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|  | | CAPSTONE PROJECT-2 | | | | |  | |
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|  | | | | Tanisha Mohane |  | | | |
|  | | | | December 2024—COEPD -Traditional Development— Online Agriculture Products Store |  | | | |
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Question No 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?

Answer – As a Business Analyst, I would play a supportive role in the quarterly audits for the Online Agriculture Products Store project. In these audits, my main responsibility would be to supply necessary documentation and details related to various project stages, including requirements gathering, design, development, testing, and deployment. The goal of these audits is to evaluate the project's progress, confirm that it's aligning with the set objectives and timeline, and identify any risks or problems that may need attention.

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| --- | --- | --- | --- | --- |
| Quarter | Task | Description | Audit Point | Remarks/Observation |
| Q1 | Identify the stakeholder | Identifying stakeholders | were all stakeholders identified | Pass |
| Q1 | Conduct interview | Conducting interview with stakeholder | Was interview conducted will all the stakeholders | Pass |
| Q1 | Review existing docs | Reviewing existing documents | Were the existing documents reviewed | Pass |
| Q1 | Define Scope | Clearly define the scope | Was the scope of the project clear | Pass |
| Q1 | Define functional & non-functional requirement | Defining all the requirements | Were all requirements defined | Pass |
| Q1 | Prioritize requirements | Prioritizing requirements | Were all requirements prioritized | Pass |
| Q1 | Validate Requirement | Validating requirements | Were requirement validated | Pass |
| Q1 | Obtain Sign-off | Obtaining Sign-off | Was sign-off taken | Pass |
| Q2 | Solution Design | Designing Solution | Was solution decided | Pass |
| Q2 | Prototype Development | Developing prototype | Was prototype developed | Pass |
| Q2 | Code Development | Developing code | Were codes developed correctly | Pass |
| Q2 | Unit Testing | Testing units | Was unit testing done | Pass |
| Q3 | Integrated Testing | Testing multiple modules | Was integrated testing done | Pass |
| Q3 | Security Testing | Testing security features | Were security features tested | Fail |
| Q3 | System Testing | Testing the system as a Whole | Was system testing done | Pass |
| Q3 | Bug Fixing | Fixing the errors | Was debugging done | Pass |
| Q4 | Regression Testing | Regression Testing | Was regression testing done | Pass |
| Q4 | UAT | User Acceptance testing | Was UAT performed | Pass |
| Q4 | Test Report | Preparing test report | Was test report published | Pass |
| Q4 | Obtain Sign-off | Obtaining Sign-off | Was sign-off taken | Pass |

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Question No 2)- BA Approach Strategy

Answer – Elicitation Techniques: To gather the necessary requirements, conduct interviews with key stakeholders (Mr. Henry, Mr. Pandu, Mr. Dooku, Peter, Kevin, Ben). Organize focus group discussions to better understand the needs of farmers in remote areas. Review existing documents and systems to gather additional insights and distribute surveys and questionnaires to gather broader feedback.

Stakeholder Analysis: Perform a RACI (Responsible, Accountable, Consulted, Informed) or ILS (Involved, Lead, Support) analysis to clearly define the roles and responsibilities of each stakeholder. Identify the most important stakeholders and prioritize their needs. Set up effective communication channels to keep them updated on the project's progress.

Documents: Create a Requirements Document (RD) to outline both functional and non-functional requirements. Prepare a Business Requirements Document (BRD) that details the project’s objectives, scope, and expected outcomes. Develop a Project Charter to define the project’s goals, timeline, budget, and deliverables. Write a Use Case Document to describe the workflows and processes involved in the project.

Sign Off & Approval: Secure sign-off from stakeholders on the Requirements Document, Business Requirements Document, Project Charter, and Use Case Document. Ensure that all stakeholders are aligned with the project’s scope, requirements, and goals. Obtain formal approval from the client regarding the deliverables, budget, timeline, and approach to ensure their expectations match the project’s objectives.

Communication Channels: Establish a consistent communication routine with stakeholders to keep them updated on the project’s progress. Develop a communication plan that defines the methods and channels for sharing information. Organize regular meetings to discuss the project’s status and address any issues or concerns.

Change Requests: Handle any requests for changes in a structured way. Assess how each change will affect the project’s scope, schedule, and budget. Make sure to get stakeholder approval before implementing any changes.

Progress Updates: Keep stakeholders in the loop with regular status updates and progress meetings. Focus on any risks or challenges that need attention and actively seek feedback to ensure the project stays on track.

UAT Sign-off: Conduct User Acceptance Testing (UAT) to ensure the project’s deliverables meet the client’s needs. Secure formal approval from the client based on the UAT results and the Project Acceptance Form, confirming that the project aligns with their expectations and requirements.

Question No 3)- 3-Tier Architecture

Explain and illustrate 3-tier architecture?

Answer –

Application Layer

Presentation Layer

Database Layer

The three-tier architecture is a software design model that consists of three distinct layers: the presentation layer, application layer, and database layer. Here’s a breakdown of each layer:

Presentation Layer: This is the topmost layer of the architecture and is responsible for presenting the user interface to the end-users. It is also called the user interface or client layer. The presentation layer handles user interactions, displaying information, and collecting input from users.

Application Layer: Positioned in the middle, the application layer contains the business logic of the system. Sometimes called the logic or server layer, this part handles data processing, validation, and the overall functionality of the application. It communicates with both the presentation and database layers to process and transfer data.

Database Layer: The database layer is the lowest layer and is responsible for managing the data storage and retrieval. Also known as the data layer, it stores data in a database management system (DBMS) and provides the interface that allows the application layer to access and manipulate the data.

Each of these layers works together to create a structured, efficient, and scalable system, with each layer focusing on specific tasks to ensure smooth operation and data flow.

Question No 4)- BA Approach Strategy for Framing Questions

Business Analyst should keep what point in mind before he frames a question to ask to the stakeholders?

Answer –

1. 5W1H: Ask questions about the Who, What, When, Where, why, and How of the project.
   1. Who: Ask questions to identify who the primary users, stakeholders, and decision-makers are. Understanding who is involved will help in tailoring the question.

Example: "Who will be using this feature?"

* 1. What: Determine what is needed, what the objectives are, and what functionality or features the system should include.

Example: "What specific problem are we trying to solve with this solution?"

* 1. Where: Inquire about where the solution will be used (location, environment), and how it integrates with other systems.

Example: "Where do you envision this application being accessed from (desktop, mobile)?"

* 1. When: Clarify timelines and deadlines, ensuring that the project stays on track.

Example: "When do you expect the project to be live?"

* 1. Why: Understand the reasoning behind the requirements. This ensures that the solution addresses the correct problem.

Example: "Why is this feature critical for your operations?"

* 1. How: Focus on the methods or processes for implementing the solution, such as technical details, integration methods, and workflows.

Example: "How should this feature interact with the existing system?"

1. SMART: Ensure that questions are Specific, Measurable, Achievable, Relevant, and Time-bound.
   1. Specific: Frame the question so that it addresses a clear and precise requirement. Example: "What specific data should the report display?
   2. Measurable: Ensure the question can result in measurable outputs or objectives. Example: "How will we measure the success of this feature?"
   3. Achievable: Make sure that the goals or requirements discussed in the question are feasible. Example: "Is this feature achievable within the given timeframe?"
   4. Relevant: Ask questions that are directly aligned with the project’s goals. Example: "How does this feature align with the overall business goals?"
   5. Time-bound: Ensure the question addresses timeframes or deadlines for delivery. Example: "By when do you need the new functionality to be implemented?"
2. RACI: Understand the roles and responsibilities of all stakeholders involved in the project.
   1. Responsible: Who is responsible for completing the task or decision? Example: "Who will be responsible for reviewing the requirements document?"
   2. Accountable: Who is ultimately accountable for the success of the decision or task? Example: "Who will be accountable for ensuring the project meets the specified business goals?"
   3. Consulted: Who needs to be consulted before making decisions or taking action? Example: "Who should we consult regarding the technical feasibility of the solution?"
   4. Informed: Who should be kept informed about the progress of the project or decision? Example: "Who should be kept informed of the changes in project scope?"
3. Use Cases: Develop a deep understanding of how the application will be used by various users.
4. Use Case Specs: Develop detailed documentation outlining specific requirements and expected behavior for each use case.
5. Activity Diagrams: Create visual representations of how different activities and processes will flow within the application.
6. Models: Use various models to help stakeholders better understand the system, such as data models and sequence diagrams.
7. Page designs: Create mockups and wireframes of the application's user interface to better understand user needs and preferences.

We will use the 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.

* 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), which can be used to measure progress.
* Achievable: They should be realistic and feasible, considering 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

Question No 5)- Elicitation Techniques

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

Answer –

1. Document Analysis: Document analysis involves carefully reviewing and interpreting existing documents to understand a product or process. This technique helps the Business Analyst (BA) gain insights into how a system or process works by studying available documentation.
2. Reverse Engineering: Reverse engineering, also known as back engineering, refers to extracting knowledge or design details from an existing product and then recreating it based on this extracted information. This technique is often applied in migration projects, where an old system or product needs to be analyzed and transformed into a new version.
3. Focus Group: A focus group involves gathering a group of people to discuss their ideas, opinions, and attitudes about a particular product or service. It’s a collaborative environment that allows for deeper insights into user needs and preferences.
4. Observation: Observation entails closely watching users as they carry out their tasks or processes. By shadowing users, the BA can gather valuable data about the existing workflow, including the inputs, processes, and outputs involved in their work.
5. Workshop: A workshop is a structured meeting where stakeholders come together to discuss and define project requirements. This collaborative setting encourages active participation and ensures that all perspectives are considered when gathering requirements.
6. JAD (Joint Application Development): JAD is a process where end users, developers, and stakeholders come together in structured sessions to gather requirements and make decisions. This approach leads to higher customer satisfaction and fewer errors, as users are directly involved in the development process.
7. Interview: Interviews involve asking stakeholders and subject-matter experts specific, relevant questions to gather information about a system or process. This one-on-one approach allows the BA to capture detailed insights and document requirements directly from the source.
8. Prototyping: Prototyping is a useful technique for complex or large systems where there may not be an existing manual process or system to base requirements on. A working model (prototype) of the system is created, which helps stakeholders visualize how the system will work and provide feedback.
9. Survey/Questionnaires: Surveys or questionnaires are tools used to gather specific, limited information from users about their requirements or preferences. They are useful for collecting data from a wide audience in a standardized format.
10. Brainstorming: Brainstorming is a creative technique used to generate many ideas or solutions. It can be done individually or in groups, and the ideas generated are later reviewed and analyzed to identify the most viable solutions.

These techniques help Business Analysts gather, analyze, and refine the requirements needed to build effective systems and solutions.

Question No 6)- This project Elicitation Techniques

Which elicitation technique can be used in this project? Justify your answer. Prototyping, Use Case Specs, Document Analysis or brainstorming.

Answer –

1. Prototyping: Prototyping is a technique where a working model of the application's user interface is created to collect feedback from stakeholders. This allows for early validation of design and functionality. It is particularly useful for gathering feedback on the user interface (UI) and user experience (UX), helping ensure that the design meets stakeholder expectations and user needs.
2. Use Case Specifications: Use case specifications are detailed descriptions of how the system will interact with users to achieve specific goals. This technique is essential for capturing the system's functional requirements by outlining various use cases that the system needs to support. It helps in understanding the different ways users will interact with the system and the features the system should provide.
3. Document Analysis: Document analysis involves reviewing existing documentation, such as business requirements documents, project charters, and other relevant materials, to understand the system’s requirements. This technique helps in identifying insights about the current business processes and existing system functionalities, making it easier to align new requirements with existing practices and technologies.
4. Brainstorming: Brainstorming is a collaborative technique where stakeholders come together to generate new ideas and solutions for the system. This can be an effective way to uncover additional features or functionalities that may not have been considered initially. Brainstorming encourages creativity and can lead to innovative ideas that enhance the project.

Justification for Using These Techniques: Prototyping is beneficial for this project as it provides stakeholders with an interactive model, allowing them to give quick and actionable feedback. This reduces misunderstandings and ensures that the final product aligns with their expectations.

Use Case Specifications are crucial to define the system's functional requirements clearly. This technique helps to ensure that every system feature is well understood, preventing any important functionality from being overlooked.

Document Analysis is important because it enables the BA to gather insights from existing documents. This can highlight current system limitations or gaps and guide the development of requirements that are in line with current processes.

Brainstorming is valuable in this project because it stimulates creative thinking among stakeholders. It helps uncover requirements or features that might not have been thought of before, ensuring that the solution is comprehensive and addresses all possible needs.

By using these techniques, the Business Analyst can effectively gather and refine the system's requirements, ensuring that the project meets stakeholder expectations and delivers the desired outcomes.

Question No 7)- 10 Business Requirements

Answer –Make suitable Assumptions and identify at least 10 Business Requirements.

|  |  |  |  |
| --- | --- | --- | --- |
| Req ID | Requirement Category | Description | Priority |
| BPffff1 | User Interface | Application should have a user-friendly interface | 1 |
| BPffff2 | Security | Application should be secured with encrypted data | 2 |
| BPffff3 | Functionality | Application should allow farmers and sellers to register | 3 |
| BPffff4 | Functionality | Application should allow farmers t place order for seeds, pesticides or fertilizers | 4 |
| BPffff5 | Functionality | Application should allow farmers to make payment online | 5 |
| BPffff6 | Functionality | Application should allow farmers to track their orders | 6 |
| BPffff7 | Integration | Application should get integrated with payment gateway | 7 |
| BPffff8 | Performance | Application should be fast with minimal data usage | 8 |
| BPffff9 | Reporting | Application should be able to generate sales report for stakeholders | 9 |
| BPff1ff1 | Scalability | Application should be able to handle large number of user registration and orders | 1ff |

Question No 8)- Assumptions

List your assumptions

Answer –

* The project will develop a web-based application that is accessible on both desktop and mobile devices, ensuring users can interact with it across different platforms.
* The application will feature a product catalog that includes only fertilizers, seeds, and pesticides, catering to agricultural needs.
* The application will not store any financial details such as credit card or banking information, ensuring user privacy and security.
* A third-party logistics company will handle the delivery of products, taking care of shipping and ensuring timely delivery to customers.
* The application will not include any features for social media integration, focusing solely on the product catalog and transactions.

Question No 9)- This project Requirements Priority

Answer –

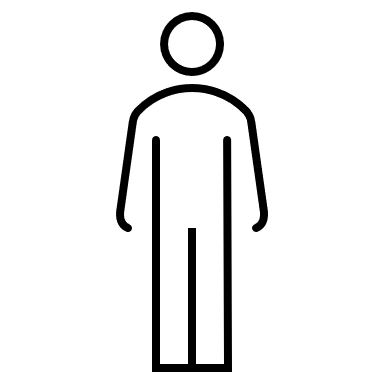
|  |  |  |  |
| --- | --- | --- | --- |
| Req ID | Requirement Name | Requirement Description | Priority |
| R1 | User Registration | Farmers and suppliers can register into the platform | 1ff |
| R2 | Product catalog | The app should display a catalogue if available products | 9 |
| R3 | Product Search | User should be able to search for a product | 9 |
| R4 | Product Filter | User should be able to filter a product based on price or rating | 8 |
| R5 | Product Details | User should be able to view detailed description about each product | 10 |
| R6 | Add to cart | User would be able to add the selected product to cart | 9 |
| R7 | Manage cart | User should be able to delete the product from cart | 8 |
| R8 | Check Out | User should be able to make online payment | 10 |
| R9 | Order Tracking | User would be able to track the delivery status | 7 |
| R1ff | Order Cancellation | User would be able to cancel the order before it is shipped | 6 |
| R11 | Order History | User would be able to view the past order history | 10 |
| R12 | Payment Gateway | The app should be integrated with Bharat UPI payment gateway | 8 |
| R13 | Feedback and complaints | User would be able to provide feedback about the purchased product | 7 |
| R14 | Call customer care | User would be able to call the customer care team from the app | 5 |
| R15 | Chat support | User would be able to initiate chat from the app | 4 |
| R16 | Social media integration | The app should integrate with various social media platforms | 6 |
| 8R17 | Multilanguage | The user would be able to choose the desired language | 8 |
| R18 | Security and privacy | The app should ensure high security and privacy | 10 |
| R19 | Product availability | The app should update the inventory to check product availability | 9 |
| R2ff | Research policy | The app should initiate refund to the original payment mode upon order cancellation | 7 |

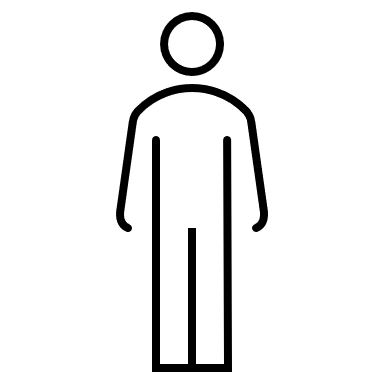
Question No 10)- Use Case Diagram

Answer –

<<Include>>

<<Exclude>>





Online Agriculture Server

Farmers

Question No 11)- Use Case Specs

Prepare use case specs for all use cases

Answer –

|  |  |
| --- | --- |
| USE Case ID | UC001 |
| Case Name | New user registration |
| Created By | BA |
| Date Created | 10/01/2025 |
| Last Updated | 10/01/2025 |
| Actor | Farmers |
| Description | new farmers can register into the app |
| Pre & Post Condition | Users need to have a valid phone number or email id to register |
| Flow | Users will click on register.  User will enter the mobile number or email id  User will receive and enter OTP  User would be able to login and create profile |
| Alternate Flow | Click on forget password link |
| Requirement | R001, R002 |

|  |  |
| --- | --- |
| USE Case ID | UC002 |
| Case Name | Choose from the list of available products |
| Created By | BA |
| Date Created | 10/01/2025 |
| Last Updated | 10/01/2025 |
| Actor | Farmers |
| Description | Registered user would be able to select and add the product to the cart |
| Pre & Post Condition | User must be registered |
| Flow | Registered user would be able to search for the product  Registered user would be able to select the product from the list  User would be able to add the item to the cart or wish list |
| Alternate Flow | None |
| Requirement | R003, R004 |

|  |  |
| --- | --- |
| USE Case ID | UC003 |
| Case Name | Checkout & Payment |
| Created By | BA |
| Date Created | 10/01/2025 |
| Last Updated | 10/01/2025 |
| Actor | Farmers |
| Description | Registered user would be able to make the payment and place the order |
| Pre & Post Condition | User must be registered |
| Flow | User will select the address for shipment  User will select the payment mode  User will enter the debit/credit card details, CVV & pin or UPI  User will enter the OTP received from bank |
| Alternate Flow | None |
| Requirement | R005, R006 |

|  |  |
| --- | --- |
| USE Case ID | UC004 |
| Case Name | Cancel the Order |
| Created By | BA |
| Date Created | 10/01/2025 |
| Last Updated | 10/01/2025 |
| Actor | Farmers |
| Description | Registered user would be able to cancel the order |
| Pre & Post Condition | User must be registered |
| Flow | User will click on 'My Account'  User will click on Order History  User will select the order to be cancelled  Selected order will show as cancelled  Refund will be initiated |
| Alternate Flow | None |
| Requirement | R007, R008 |

|  |  |
| --- | --- |
| USE Case ID | UC005 |
| Case Name | Tracking the order |
| Created By | BA |
| Date Created | 10/01/2025 |
| Last Updated | 10/01/2025 |
| Actor | Farmers |
| Description | Registered user would be able to track the order |
| Pre & Post Condition | User must be registered |
| Flow | User should click on Order History  Users need to click on Track Order  User would be able to see where the order has reached and an estimated time of delivery  User would be able to call customer care or initiate a chat for any further query or concern |
| Alternate Flow | None |
| Requirement | R009, R010 |

Question No 12)- Activity Diagrams

Answer –

NEW USER REGISTRATION:

Registration Successful

OTP Entered Correctly

Enter OTP

Enter Email ID

Enter Mobile No.

PLACING ORDER

Start

Go to Registration

User Registration

Go to payment Page

Yes

Select Quantity

Select Product

Browse Product

ORDER CANCELLETION

Start

Stop

Notify User that order is cancelled, and refund will be created within 7-10 working days

Process Refund

Process Refund

Update Inventory

Cancel Order

Notify User that order Can’t be cancelled

Yes

Check If order Is shipped

PAYMENT

Start

Yes

No

Check If user has Logged in

No

Check If Payment Successful

Yes

END

Place Order

Provide Payment Detail

Select Payment Mode

Login

Proceed to Checkout

View Items In cart

DELIVERY

Start

Validate Order

Check If address is correct

End

No

Yes

Update Order Status as Delivered

Deliver To customer

Update Tracking Details

Pick Item From seller

Contact Customer