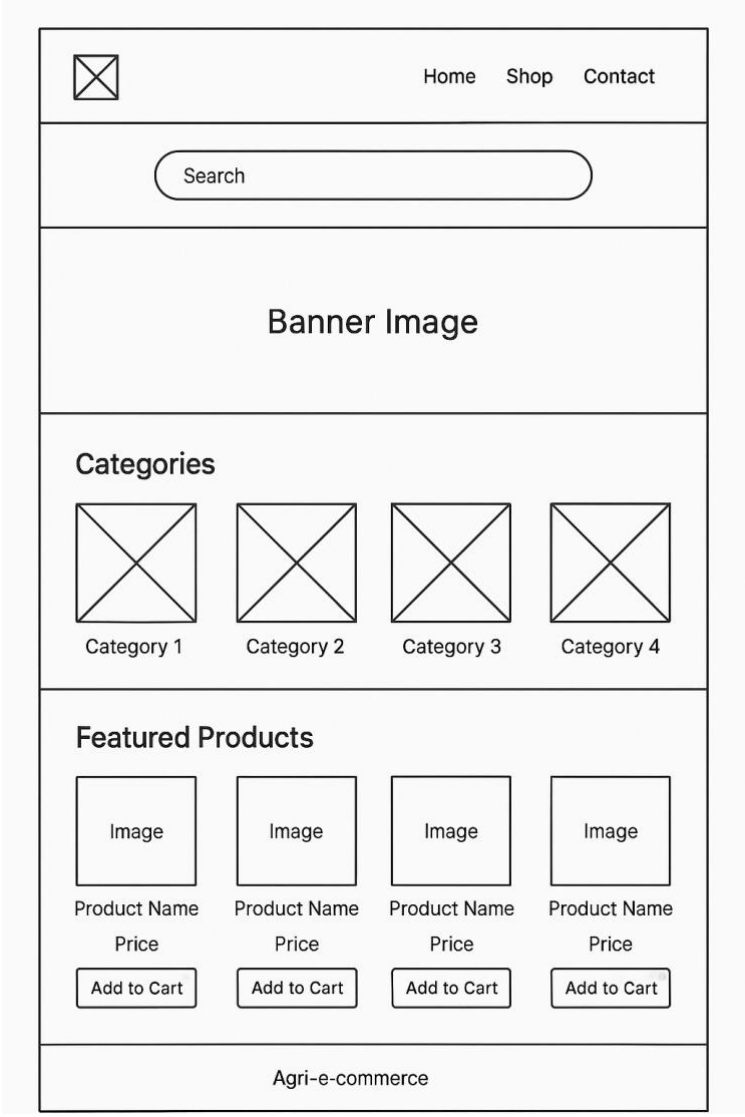
Question 1 – Functional Requirements - 15 Marks
Identify minimum 20 functional requirements
Example :
Functional requirement: When an order is fulfilled, the local printer shall print a packing slip.
Non-Functional Requirement: Packing slips shall be printed on both sides of 4”x 6” white paper, the standard size for packing slips used by local printers

Answer 1. Functional Requirements

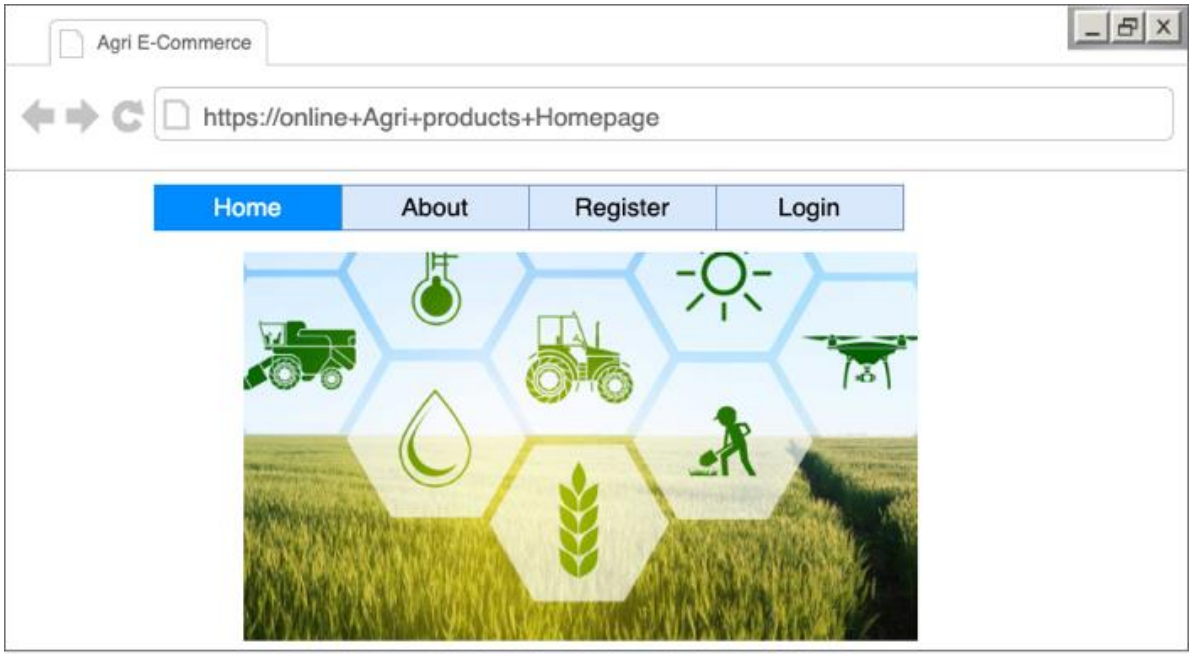
Req ID	Req Name	Req Description	Priority
FR001	User Registration	System shall allow users to register using name, mobile number, email ID, and password.	High
FR002	OTP Verification	System shall send an OTP to email/mobile for verification during registration.	High
FR003	User Login	System shall allow users to log in with a valid email ID and password.	High
FR004	Forgot Password	System shall allow users to reset their password via a “Forgot Password” link.	Medium
FR005	Product Search	System shall allow users to search for products using product name.	High
FR006	View Product Details	System shall display product details such as name, price, category, and stock.	High
FR007	Product Filtering	System shall allow users to filter products by category, price, or stock.	Medium
FR008	Add to Cart/Wishlist	System shall allow users to add selected products to cart or wishlist.	High
FR009	Checkout	System shall allow customers to proceed to checkout from their cart.	High
FR010	Make Payment (All Modes)	System shall allow customers to make payments via COD, UPI, or Debit/Credit Card.	High
FR011	Payment Gateway Integration	System shall validate and process online payments via secure payment gateway APIs.	High
FR012	Apply Coupon	System shall allow users to apply valid coupons during checkout to receive discounts.	Medium
FR013	Use Gift Card	System shall allow users to apply gift card balance towards order payment.	Medium
FR014	Order Confirmation Email	System shall send order confirmation via email after successful payment.	High
FR015	Order Status SMS	System shall send SMS alerts for order status updates (e.g., confirmed, shipped, delivered).	Medium

FR016	Track Order	System shall allow users to track the status of their orders in real-time.	High
FR017	Upload Product	System shall allow manufacturers to upload product details, price, and stock updates.	High
FR018	Product Approval by Admin	System shall allow Admin to review and approve uploaded products before they go live.	High
FR019	Hold Product Pending Review	System shall keep uploaded products in pending status until approved by Admin.	Medium
FR020	Login Notification	System shall notify users via email upon login from a new or unrecognized device.	Low

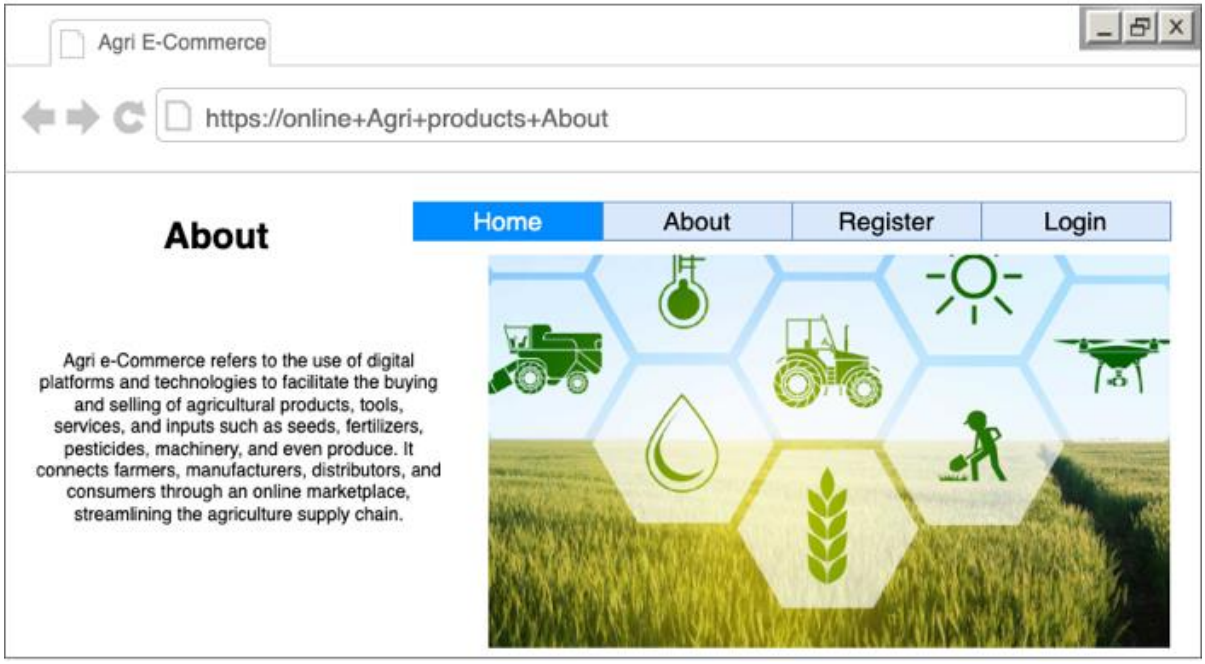
Question 2–Minimum 5 page designs - 15 Marks
Make wireframe and prototypes
Answer 2. Wireframe



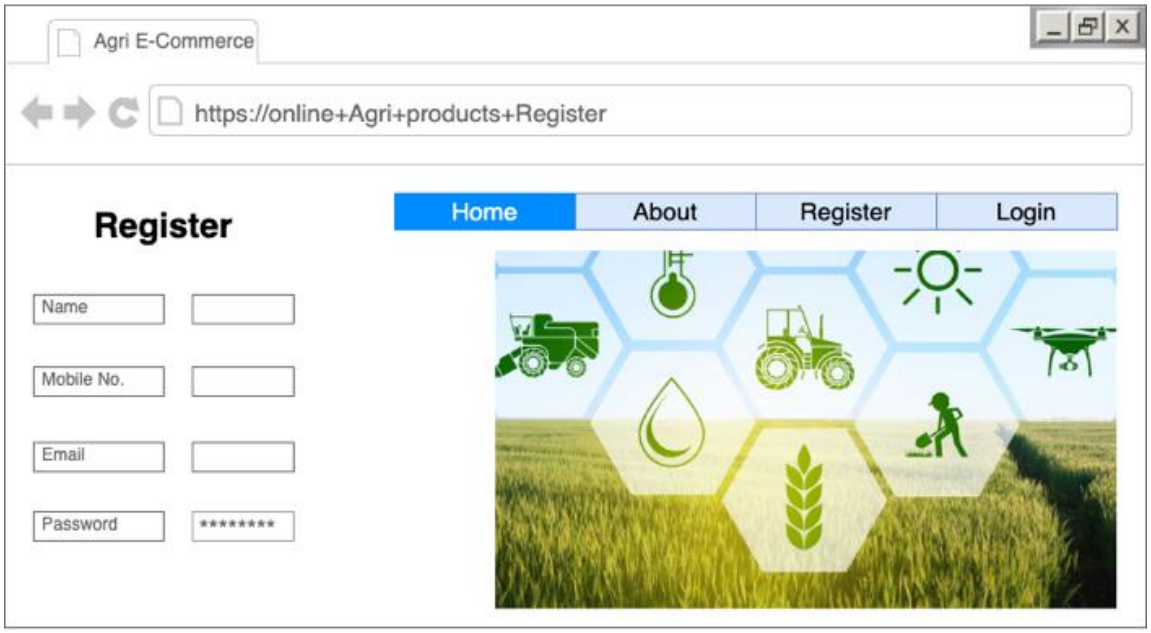
Prototype of Home page of Agri e-commerce



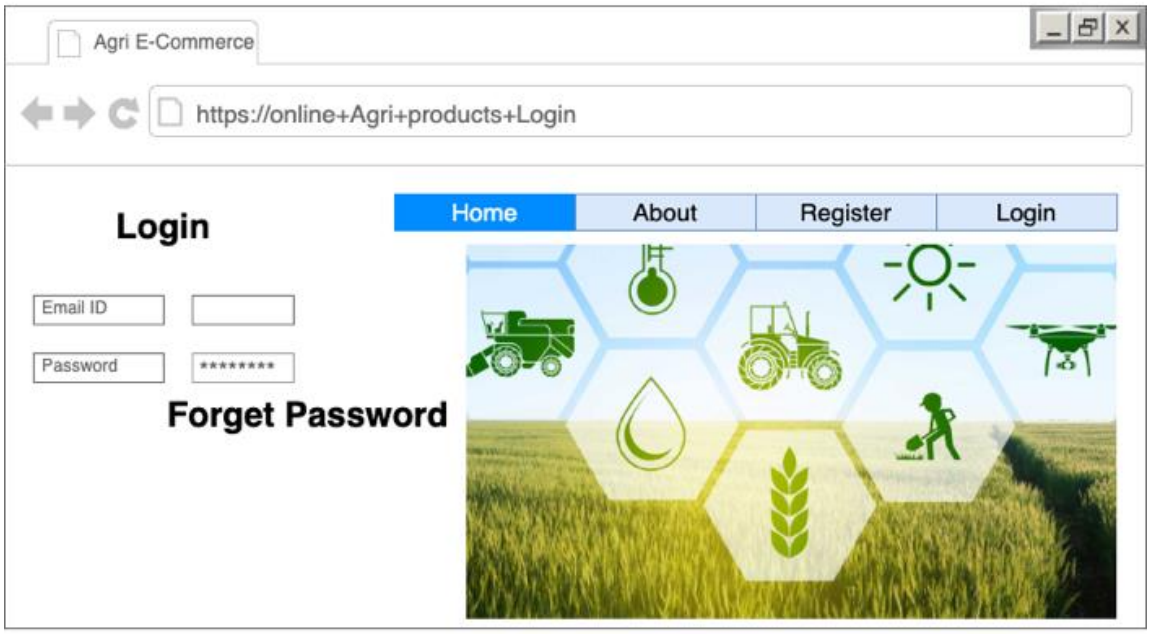
Prototype of About of Agri e-commerce



Prototype of Register of Agri e-commerce



Prototype of Login of Agri e-commerce

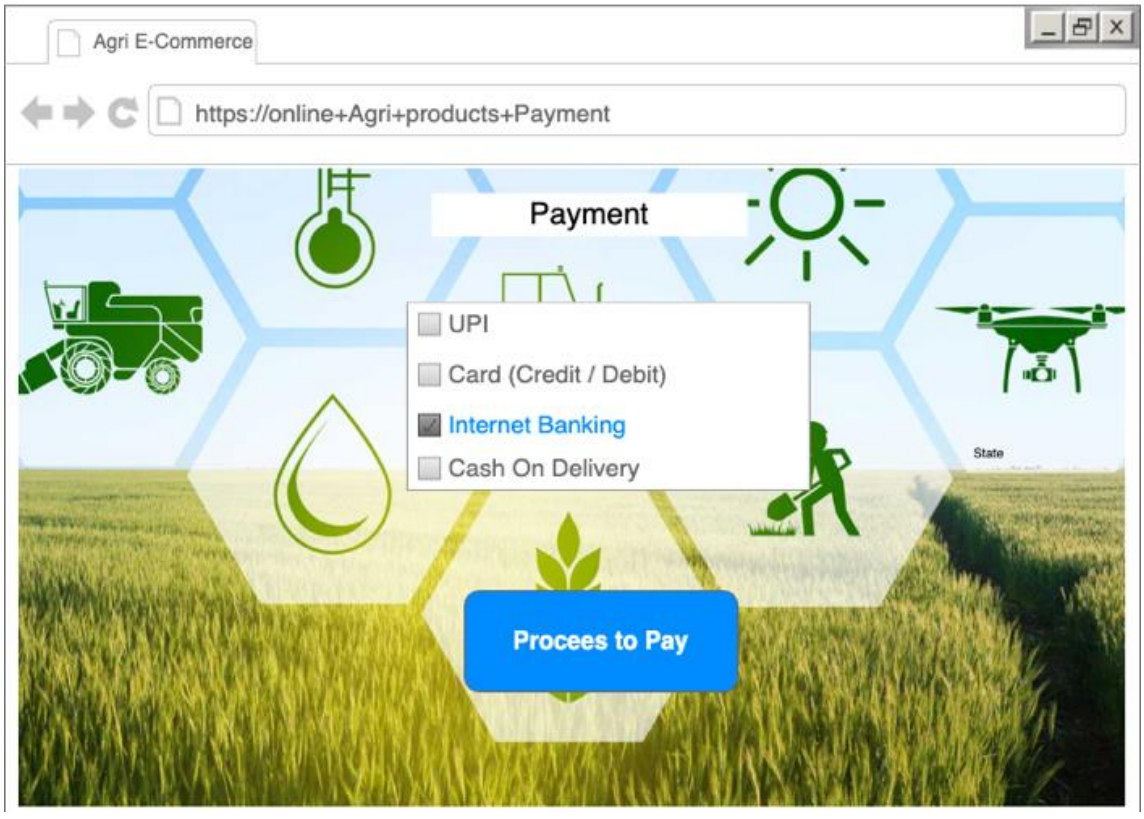


Prototype of Search of Agri e-commerce

Prototype of Detail of Agri e-commerce

Prototype of Checkout of Agri e-commerce

Prototype of Payment of Agri e-commerce



Question 3 – Tools (Visio, Balsamiq) - 15 Marks

Make a note of the Tools, which you are using for above concepts.

Answer 3. Tools Used for the Concepts

The following tool and technology were used or referenced to implement and interpret the prototype:

Tool	Purpose
Draw.io (diagrams.net)	Used for creating the prototype. It's a free online diagramming tool used to create visual models such as flowcharts, wireframes, ER diagrams, and use case diagrams.
MS VISIO	Microsoft Visio is a powerful diagramming and vector graphics application developed by Microsoft. It is widely used by business analysts, system architects, engineers, and IT professionals to create a variety of visual documents such as flowcharts, data flow diagrams (DFDs), organizational charts, network diagrams, and UML diagrams.
Balsamiq	Balsamiq is a rapid wireframing tool designed for creating low-fidelity mockups of user interfaces. It mimics the experience of sketching on a whiteboard, helping teams focus on structure and functionality rather than design details. Balsamiq is widely used by Business Analysts and UX designers during the early stages of software development to visualize and iterate on ideas quickly.

2. Written Explanation of the Prototype (Draw.io)

Your uploaded Draw.io prototype appears to represent an Agri e-Commerce System, which includes major components like user interfaces, admin roles, farmer interactions, product listings, and transaction flows.

System Overview (Agri e-Commerce)

This system connects farmers, customers, delivery agents, and admins on a unified platform to buy and sell agricultural products.

Key Components Identified in the Prototype

1. Actors / Users
   - Farmer: Uploads product information, manages inventory.
   - Customer: Browses and purchases agri-products.
   - Admin: Manages system-wide operations like user verification, product approval.
   - Delivery Agent: Handles logistics and delivery processes.
2. Use Case Elements
   - Product Management: Farmers add/edit/delete products with price and quantity.
   - Order Placement: Customers select products and place orders.
   - Payment System: Integration for secure transaction handling (COD, Online).
   - Delivery Tracking: Agents update delivery status and completion.
   - Feedback System: Customers can give feedback post-delivery.
   - Admin Verification: Admins verify new farmer/customer profiles.
3. System Modules
   - Authentication Module: Login/Signup for all user roles.
   - Dashboard Module: Separate interfaces for Farmer, Customer, Admin, Delivery Agent.
   - Product Module: Allows for listing, browsing, and editing of agri-products.
   - Order Management: Tracks orders, status updates, and payment confirmations.
   - Delivery Module: Tracks assignment and status of deliveries.

Workflow Summary

1. Farmers views product → Places order → Makes payment.
2. Admin verifies product → Approves listing.
3. System assigns delivery → Delivery agent receives task.
4. Product is delivered → Customer gives feedback.

Question 4 – RTM - 6 Marks

A business analyst's key responsibilities are to keep track of the requirements and make sure that no requirement is missed.

Mr. Henry and peter have approached you regarding the current status of the project. How will you

tackle this situation?

Answer 4. 1. Acknowledge Their Request Respectfully
Start with a professional and reassuring tone:
"Thank you, Mr. Henry and Mr. Peter, for checking in. I'll be happy to walk you through the current status of the project."
2. I've been maintaining a Requirements Traceability Matrix, which helps in:

- Mapping each requirement to its respective status (in-progress, completed, pending, etc.)
- Ensuring no requirement is missed

"I've been maintaining a Requirements Traceability Matrix that links all approved requirements with design, development, and testing artifacts. This ensures complete coverage and visibility."
3. Provide a Concise Status Update - Break down the status of requirements by category:

Req ID	Req Name	Req Description	Design	D1	T1	T2	T3	T4	UAT
FR001	User Registration	Allow users to register using name, mobile no, email ID, and password.	D1	✔	✔				✔
FR002	OTP Verification	Send OTP to user for email/mobile verification.	D1	✔	✔	✔			✔
FR003	User Login	Login using email ID and password.	D2	✔	✔				✔
FR004	Forgot Password	Reset password using "Forgot Password".	D2	✔	✔	✔			✔
FR005	Product Search	Search for products using product name.	D3	✔	✔			✔	✔
FR006	View Product Details	Display product info: name, price, category, availability.	D3	✔	✔			✔	✔
FR007	Product Filtering	Filter products by category/price/stock.	D3	✔			✔		✔
FR008	Add to Cart/Wishlist	Add selected products to cart or wishlist.	D4	✔	✔	✔			✔
FR009	Checkout	Proceed to payment from cart.	D4	✔		✔	✔		✔
FR010	Make Payment	Make payments using COD, UPI, or Card.	D5	✔	✔			✔	✔
FR011	Payment Gateway	Validate and process online payments securely.	D5	✔		✔	✔	✔	✔
FR012	Apply Coupon	Allow users to apply valid discount coupons.	D5	✔	✔	✔			✔
FR013	Use Gift Card	Accept gift card balance as partial/full payment.	D5	✔		✔			✔
FR014	Order Confirmation Email	Send order confirmation email after payment.	D6	✔		✔	✔		✔
FR015	Order Status SMS	Send order status updates via SMS.	D6	✔		✔		✔	✔
FR016	Track Order	Allow customers to track their order in real-time.	D7	✔			✔	✔	✔
FR017	Upload Products	Manufacturer uploads product name, price, and stock.	D8	✔	✔	✔			✔
FR018	Product Approval	Admin approves/rejects uploaded products.	D8	✔		✔			✔

FR019	Pending Product Hold	System holds uploaded product until Admin approval.	D8	✔		✔			✔
FR020	Login Notification	Notify users of login from new/unrecognized devices.	D2	✔	✔	✔			✔

As of now, 85% of functional requirements are completed, with the remainder in progress or awaiting client sign-off."

4. Mention Risk or Blockers (if any)

If applicable: - "We are currently facing a minor delay on Requirement ID RQ-109 due to dependency on third-party API confirmation. I've already escalated this to the project manager and will keep you updated."

5. Next Steps - "In the coming week, we plan to finalize the pending UAT scenarios and initiate user sign-off for the completed modules."

Final Response:

"Currently, the project is on track. The majority of the requirements are either implemented or in the final stages. I've ensured traceability across all project phases, and no requirement has been missed. I'm happy to share the RTM document or schedule a brief meeting to walk you through the detailed status. Please let me know your preference."

Question 5 – 10 Test Case Documents - 10 Marks

Prepare 10 Test Case Documents

Answer 5.

Test Case ID	TC0002	Test Case Name	Add Crop for Auction
Project ID	P001	Project Name	Online Agriculture Products Store
PM ID	PM001	PM Name	ABC
Test Strategy ID	TS001	Tester ID	T002
Test Plan ID	TP001	Tester Name	XYZ
Test Schedule ID	TS001	Date of Test	17-06-2025
Scenario	Verify that a farmer can successfully add a crop for auction with valid data.		
Link to that Page	/farmer/add-crop-auction		
Input Data	Crop Name: WheatQuantity: 100 kgBase Price: ₹1500Auction Start: 18-06-2025 10:00 AMAuction End: 19-06-2025 10:00 AM		
Expected Behaviour	The crop should be added to the auction list and visible to buyers during auction period.		
Actual Behaviour	The crop was successfully added and appeared in the auction listing page.		
Comments	Validated with date/time logic and auction visibility.		
Result (Pass/Fail)	Pass		

Test Case ID	TC0003	Test Case Name	Product Search by Farmer
Project ID	P001	Project Name	Online Agriculture Products Store
PM ID	PM001	PM Name	ABC
Test Strategy ID	TS001	Tester ID	T003
Test Plan ID	TP001	Tester Name	XYZ
Test Schedule ID	TS001	Date of Test	17-06-2025
Scenario	Verify that the system displays relevant products based on farmer's search keyword.		
Link to that Page	/search-products		
Input Data	Keyword: Fertilizer		
Expected Behaviour	List of products containing the keyword "Fertilizer" should be displayed.		
Actual Behaviour	Products tagged with "Fertilizer" were displayed in the search results.		
Comments	Case-insensitive keyword search is working correctly.		
Result (Pass/Fail)	Pass		

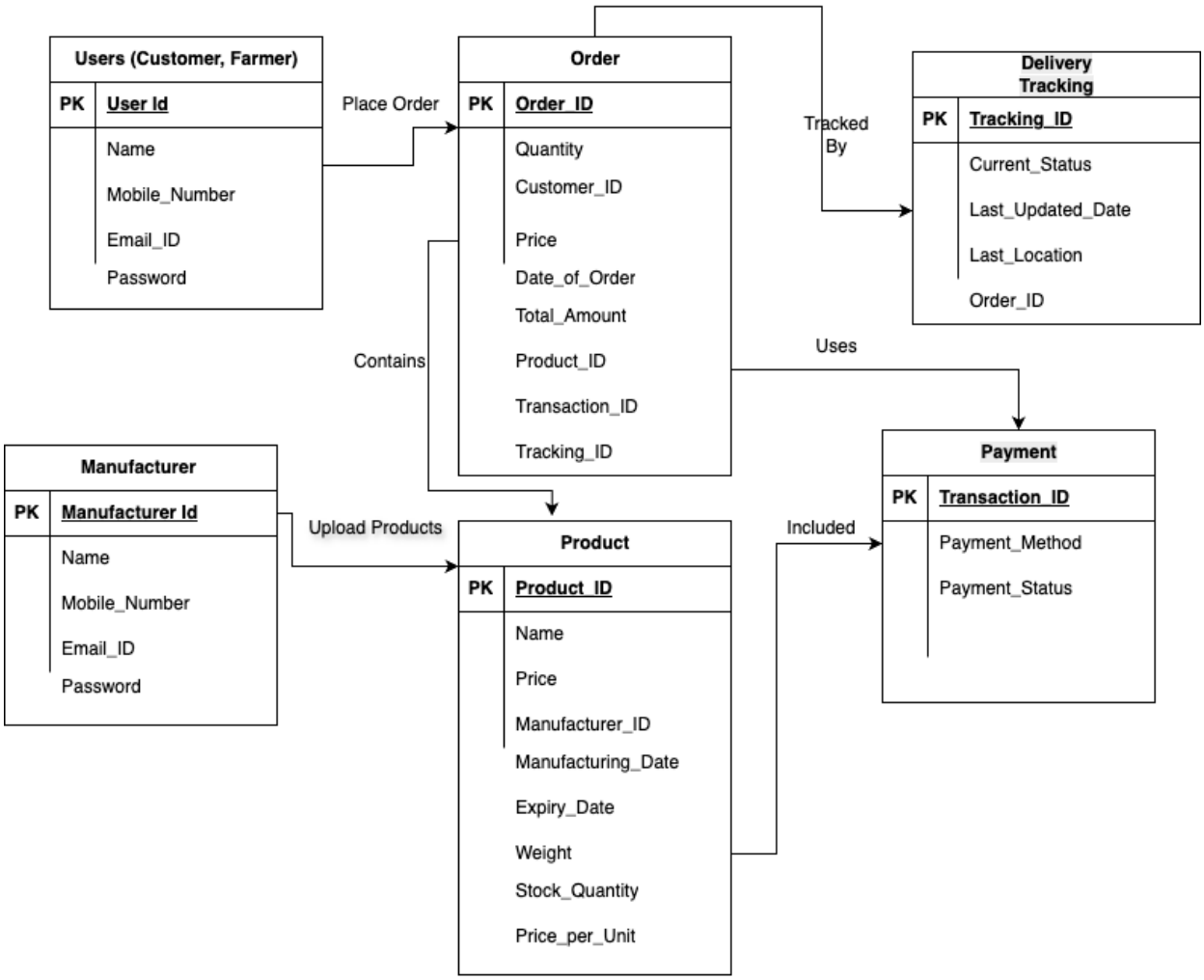
Test Case ID	TC0004	Test Case Name	Place Order for Product
Project ID	P001	Project Name	Online Agriculture Products Store
PM ID	PM001	PM Name	ABC
Test Strategy ID	TS001	Tester ID	T004
Test Plan ID	TP001	Tester Name	XYZ
Test Schedule ID	TS001	Date of Test	17-06-2025
Scenario	Verify that the farmer can successfully place an order for a selected product.		
Link to that Page	/place-order		
Input Data	Product ID: PR12345Quantity: 5		
Expected Behaviour	Order should be recorded and confirmation message should appear.		
Actual Behaviour	Order was placed and confirmation screen was displayed.		
Comments	Payment module was mocked.		

Test Case ID	TC0004	Test Case Name	Place Order for Product
Result (Pass/Fail)	Pass		

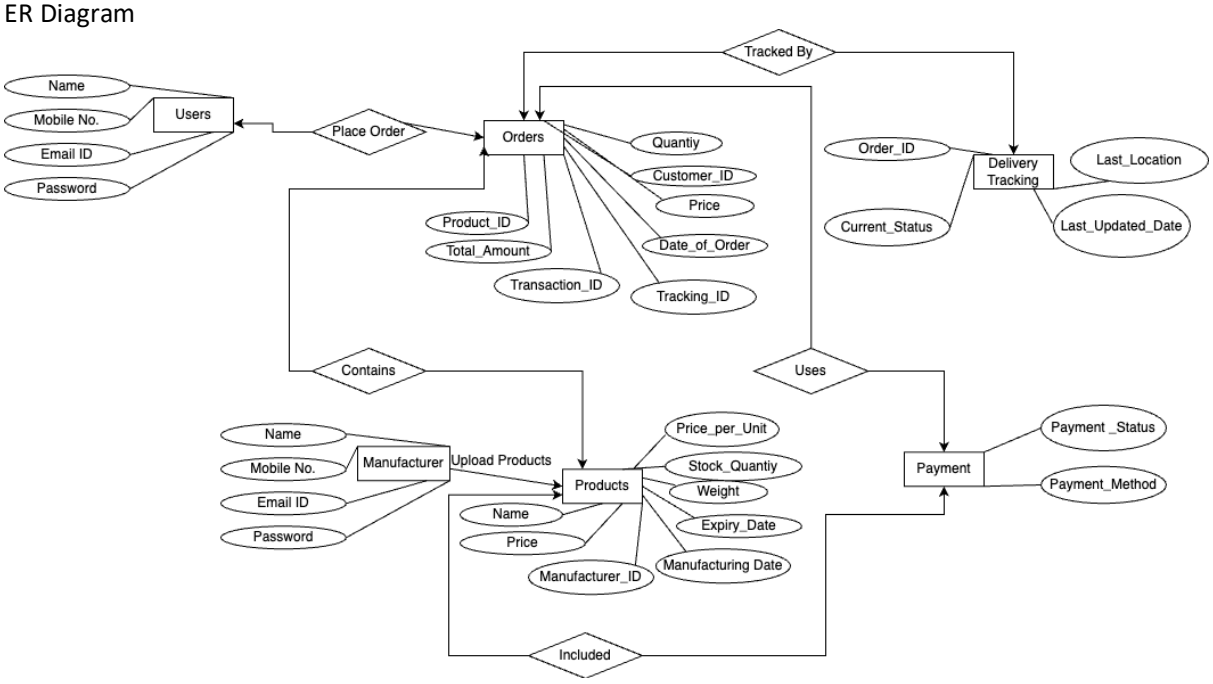
Test Case ID	TC0005	Test Case Name	Add Crop for Auction
Project ID	P001	Project Name	Online Agriculture Products Store
PM ID	PM001	PM Name	ABC
Test Strategy ID	TS001	Tester ID	T005
Test Plan ID	TP001	Tester Name	XYZ
Test Schedule ID	TS001	Date of Test	17-06-2025
Scenario	Verify that the farmer can list crop for auction with valid details.		
Link to that Page	/add-crop-auction		
Input Data	Crop: RiceQuantity: 500 kgBase Price: ₹1600Start: 18-06-2025End: 19-06-2025		
Expected Behaviour	Auction item should be added and visible to buyers during auction period.		
Actual Behaviour	Crop was listed successfully and auction details appeared on bidding page.		
Comments	Auction start/end time logic validated.		
Result (Pass/Fail)	Pass		

Question 6 – DB Design – 8 Marks
After the requirements are thoroughly explained to the entire project team by business analyst, the Database architects have decided to do the database design and also to represent the in-flow and out-flow of data.
Draw database schema and ER diagram

Answer 6. Database Schema Design



ER Diagram



Question 7 – Data Flow Diagram - 3 Marks

What is a data flow diagram? Draw a data flow diagram to represent the in-flow and out-flow of

data when a Farmer is placing an order for the product

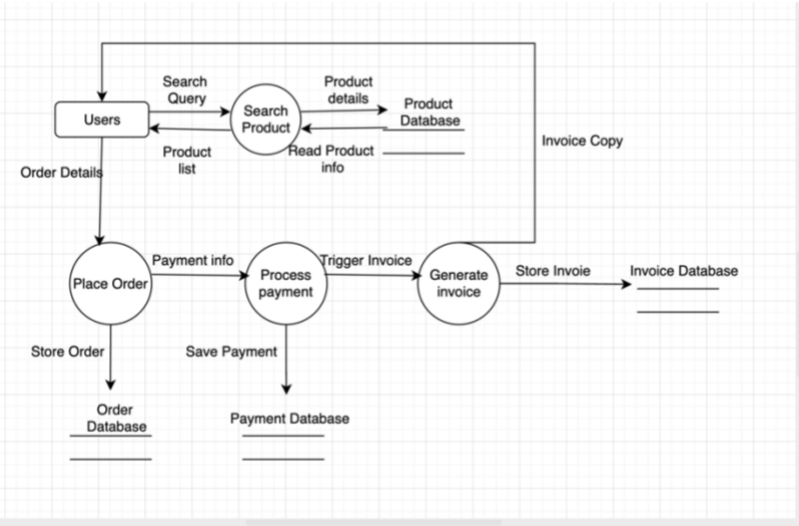
Answer 7. A Data Flow Diagram (DFD) is a visual representation that shows how data flows through a system, highlighting:
Where data comes from (input)
Where it goes (output)
How it is processed (functions or transformations)
Where it is stored (data stores)

- External Entity
- Process

- Database

- Data Flow

It's widely used in systems analysis and design to understand, document, and improve business processes.



Question 8 Change Request - 10 Marks
Due to change in the Government Taxation structure . we should change the Tax structure
How do you handle change requests in a project?

Answer 8. Due to a change in the Government Taxation structure, we need to update the system's tax structure.
1. Acknowledge the Request
- I formally acknowledge the receipt of the change request from the concerned stakeholder (e.g., Regulatory team or Business Sponsor).
- The request is logged in the Change Management System (e.g., JIRA, ServiceNow) with details like:
  - Requestor name
  - Date of request
  - Nature of change (e.g., GST updated from 12% to 18%)

2. Understand and Analyse the Request
- I conduct requirement clarification sessions with stakeholders to understand:
  - Exact tax structure changes (e.g., percentage, exemptions, start date)
  - Whether it applies to all products or specific categories

    - Any legal/regulatory documentation supporting the change
- Clarify if the change is:
    - Temporary or permanent
    - Region-specific or global
- I document updated business rules:
    - Example: "Effective from 1st July 2025, apply 18% GST on all farm machinery except organic fertilizers (exempted)."

3. Impact Assessment

I conduct a detailed impact analysis covering:

a) Business Impact

- Product pricing logic changes
- Cart total, invoice generation, and tax summary affected
- Legal compliance updates

b) System Impact

- Database: Update or add a new Tax_Structure table
- Backend Logic: Change price calculation formulas in Order and Payment modules
- Frontend/UI: Display updated tax details on checkout page and invoice

c) Testing Impact

- Regression testing required for:
    - Discount + tax logic
    - Different customer categories
    - Edge cases (e.g., tax-exempt products)

d) Documentation

- Update BRD, FRD, user manuals, and tax policy documents
- New use case(s) added for managing dynamic tax rates.

4. Approval from Change Control Board (CCB)

The change request document along with the impact analysis report was presented to the Change Control Board (CCB). After reviewing the necessity and scope, the CCB approved the request under compliance and legal mandate.

5. Final Conclusion

The approved change request was incorporated in the upcoming sprint/module release. Proper version control, testing, and deployment planning were ensured. Stakeholders were kept informed throughout, and updated documentation and user guides were delivered post-implementation.

Question 9 – Change Request Vs an Enhancement - 5 Marks

As the project is in process, Ben and Kevin have contacted you. The reason is to inform you that they want the Farmers to sell their crop yields through this application i.e. Farmers should be able to add their crop yields or products and display to general public and should be able to sell them. They also want to introduce Auction system for their Crop yields. As a BA, what will be your response? Is this a change request or an enhancement???

Answer 9. Response to the Request from Ben and Kevin

Request Summary:

Ben and Kevin have proposed that:

- Farmers should be able to add and sell their crop yields directly via the application.
- An auction system should be introduced for the sale of crop yields to the general public.

My Assessment as a Business Analyst:

1. Type of Request: Enhancement

This request qualifies as an enhancement, not a simple change request.

Why is this an Enhancement and Not a Change Request?

- A change request typically involves modification of an existing feature due to external or internal factors (like tax changes, minor UI fixes, or workflow tweaks).
- This request introduces new functional capabilities — i.e.:

- A new seller workflow for Farmers
- A product listing interface for crops
- An entirely new auction mechanism with bidding logic, bid history, timing, winner selection, and pricing rules

Therefore, it extends the core capabilities of the current application and adds new use cases, which classifies it as an enhancement.

My Response & Next Steps as a BA:

1. Acknowledge & Capture the Request
   - Thank Ben and Kevin for their input.
   - Log this enhancement in the product backlog with a feature request ID.
2. Requirement Elicitation
   - Conduct workshops or interviews with:
     - Farmers (end-users)
     - Legal/Compliance team (to understand auction-related regulations)
     - Tech architects (for feasibility)
   - Define:
     - Key features of farmer product listing
     - Auction flow (start time, end time, minimum bid, buy-now options)
3. Document Functional Requirements
   - Update the BRD/FRD to include:
     - Farmer Role permissions
     - New entities like Auction, Bid, Bidder
     - Auction rules, UI mockups, business rules
4. Impact Analysis
   - Update in system architecture (e.g., backend changes for real-time bidding)
   - UI changes (e.g., product listing, auction timers)
   - Testing scenarios (e.g., bid conflicts, winner selection, time expiry)
5. Seek Stakeholder Approval
   - Review proposed enhancement with the Product Owner/Stakeholders for prioritization.
   - Discuss timelines, development effort, and business value.

Conclusion:

This is an enhancement request since it introduces new functional modules like crop listing and auctioning, which extend the system's existing capabilities.

As a Business Analyst, I will proceed by gathering detailed requirements, assessing technical and business impacts, and updating the requirement documentation accordingly.

Question 10 – Estimations - 6 Marks

Come up with estimations – How many Manhours required

Answer 10. Project Estimation – Manhours Calculation

Project Overview:

• Project Name: Online Agriculture Products Store
• Budget: 2 Crores INR
• Duration: 18 months (540 calendar days)
• Company: APT IT SOLUTIONS
• Team Members: 10 (Project Manager, Senior Java Developer, Java Developers, Network Admin, DB Admin, Testers, Business Analyst)
• Total Working Days: 396 (Excluding weekends and holidays)
• Daily Effort Per Resource: 8 hours
• Total Manhours (Including Buffer): 3168 Hours

Project Phase	Estimated Days	Man-Hours (Days × 8 hrs)
Requirements Gathering & Analysis	30	240

System Design	40	320
Development	160	1280
Testing & Bug Fixing	58	464
User Acceptance Testing (UAT)	28	224
Deployment & Post-Go-Live Support	24	192
Project Management & Coordination	30	240
Total Estimated Work	370	2968
Buffer Allocation	40	320
Grand Total	410	3168

Effort Estimation Breakdown:

• The project is categorized as a medium-scale project based on effort estimation.
• A buffer of 40 days (320 hours) is included to accommodate unforeseen challenges.
• The team is well-trained, so no additional training effort is considered.
• The auction system and order management require the most development effort due to their complexity.

Question 11 – UAT – 6 Marks
Project has finally completed all the stages i.e., design, development, testing etc. Now, it is the role of a business analyst to contact the client for testing of the final product and have to successfully complete it. How are you going to handle this situation? And once it is done, what will be the process to close the project? Explain UAT Acceptance process

Answer 11. Final Stage: UAT and Project Closure
1. How I Handle the Situation as a Business Analyst
As the Business Analyst, I take the lead in initiating and coordinating the User Acceptance Testing (UAT) phase with the client. Here's how I proceed:
Step-by-Step Approach:

1. Communicate with the Client
    - Send a formal email to the client stating:
      "The product has completed design, development, and internal testing. We are now ready for User Acceptance Testing (UAT). Kindly share your availability and nominated UAT testers."
2. Share UAT Plan and Environment Details
    - Provide access credentials to the UAT environment.
    - Share the UAT Test Plan, scope, and objective.
    - Define roles & responsibilities (e.g., who will test, who will approve).
3. Conduct UAT Kickoff Meeting
    - Align client stakeholders and internal teams.
    - Walk through major features.
    - Provide a demo, if needed.

2. UAT Acceptance Process

Phase	Description
a. UAT Planning	Prepare and share UAT Plan, define success criteria, and test timelines.
b. Test Case Sign-Off	Review UAT test cases with client before execution.
c. UAT Execution	Client tests functionalities using real-world scenarios.
d. Defect Logging	Any bugs or mismatches are logged in a defect tracker (JIRA/Excel).
e. Fixes & Retest	Development team fixes bugs; client retests the fixed items.
f. UAT Sign-Off	Client signs off when all critical functionalities are working as per requirement.

Deliverables:

- UAT Sign-Off Document
- Issue Tracker (Closed)
- Final Change Log

3. Project Closure Process

Once UAT is signed off, I initiate the project closure phase:

Steps to Close the Project

1. Prepare Closure Report
    - Include final deliverables, UAT summary, approved CRs, pending issues (if any), and lessons learned.
2. Conduct Closure Meeting
    - With stakeholders to review:
        - Project goals vs. actual outcomes
        - Client feedback
        - Support or maintenance handover (if applicable)
3. Archive Documents
    - Store BRD, FRD, UAT docs, CR logs, and sign-offs in the project repository (Confluence/SharePoint).
4. Release Communication
    - Send final communication:
      "Project successfully delivered and signed off. Handover is completed. Thanks for your collaboration."
5. Celebrate the Closure
    - Acknowledge the team effort and formally release project resources.

Conclusion:

As a Business Analyst, I ensure smooth coordination with the client during UAT, facilitate clear documentation, and drive the project toward a structured closure. The UAT sign-off becomes the formal approval of deliverables and initiates the successful handover of the product.

Question 12 – Project Closure Document - 6 Marks

Explain Project closure document

Answer 12. Project Closure Document – Agri e-Commerce System

Section	Description
1. Project Overview	The Agri e-Commerce System was developed to enable farmers and agricultural product manufacturers to buy, sell, and auction goods online. The platform offers modules for user registration, product management, ordering, payment, delivery tracking, and auction functionalities.
2. Deliverables Summary	All planned deliverables were completed, including the responsive web portal, admin dashboard, payment integration, delivery tracking, and auction module. User manuals and training materials were also delivered.
3. UAT & Client Sign-Off	User Acceptance Testing (UAT) was conducted with active client participation. All major scenarios passed successfully. The client signed off on the deliverables on 14-June-2025.
4. Change Requests Summary	Two major change requests were processed: (1) Update in government taxation structure, and (2) Addition of crop yield listing and auction functionality for farmers. Both were implemented and approved by the Change Control Board (CCB).
5. Budget and Time Analysis	The project was executed within the approved budget of ₹2 Crores and completed over 18 months. 3168 man-hours were utilized, including buffer, with no major overruns.

Section	Description
6. Issue Log & Resolution Status	A total of 18 issues were logged during development and UAT phases. All were resolved and retested. No open or critical issues remain at the time of closure.
7. Lessons Learned	Early validation of auction feature requirements was critical. Clearly defined scope and consistent client communication helped in successful delivery. Integration testing took longer than planned due to third-party APIs.
8. Knowledge Transfer & Handover	Complete handover was done to the client's internal IT team, including source code, database schema, admin credentials, and SOPs. A knowledge transfer session was held on 14-June-2025.
9. Client Feedback	The client expressed satisfaction with the solution’s quality, usability, and the professionalism of the team. They appreciated the responsiveness to change requests.
10. Approval & Sign-Off	Final approval and sign-off were obtained on 15-June-2025 after the successful deployment and completion of all UAT cases. All closure documents have been submitted to the client.

Section	Content
Project Name	Agri e-Commerce Platform Development
Client	Ben and Kevin AgriTech
Project Summary	Development of a platform for farmers to list, sell, and auction crop yields
Final Deliverables	Login module, crop listing, auction system, payment gateway
UAT Status	Successfully completed and signed off on 14 June 2025
Issues Resolved	5 major issues resolved during UAT, 2 moved to Phase 2
Change Requests	3 CRs accepted and implemented: Auction Module, Tax Structure Update, Notification Feature
Handover	Knowledge transfer completed, credentials and documents handed over to support team
Approval	Signed by BA, PM, and Client on 15 June 2025