Nurturing Process - Capstone Project1 – Part -2/3

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 ?

Answer :- Quarterly audits ensure the project aligns with business goals, compliance, and quality standards.The structured audit plan ensures the Online Agriculture Store project stays on track, aligns with CSR goals, and delivers value to farmers and manufacturers.Followings are the Quarterly Audit reports for all 4 Quarters :-

Q1 Audit Report :- Audit – Requirements Gathering.
Period :- 6 Weeks
Key Focus Areas :-
- Business Requirements Completeness
- Stakeholder Alignment
- Technical Feasibility
- Risk Assessment

Audit Points	Criteria	Findings	Action Items
Requirement Coverage	All farmer needs documented	COD payment process not detailed	Prototype payment flows
Manufacturer Onboarding	Product upload process defined	No verification workflow	Conduct JAD session
Architecture Alignment	3-tier structure approved	NA	NA
Regulatory Compliance	CSR guidelines followed	NA	NA
BRD (Business Requirements Document)	BRD aligns with stakeholder needs and technical feasibility	NA	NA
Validate Requirement	All requirements should be accurate and complete	NA	NA
Grouping of features and sing-off	Obtaining sign off on the requirement of all the stakeholders	NA	NA

Nurturing Process - Capstone Project1 – Part -2/3

Q2 Audit Report :- Design

Objectives :- Ensure technical implementation aligns with business requirements and CSR goals

Period :- 10 Weeks

Audit Point	Criteria	Findings	Action Items
1	**UI/UX Validation**	Farmer-facing interfaces tested for ease of use	Font size too small for elderly farmers
2	**3-Tier Architecture**	Presentation-Business-Data layers properly segregated	-
3	**Product Search**	Filters work for seeds/ fertilizers/pesticides	Slow response (>5s) in 2G networks
4	**Shopping Cart**	Items persist during session	-
5	**Payment Gateway**	COD/Card/UPI options functional	-
6	**Manufacturer Portal**	Product upload with images/ pricing	No bulk upload option
7	**Database Performance**	Handles 1,000 concurrent requests	-
8	**Security Compliance**	Encryption for payments & personal data	-
9	**Offline Capability**	Basic product browsing without internet	Not implemented
10	**Change Requests**	Impact assessed for 5 pending CRs	2 CRs lack cost estimates

Q3 Audit Report :- Development

Objectives :- Ensure technical implementation aligns with business requirements Period :- 18 Weeks

Audit Point	Criteria	Findings	Technical Action Required
API Performance	<500ms response time for core APIs	Search API averages 720ms under load	Add Redis caching for product catalog queries
Database Optimization	Query execution <100ms	All critical queries optimized	-

Nurturing Process - Capstone Project1 – Part -2/3

Payment Integration	99.9% success rate	UPI timeout in 18% test cases	Implement retry logic + circuit breaker pattern
Microservices	Independent deployability	12 microservices running in staging	-
CI/CD Pipeline	Build-deploy <15 minutes	Backend builds take 22 minutes	Parallelize test execution
Error Handling	<5% uncaught exceptions	Comprehensive error logging implemented	-
Security Scans	OWASP Top 10 vulnerabilities	2 medium-risk XSS vulnerabilities	Sanitize all farmer input fields
Data Migration	100% manufacturer data integrity	28,000 product records migrated accurately	-
Containerization	Docker images <500MB	Payment service image = 687MB	Optimize dependencies + multi-stage builds
Monitoring	Prometheus metrics configured	Missing cart abandonment metrics	Add custom metrics for farmer behavior tracking

Q4 Audit Report :- Testing and deployment

Objectives :- Ensure All the criteria met the requirement and complied with the regulations

Period :- 6 Weeks

Audit Point	**Criteria**	**Findings**	**Technical Action Required**
Setting up the development environment	All the necessary required for the development is provided	NA	NA
Code development	Writing code as per requirement	There were some bug while developing code	Technical team has put efforts to remove all the bugs
Unit testing	Testing individual modules to ensure their functionality	All test modules are tested individually and all test cases are covered	NA
Integration Testing	Testing the intergration of modules to check their functionality	All test modules are covered	NA
System testing	Testing the entire system as a whole	NA	NA

Documentation	All the necessary required for the development is provided	NA	NA
Bug fixing	Fixing the bugs during the testing and review	All the bugs are fixed in the timely manner	NA
Test creation plan	Develop a plan to test requirement and design specification	Comprehensive test plan was in place	NA
Test execution	Run test case and report bugs , if any	All test are executed and documented as per the requirement	NA
Acceptance testing	Conduct the acceptance testing in the presence of all stakeholders	NA	NA
User acceptance test	Conduct user acceptance test with end-user	NA	NA
Test reports	Prepare a test report summarising the results of the test and issue , if any found	NA	NA

Question 2 – BA Approach Strategy

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)

Answer 2 :- Elicitation Techniques:

1. Conduct interviews with the stakeholders (Mr. Henry, Mr. Pandu, Mr. Dooku, Peter, Kevin, Ben) to gather the requirements.
2. Organize focus group sessions to understand the needs of the remote area farmers.
3. Review existing systems and documents to gather additional information.

Nurturing Process - Capstone Project1 – Part -2/3

4. Conduct surveys and questionnaires to gather a wider perspective.

Stakeholder Analysis:

1. Conduct RACI (Responsible, Accountable, Consulted, Informed) or ILS (Involved, Lead, Support) analysis to determine the roles and responsibilities of each stakeholder.
2. Identify the key stakeholders and prioritize their requirements.
3. Establish effective communication channels with the stakeholders to keep them informed about the progress of the project.

Team Roles & Responsibilities (RACI Matrix Excerpt)

Task	Mr. Henry	Mr. Vandanam (PM)	BA (You)	Devs (Ms. Juhi)	Testers (Mr. Jason)
Approve BRD	A (Accountable)	C (Consulted)	R (Responsible)	-	-
Develop Search Feature	-	A	C	R	I (Informed)
UAT Sign-off	A	R	S (Support)	-	R

Documents:

1. Write a Requirements Document (RD) to outline the functional and non-functional requirements of the project.
2. Create a Business Requirements Document (BRD) to provide a detailed description of the project's objectives, scope, and deliverables.
3. Prepare a Project Charter to define the project's goals, deliverables, timeline, and budget.
4. Develop a Use Case Document to describe the processes and workflows involved in the project.

Sign Off:

1. Obtain sign-off from the stakeholders on the Requirements Document, Business Requirements Document,
2. Project Charter, and Use Case Document.
3. Ensure that the stakeholders understand and agree with the requirements, scope, and objectives of the project.

Approvals:

1. Obtain the client's approval on the project deliverables, budget, timeline, and approach.
2. Ensure that the client's expectations are aligned with the project's goals and objectives.

Communication Channels:

1. Establish a regular communication schedule with the stakeholders to keep them informed about the project’s progress.
2. Create a communication plan to outline the channels and methods of communication.
3. Schedule regular status meetings with the stakeholders to discuss the project's progress and address any issues or concerns.

Nurturing Process - Capstone Project1 – Part -2/3

Change Requests:
1. Handle change requests in a structured and systematic manner.
2. Evaluate the impact of each change request on the project's scope, timeline, and budget.
3. Obtain approval from the stakeholders before implementing the change request.

Progress Updates:
1. Keep the stakeholders informed about the project's progress through regular status reports and progress meetings.
2. Highlight any risks or issues that need to be addressed.
3. Provide regular progress updates to the stakeholders and seek their feedback.

UAT Sign-off:
1. Conduct User Acceptance Testing (UAT) to validate the project's deliverables.
2. Obtain sign-off from the client on the UAT results and the Project Acceptance Form.
3. Ensure that the project meets the client's expectations and requirements.

Question 3 – 3-Tier Architecture - Explain and illustrate 3-tier architecture?

Answer 3 :-Three-tier architecture is a software architecture that consists of three layers:

1. Presentation layer.
2. Application layer.
3. Database layer.

Explanation and illustration of each layer:

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 is 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 is 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 is 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.

Question 4 – BA Approach Strategy for Framing Questions – 10 Marks Business Analyst should keep What points in his/her mind before he frames a Question to ask to the

Nurturing Process - Capstone Project1 – Part -2/3

Stakeholder (5W 1H – SMART – RACI – 3 Tier Architecture – Use Cases, Use case Specs, Activity Diagrams,Models, Page designs)

Answer 4 :-

1. 5W 1H – Who, What, When, Where, Why, How.
   Example: "Why do farmers need COD payment?"

2. SMART Criteria – Ensure requirements are Specific, Measurable, Achievable, Relevant, Time-bound. Example: "How will we measure the success of the search feature?"

3. RACI Matrix – Clarify roles (Responsible, Accountable, Consulted, Informed).
   Example: "Who is accountable for product uploads by manufacturers?"

4. 3-Tier Architecture – Align questions to layers (UI, Logic, Data).
   Example: "How will product data be fetched from the database?"

5. Use Cases: Develop a deep understanding of how the application will be used 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 mockups and wireframes of the application's user interface to better understand user needs and preferences

Question 5 – Elicitation Techniques -As a Business Analyst, What Elicitation Techniques you are aware of? (BDRFOWJIPQU)

Answer 5 :-

Technique	Description
Brainstorming	Group discussion to generate ideas (e.g., feature prioritization).
Document Analysis	Review existing docs (e.g., CSR policy, competitor apps).
Requirements Workshops	Structured sessions with stakeholders (farmers, manufacturers).

Nurturing Process - Capstone Project1 – Part -2/3

Focus Groups	Small group discussions (e.g., farmers' pain points).
Observation	Shadow farmers to understand workflows.
Walkthroughs	Step-by-step review of processes (e.g., order placement).
Joint Application Development (JAD)	Collaborative design sessions.
Interviews	One-on-one with stakeholders (Mr. Henry, Peter).
Prototyping	Mockups to validate UI (e.g., payment screen).
Questionnaires	Surveys for remote farmers.
Use Case Analysis	Define scenarios (e.g., "Farmer buys seeds").

Question 7 :- This project Elicitation Techniques - Which Elicitation Techniques can be used in this Project and Justify your selection of Elicitation Techniques? Prototyping Use case Specs Document Analysis Brainstorming ?

Req ID	Requirement
BR001	Farmers must **register/login** via email/phone.
BR002	System shall allow **manufacturers to upload** product details (images, price, quantity).
BR003	Farmers can **filter products** by category (seeds/fertilizers/pesticides), price, brand.
BR004	System shall support multiple payment options (COD, UPI, Cards).
BR005	Farmers shall receive email/SMS notifications for order status.
BR006	System shall integrate **delivery tracking** via third-party APIs.
BR007	Admin shall **approve/reject** manufacturer product listings.
BR008	Farmers can **save products** to a wishlist/buy-later list.
BR009	System shall display **product expiry dates** (if applicable).
BR010	Farmers can **rate/review** products post-delivery.

Answer 7:-

Question 8 –Assumptions- List your assumptions ?

Nurturing Process - Capstone Project1 – Part -2/3

Answer 8 :- Following are the assumptions made for the project .

- Farmers have basic smartphone/internet access.
- Manufacturers will provide accurate product data.
- Delivery partners are available in remote areas.
- Payment gateways (Razorpay/UPI) can integrate seamlessly.
- Admin team will manually verify fraudulent sellers.

Question 9 – This project Requirements Priority - Give Priority 1 to 10 numbers (1being low priority – 10 being high priority) to these Requirements after discussions with the stakeholders ?

Req ID	Justification	Priority (1-10)
BR001	Core feature for farmers.	9
BR002	Essential for manufacturers.	8
BR003	Login is foundational.	7
BR004	Critical for product listing.	9
BR005	Enhances user experience.	8
BR006	Payment flexibility is key.	9
BR007	Improves transparency.	7
BR008	Builds trust in deliveries.	8
BR009	Prevents fraud.	6
BR010	Nice-to-have feature.	5

Answer 9 :-

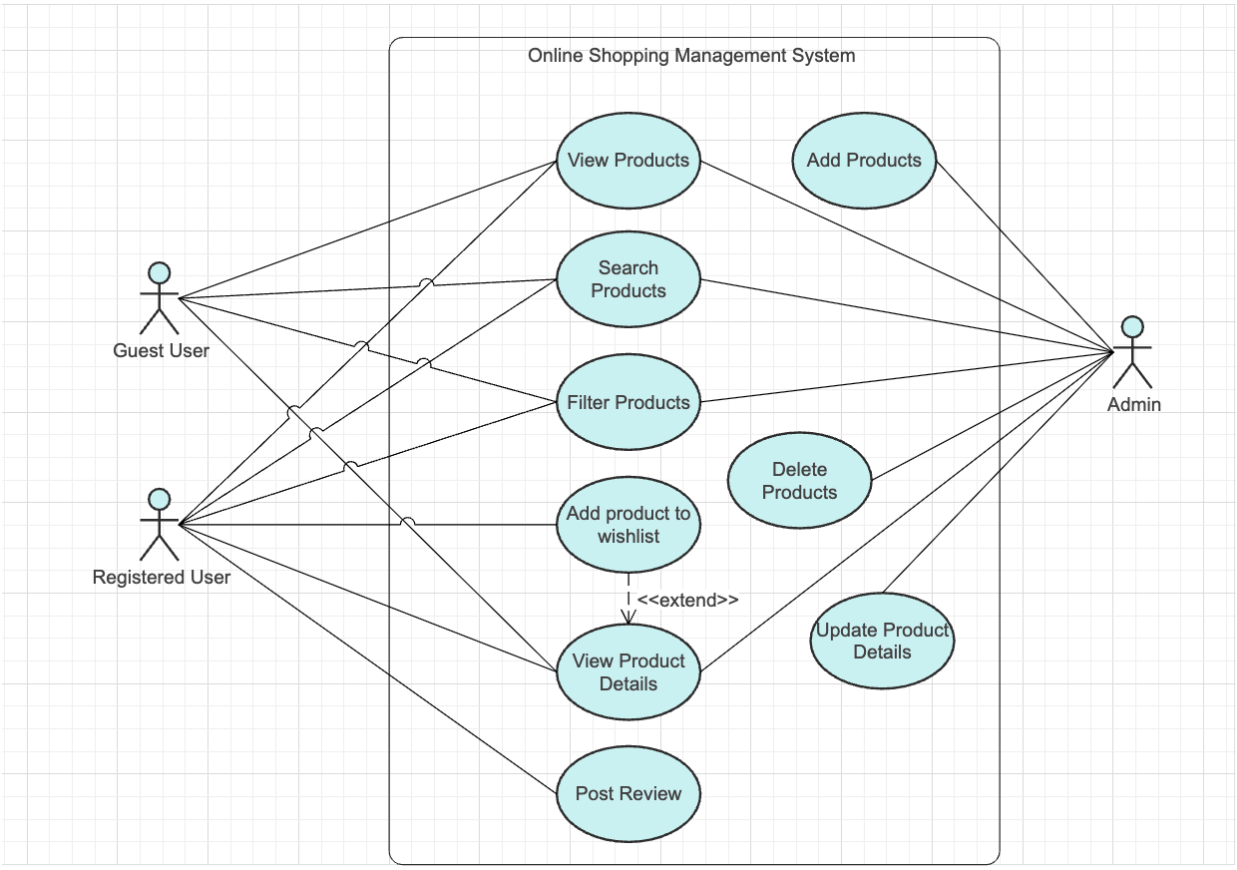
Question 10 – Use Case Diagram - Draw use case diagram
Answer 10 :-

Question 11 :- Prepare use case specs for all use cases
Answer 11 :- Following are the use case Spec for the Case Study .

1. **Use Case: Place Order**
ID: UC-001
Actors: Farmer
Preconditions: Farmer is logged in; cart has items.
Main Flow:

10. Farmer selects "Checkout" from cart.
11. System shows order summary (products, quantities, total).
12. Farmer selects delivery address.
13. Farmer chooses payment method (COD/Online).

Nurturing Process - Capstone Project1 – Part -2/3



14. System confirms order and generates tracking ID.
    Alternate Flows:
- A1: If payment fails, system allows retry or switches to COD.
  Postconditions: Order is created; manufacturer notified.

2. **Use Case: Upload Products**
ID: UC-002
Actors: Manufacturer
Preconditions: Manufacturer is approved by Admin.

15. Manufacturer logs in and selects "Add Product."
16. System displays form (name, type [seed/fertilizer/pesticide], price, expiry date).
17. Manufacturer uploads product details + images.
18. System validates data and saves to "Pending Approval" list.
    Alternate Flows:
- A1: If data is invalid, system highlights errors.
  Postconditions: Product awaits admin approval.

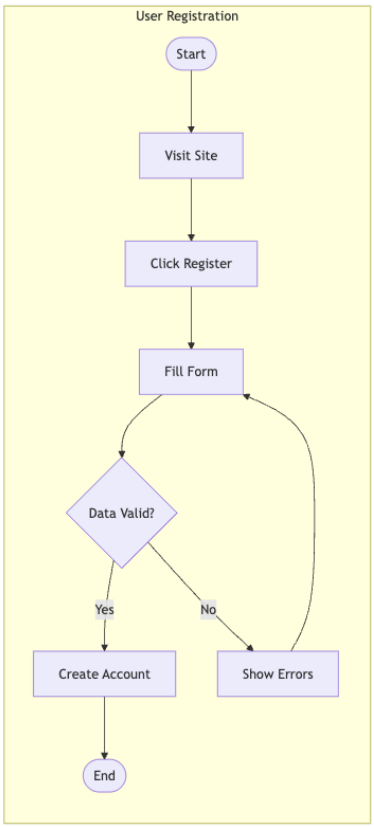
3. **Use Case: Approve Products**
ID: UC-003
Actors: Admin
Trigger: New product uploaded by Manufacturer.
Main Flow:
19. Admin views "Pending Approval" list.
20. Admin verifies product details (certifications, pricing).

21. Admin clicks "Approve" or "Reject."
22. System updates product status and notifies Manufacturer.
    Business Rules:
- Rejected products require reason (sent via email).
  Postconditions: Approved products become visible to Farmers.

4. **Use Case: Track Delivery**
ID: UC-004
Actors: Farmer, Delivery Partner
Main Flow:
23. Farmer opens "My Orders" and selects an order.
24. System displays real-time status (e.g., "Dispatched," "In Transit").
25. Delivery Partner updates status at each checkpoint.
    Special Requirements:
- SMS alerts for status changes (for farmers without internet).
  Postconditions: Farmer can view delivery progress.

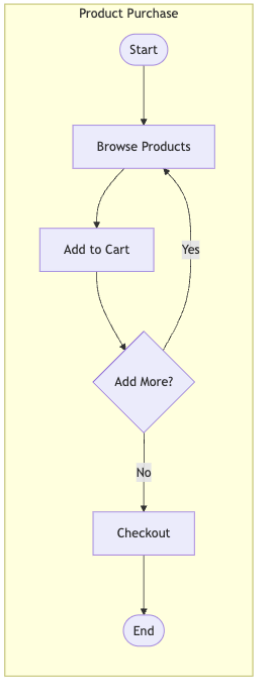
5. **Use Case: Make Payment (Online)**
ID: UC-005
Actors: Farmer
Main Flow:
26. Farmer selects "Online Payment" at checkout.
27. System redirects to payment gateway (Razorpay/PayTM).
28. Farmer enters card/UPI details and confirms.
29. Gateway verifies payment and notifies system.
30. System marks order as "Paid."

Question 12 :-
Answer 12 :- Following are the Activity Diagrams for the question.
1 Activity Diagram :- User Registration



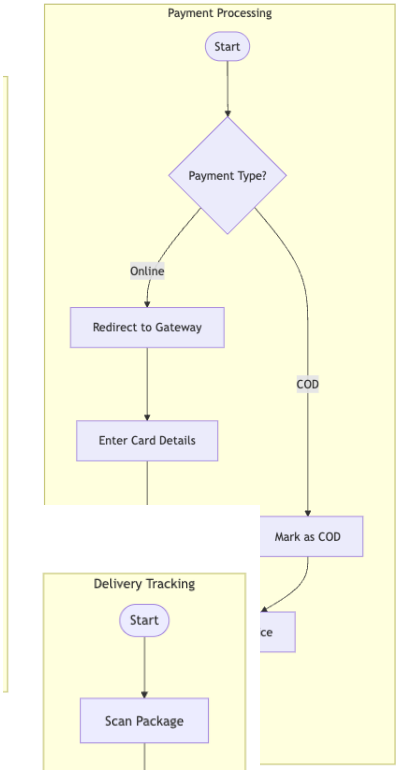
Nurturing Process - Capstone Project1 – Part -2/3

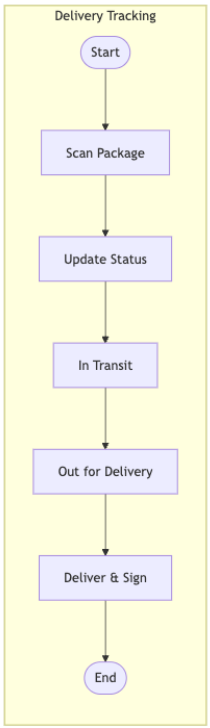
2 Activity diagram :- Product Purchase



3 Activity Diagram :- Payment Processing

Nurturing Process - Capstone Project1 – Part -2/3





4 Activity Diagram :- DeliveryTracing

Nurturing Process - Capstone Project1 – Part -2/3

5 Activity Diagram :- Return And Refund :-