Use case spec | **browse product** |
| Description | user to browse through the products |
| Actors | farmers |
| Pre-condition | active internet connection, browser compatible |
| Post-condition | browser page of the application be displayed |
| Basic flow | user navigate through the product catalog,System shows the product |
| Alternative flow | user use filters to narrow product search |
| Exceptional flow | no products found |
| Assumptions | products are updated in product catalog and available in inventory |
| Constraints |  |
| Dependencies | product database |
| Inputs-outputs | Input- product name, output- product list/ error msg |
| Business rule | products must be categorized properly |
| Mis info | Browser compatible |

|  |  |
| --- | --- |
| Use case id |  |
| Use case spec | **payments** |
| Description | users can transact |
| Actors | farmers, payment gateway |
| Pre-condition | internet connection, items in the cart, bank account |
| Post-condition | order placed |
| Basic flow | payment selection, system process through payment gateway,Order confirmed |
| Alternative flow | user select different payment process if first one fails |
| Exceptional flow | payments failerror message  |
| Assumptions | payment gateway is operational |
| Constraints | payment method is secured |
| Dependencies | payment gateway |
| Inputs-outputs | payment details, output- transaction confirmed |
| Business rule | payments must comply with regulatory requirements |
| Mis info | Browser compatible |

|  |  |
| --- | --- |
| Use case id |  |
| Use case spec | **Upload product** |
| Description | manufacturer can upload product list and update product details |
| Actors | manufacturer |
| Pre-condition | user must be registered |
| Post-condition | products is available in the catalog |
| Basic flow | Manufacturer log in2. Navigates to product upload page3. Upload product details4. System accept the input |
| Alternative flow | Manufacturer edits existing product details |
| Exceptional flow | app doesn’t accept or validates the product details |
| Assumptions | manufacturer provide accurate product details |
| Constraints | product pictures must be quality standard |
| Dependencies | product database |
| Inputs-outputs | product details, success message |
| Business rule | each product should have a unique identifier |
| Mis info | Browser compatible |

**Question-12**

**Activity diagrams**

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