**Assignment -1**

**1. Please make a BRD which can be presented to the client along with a complete development and resource plan.**

**Document Name:** Ice-Cream and Milk Product Inventory & Delivery Management System
**Version:** 1.0
**Date:** 01-03-2025
**Prepared by:** Tushar
**Reviewed by:** Prashant
**Approved by:** Suresh

**Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Description** | **Author** |
| 1.0 | 01-03-2025 | Initial Draft | Tushar Musale |

**Approvals**

|  |  |  |  |
| --- | --- | --- | --- |
| Role | Name | Signature | Date |
| Project Sponsor | Rohit Varma |  |  |
| Business Owner | Abhishek Pande |  |  |
| IT Lead | Ketan Kumbhar |  |  |
| Business Analyst | Tushar Musale |  |  |

**RACI Chart**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Task** | **Responsible** | **Accountable** | **Consulted** | **Informed** |
| Requirement Gathering | Business Analyst | Project Sponsor | SMEs, Stakeholders | IT Team |
| Software Development | Development Team | IT Lead | Business Analyst | Business Owner |
| Testing | QA Team | IT Lead | Business Analyst | Business Owner |
| Deployment | DevOps | IT Lead | Business Analyst | Stakeholders |

**1. Business Goals**

* Efficiently manage inventory across multiple manufacturing plants and warehouses.
* Ensure the quickest possible delivery of ice-cream and milk products to customers.
* Reduce inventory wastage by tracking expiry dates and storage conditions.
* Optimize route planning for faster deliveries.

**2. Business Objectives**

* Implement an automated inventory tracking system.
* Develop an intelligent order management system to fulfill orders quickly.
* Integrate a route optimization system for delivery efficiency.
* Generate real-time reports on stock levels, demand trends, and logistics performance.

**3. Business Rules**

* Inventory should be updated in real-time whenever stock is added, removed, or transferred.
* Orders must be fulfilled based on proximity and product availability.
* Expiry tracking should trigger alerts for near-expiry products.
* Delivery routes should be optimized using GPS tracking and shortest-path algorithms.

**4. Background**

The company operates multiple manufacturing plants and warehouses across the country. With increasing demand, they are facing challenges in inventory management and timely deliveries. An advanced system is required to optimize these processes and improve efficiency.

**5. Project Objective**

Develop a centralized software solution that integrates inventory management with an intelligent delivery system to ensure optimal stock levels and the fastest possible order fulfillment.

**6. Project Scope**

**In-Scope Functionality**

* Inventory tracking (stock levels, expiry dates, storage conditions).
* Automated order processing and fulfillment.
* Route optimization and delivery tracking.
* Integration with existing ERP systems.
* Role-based access control.

**Out of Scope Functionality**

* Manufacturing process management.
* Customer relationship management (CRM).
* Payment processing system.

**7. Assumptions**

* The company has the necessary infrastructure to support the new system.
* Employees will be trained on the new software.
* The system will integrate with existing logistics providers.

**8. Constraints**

* Budget limitations for software development and implementation.
* Existing infrastructure compatibility with the new system.
* Data security and compliance with regulatory requirements.

**9. Risks**

* Resistance to change from employees.
* Data migration challenges from legacy systems.
* Potential downtime during implementation.

**10. Business Process Overview**

**AS-IS Process (Current State)**

1. Inventory is managed manually at each warehouse.
2. Orders are processed based on phone calls or emails.
3. Delivery routes are determined manually.

**TO-BE Process (Future State)**

1. Inventory is updated in real-time through the system.
2. Orders are automatically assigned to the nearest warehouse with available stock.
3. Delivery routes are optimized using AI-based logistics management.

**11.Development Plan**

 **Resource Allocation**

|  |  |  |
| --- | --- | --- |
| **Role** | **Responsibilities** | **No. of Resources** |
| Business Analyst | Requirement gathering, documentation | 1 |
| Project Manager | Project execution, timeline tracking | 1 |
| Backend Developer | Database, APIs | 2 |
| Frontend Developer | UI/UX implementation | 2 |
| QA Engineer | Testing and quality assurance | 2 |
| DevOps Engineer | Deployment and server maintenance | 1 |

**Development Timeline**

|  |  |
| --- | --- |
| **Phase** | **Duration** |
| Requirement Gathering & BRD Finalization | 2 Weeks |
| System Design & Architecture | 3 Weeks |
| Development (Frontend & Backend) | 12 Weeks |
| Testing & QA | 4 Weeks |
| UAT & Deployment | 3 Weeks |
| Go-Live & Support | Ongoing |

**2. Prepare a process flow diagram using your imagination.**

Business Process Flow



**Assignment 2**

**1. Write an introduction letter to a client introducing yourself as a business analyst in charge of working with the client and his team to start the business understanding process.**

Hi team,

I hope this message finds you well. My name is Tushar Musale, and I am delighted to

introduce myself as the Business Analyst assigned to collaborate with you and your team on this exciting project.

Understanding the challenges and opportunities within the manufacturing and logistics sectors,

particularly in delivering exceptional customer service, is a domain I am passionate about. With

your vision of managing inventory and ensuring the quickest delivery of your ice-cream and milk products, my role will be to work closely with you to transform these goals into a robust, tailor-made software solution.

To begin, I aim to thoroughly understand your current processes, challenges, and aspirations.

Together, we will explore your operational workflows, identify key requirements, and map out a strategic plan that aligns with your business objectives. Your insights will be invaluable in

ensuring the solution we design is practical, scalable, and optimized for your unique needs.

I look forward to discussing your expectations and gathering inputs from your team during our

initial meetings. In the meantime, please feel free to share any documents, current processes, or initial thoughts that could help us hit the ground running.

Thank you for the opportunity to collaborate on this project. I am confident that, together, we

will develop a solution that adds significant value to your business operations. Please let me

know a convenient time for us to connect further.

Looking forward to working with you.

Warm regards,

Tushar Musale

Business Analyst

**2. Prepare a brief BRD and SRS for a project- online store.**

**Document Name-** Mahafeed Online fertilizer Business

**Version: 1.0
Date: 01-03-2025
Prepared By: Tushar Musale
Reviewed By: Akash Kale
Approved By: Ashish Joshi**

**Document Revision History**

|  |  |  |  |
| --- | --- | --- | --- |
| **Version** | **Date** | **Author** | **Description** |
| 1.0 | 01-03-2025 | Tushar Musale | Initial Draft |

**Approvals**

|  |  |  |
| --- | --- | --- |
| **Name** | **Role** | **Approval Date** |
| **[Approver Name]** | [Role] | [Date] |

**RACI Chart**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Activity** | **Responsible** | **Accountable** | **Consulted** | **Informed** |
| **Requirement Gathering** | Business Analyst | Product Owner | Stakeholders | Project Team |
| **Development** | Developers | Tech Lead | Business Analyst | Project Manager |
| **Testing** | QA Team | QA Lead | Developers | Project Manager |
| **Deployment** | DevOps | IT Head | Business Analyst | Stakeholders |

**1. Business Goal**

To develop an e-commerce platform for Maha feed to enable direct sales of fertilizers, expand market reach, and improve customer engagement.

**2. Business Objective**

* Enable online purchasing and payment.
* Improve customer convenience and satisfaction.
* Optimize supply chain and inventory management.
* Enhance brand presence in the digital market.

**3. Business Rules**

* Customers must register to make a purchase.
* Orders above a certain value qualify for free shipping.
* Payments are processed through secure payment gateways.
* Discounts and promotions are applied based on predefined criteria.

**4. Background**

Mahafeed has traditionally used offline sales channels. The company aims to leverage digital transformation by launching an e-commerce platform to enhance customer experience and increase revenue.

**5. Project Objective**

To design and implement an online platform for Mahafeed that facilitates easy product browsing, ordering, and payment processing while integrating with existing inventory and logistics systems.

**6. Project Scope**

**In-Scope Functionality**

* User Registration & Login
* Product Catalog & Search
* Shopping Cart & Checkout
* Payment Gateway Integration
* Order Tracking
* Customer Support & FAQs
* Marketing & Promotions (Discounts, Coupons)
* Reports & Analytics

**Out-of-Scope Functionality**

* International Shipping
* Offline Order Processing
* Third-party Logistics Integration (Phase 2)
* Advanced AI-based Recommendations (Future Scope)

**7. Assumptions**

* Internet access is available to target customers.
* Users are familiar with e-commerce platforms.
* Payment gateway integration is feasible.

**8. Constraints**

* Budget limitations for initial development.
* Integration with existing ERP system.
* Compliance with agricultural product regulations.

**9. Risks**

* Platform adoption by traditional customers.
* Security vulnerabilities in payment processing.
* Technical challenges in integrating with logistics partners.

**10. Business Process Overview**

**AS-IS Process**

* Customers place orders through distributors or physical stores.
* Payments are made via cash or bank transfers.
* Orders are manually processed and delivered.

**TO-BE Process**

* Customers browse and order fertilizers online.
* Payments are processed through secure digital methods.
* Automated order fulfillment and delivery tracking.

**11. Business Requirements**

|  |  |  |
| --- | --- | --- |
| **ID** | **Requirement** | **Priority** |
| BR-01 | Customers must be able to register and log in. | High |
| BR-02 | Users should be able to browse and search for products. | High |
| BR-03 | Secure payment processing must be integrated. | High |
| BR-04 | Customers should receive order confirmation and tracking details. | Medium |
| BR-05 | The platform should support promotional offers and discounts. | Medium |

**Software Requirements Specification (SRS) Document for Mahafeed Online Fertilizer Store**

**1. Introduction**

**1.1 Purpose**

The purpose of this document is to define the software requirements for the Mahafeed online fertilizer store. This system will enable Mahafeed to transition from traditional sales to an e-commerce platform, allowing customers to browse, purchase, and track fertilizer products online.

**1.2 Document Scope**

This document outlines the functional, non-functional, and system requirements for the development of Mahafeed’s e-commerce website. It provides detailed insights into user interactions, business rules, and constraints.

**1.3 Stakeholders**

* Business Analysts
* Project Managers
* Developers (Frontend, Backend, UI/UX)
* Testers
* Product Owners

**1.4 Product Scope**

Mahafeed’s online store will provide a user-friendly interface for customers to explore and purchase fertilizers. It will include user authentication, product management, order processing, payment integration, and customer support.

**2. Executive Summary**

**2.1 Project Overview**

The online fertilizer store will enhance Mahafeed’s business by providing a scalable and efficient e-commerce platform. Customers will have access to a seamless buying experience, while Mahafeed can automate order processing and stock management.

**2.2 Key Benefits**

* Expands market reach beyond physical stores.
* Reduces manual processing errors in order fulfillment.
* Enhances customer engagement through digital marketing and analytics.

**2.3 Key Stakeholders**

* **Business Owners**: Oversee operations and decision-making.
* **IT Team**: Developers, testers, and system admins.
* **Customers**: End users purchasing fertilizers.
* **Third-party Providers**: Payment gateways, shipping providers.

**3. System Architecture**

**3.1 Technology Stack**

* **Frontend**: React.js, Tailwind CSS.
* **Backend**: Node.js, Express.js.
* **Database**: MySQL/PostgreSQL.
* **Hosting**: AWS, Docker, Kubernetes.
* **Third-party Integrations**: Razorpay, Stripe, ShipRocket.

**3. User Roles & Permissions**

* **Admin**: Manage users, products, orders, payments.
* **Customer**: Browse products, add to cart, purchase, track orders.
* **Supplier**: Manage inventory and supply chain.
* **Customer Support**: Handle queries and complaints.

**4. External Interfaces**

* **Payment Gateway**: Razorpay, PayPal, Stripe.
* **Shipping API**: FedEx, Delhivery, BlueDart.
* **SMS/Email Notifications**: Twilio, SendGrid for order alerts.

**5. Functional Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Requirement ID** | **Requirement Name** | **Description** | **Priority** |
| FR-01 | User Registration & Login | Users should be able to register, log in, and reset passwords. | High |
| FR-02 | Product Management | Admins should be able to add, update, and remove products. | High |
| FR-03 | Search & Filter Products | Users should be able to search and filter products. | High |
| FR-04 | Shopping Cart | Users should be able to add/remove items and update quantities in the cart. | High |
| FR-05 | Secure Checkout & Payment | Users should be able to checkout securely and make payments. | High |
| FR-06 | Order Management | Users should be able to place, track, and cancel orders. | High |
| FR-07 | Wishlist | Users should be able to add products to a wishlist. | Medium |
| FR-08 | Discount & Coupon System | Admins should be able to create promotional codes and discounts. | Medium |
| FR-09 | Customer Support | Users should be able to raise queries or complaints. | Medium |
| FR-10 | Reports & Analytics | Admins should have access to sales trends and user behavior insights. | Low |

**6.Non-Functional Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| Requirement ID | Requirement Name | Description | Priority |
| NFR-01 | Performance | The website should load within 3 seconds. | High |
| NFR-02 | Scalability | The system should handle 50,000 concurrent users. | High |
| NFR-03 | Security | User data and payments should be encrypted and follow PCI DSS compliance. | High |
| NFR-04 | Availability | The system should have 99.99% uptime. | High |
| NFR-05 | Usability | The UI should be intuitive and mobile-friendly. | Medium |

**7. Assumptions and Constraints**

**7.1 Assumptions**

* Users have access to stable internet connections.
* Payment gateways will be integrated via third-party APIs.

**7.2 Constraints**

* Initial launch will support only domestic orders.
* The website should comply with local e-commerce regulations.

**8. Risks**

* Cybersecurity threats
* Payment gateway failures.
* Inventory mismatch due to incorrect stock updates.

**9. Business Process Overview (AS-IS & TO-BE)**

**9.1 AS-IS Process**

* **Manual Order Processing**: Orders are taken through phone calls, emails, and in-person visits.
* **Limited Online Presence**: The existing website is informational and does not support e-commerce.
* **No Real-Time Inventory Management**: Stock levels are updated manually, leading to possible discrepancies.
* **Delayed Order Fulfillment**: Processing and shipping orders take additional time due to manual coordination.
* **Limited Customer Engagement**: No personalized recommendations, tracking, or automated communication.
* **Payment Handling Issues**: Payments are primarily offline (bank transfers, cash on delivery), leading to delays in reconciliation.
* **Dependency on Sales Representatives**: Customers rely on direct communication with sales agents for inquiries and purchases. Customers will browse fertilizers online, add products to their carts, and complete purchases digitally.
* The system will automatically process orders and update inventory.

**To- Be System**

* Online Storefront: A user-friendly website where customers can browse products, view details, and make purchases
* Automated Order Processing: Orders are placed online and directly integrated into the system.
* Real-Time Inventory Management: Automatic stock updates to prevent overselling or shortages.
* Faster Order Fulfillment: Automated workflows for order processing, invoicing, and shipment tracking.
* Multiple Payment Options: Integration of payment gateways for online transactions, including credit/debit cards, UPI, net banking, and wallets.
* Customer Accounts & Order Tracking: Users can register, save preferences, and track orders in real time.
* Discounts & Promotions Management: Automated handling of offers, coupons, and loyalty rewards.
* Integration with Logistics Partners: Real-time tracking and shipment updates.
* Mobile-Friendly Interface: Responsive design for a seamless shopping experience on all devices.

**10. Compliance & Legal Requirements**

* **GDPR & Data Protection**: Ensuring user data privacy.
* **E-commerce Regulations**: Compliance with tax and invoicing laws.

**11. Disaster Recovery Plan**

* **Data Backup Strategy**: Hourly/daily backups in cloud storage.
* **Failover Mechanism**: Automatic server switch in case of failure.

**12. System Features**

* User-friendly dashboard for customers and admins.
* Real-time order tracking and notifications.
* AI-driven product recommendations.

Use case diagram



Use Cases -

|  |  |
| --- | --- |
| **Use Case ID** | UC001 |
| **Use Case Name** | User Registration |
| Created By | Mr.ABC Last Updated By  |
| Date Created | Last Revision By  |
| Actors | Farmer, Distributor |
| PreConditions | Internet Connectivity, Browser Compatibility |
| PostConditions | User account is created successfully |
| Basic Flow | 1. User visits the Mahafeed website.
2. Clicks on the "Register" option.
3. Enters necessary details such as name, phone number, email ID, and password.
4. Verifies the phone number via OTP.
5. Clicks on the "Submit" button.
6. Registration is completed, and the user is redirected to the login page.
 |
| Alternate Flow | If the entered username is already present in the system, then an error message will pop up saying that the user already exists.If any compulsory field is left blank then an error message will pop up saying all compulsory fields must be filled. |
| Exceptional Flow | If the user encounters any technical errors while filling out the registration form.Weak Password EnteredEmail format is incorrect |
| Assumptions | Users have basic knowledge of computer and English |
| Constraints | username cannot be name(It should be email id) |
| Dependencies | None |
| Input & Output | Input-> Username and PasswordOutput-> Registered new user |
| Business Rule | Username-> valid, unique email idPassword-> 1 capital letter, 1 small letter, 1 number, 1 special character,password should have 8 to 10 characters.  |

|  |  |
| --- | --- |
| **Use Case ID** | UC002 |
| **Use Case Name** | Search Product |
| Created By | Mr.ABC Last Updated By  |
| Date Created | Last Revision By  |
| Actors | Farmer, Manufacturer |
| Pre Conditions | Internet Connectivity, Browser Compatibility |
| Post Conditions | Page for searching the products should be displayed to the user |
| Basic Flow | User will be able to search any item(seeds, pesticides, fertilizers) |
| Alternate Flow | User is not able to search for fertilizers, User is not able to search for pesticides, User is not able to search for seeds, User is not able to search for fertilizers, seeds and pesticides, User searches some irrelevant option |
| Exceptional Flow | Forgot password, Forgot username |
| Assumptions | User have basic knowledge of computer and English |
| Constraints |  |
| Dependencies | user should know how to browse the options |
| Input & Output | Input-> Farmers can search whichever product they wantOutput-> Searched option will be displayed on the page |
| Business Rule | Username-> valid, unique email idPassword-> 1 capital letter, 1 small letter, 1 number, 1 special character,Last 5 passwords cannot be repeated, password should have 8 to 10 characters.  |

|  |  |
| --- | --- |
| **Use Case ID** | UC003 |
| **Use Case Name** | **Add to Cart** |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | Farmer |
| Pre Conditions | Internet Connectivity, Browser Compatibility, User is logged in. |
| Post Conditions | Product is added to the cart. |
| Basic Flow | 1. User selects a product.
2. Clicks on "Add to Cart."
3. Cart gets updated.
 |
| Alternate Flow | Cart update failure. |
| Exceptional Flow | Product goes out of stock after adding. |
| Assumptions | Users have basic knowledge of computers and English |
| Constraints |  |
| Dependencies | user should exist, payment should not be processed if the cart is empty |

|  |  |
| --- | --- |
| **Use Case ID** | UC004 |
| **Use Case Name** | Payment |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | Farmer |
| Pre Conditions | Internet Connectivity, Browser Compatibility |
| Post Conditions | Page for searching the products should be displayed to the user |
| Basic Flow | Users logged inSearch for the product they wantThey select the product they wantThen they proceed to the payment pagePayment page has multiple options for doing the payment like- COD, UPI, Credit Card, Debit CardFarmers select the suitable payment method and do the payment |
| Alternate Flow | Payment page is not loadingPayment methods are not getting selectedFarmers UPI is not workingCredit card details are invalidDebit card details are invalid |
| Exceptional Flow | forgot pin while paying through credit cardforgot pin while paying through debit cardforgot UPI ID  |
| Assumptions | Users have basic knowledge of computers and English |
| Constraints |  |
| Dependencies | user should exist, payment should not be processed if the cart is empty |

|  |  |
| --- | --- |
| **Use Case ID** | UC005 |
| **Use Case Name** | Order Confirmation & Tracking |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | Farmer |
| Pre Conditions | Internet Connectivity, Browser Compatibility, and Order should be placed successfully. |
| Post Conditions | User can track order status. |
| Basic Flow | Users logged in1. User places an order.
2. Receives order confirmation.
3. Navigates to "Track Order" section.
4. Views real-time order status.
 |
| Alternate Flow | Order tracking information is not updated. |
| Exceptional Flow | Order is lost in transit. |
| Assumptions | Users have basic knowledge of computers and English |
| Constraints |  |
| Dependencies | user should exist, payment should not be processed if the cart is empty |

|  |  |
| --- | --- |
| **Use Case ID** | UC006 |
| **Use Case Name** | Order Cancellation & Refund |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | Farmer |
| Pre Conditions | Internet Connectivity, Browser Compatibility, User must have a valid order. |
| Post Conditions | Refund is processed successfully. |
| Basic Flow | Users logged in1. ser selects "Cancel Order."
2. System verifies eligibility.
3. Refund is initiated.
 |
| Alternate Flow | Refund fails due to technical issues. |
| Exceptional Flow | Refund takes longer than expected |
| Assumptions | Users have basic knowledge of computers and English |
| Constraints |  |
| Dependencies | Payment gateway integration. |

|  |  |
| --- | --- |
| **Use Case ID** | UC007 |
| **Use Case Name** | User Profile Management |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | Farmer |
| Pre Conditions | Internet Connectivity, Browser Compatibility, User must be logged in. |
| Post Conditions | User profile is updated successfully. |
| Basic Flow | Users logged in1. User navigates to the profile section.
2. Edits personal details like name, address, contact info.
3. Clicks on "Save Changes."
4. System updates the profile information.
 |
| Alternate Flow | Profile update fails due to server issues. |
| Exceptional Flow | User enters an invalid email format. |
| Assumptions | Users have basic knowledge of computers and English |
| Constraints |  |
| Dependencies | User data must be stored securely. |

|  |  |
| --- | --- |
| **Use Case ID** | UC009 |
| **Use Case Name** | Customer Support Request |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | * Customer (Primary Actor)
* Customer Support Representative
* System (Support Ticketing System)
 |
| Pre Conditions | * The customer has an account or a valid way to submit a request (e.g., email, chat, or phone).
* The support system is operational.
 |
| Post Conditions | * The customer's issue is resolved, or appropriate steps are taken toward resolution.
* The customer receives a response acknowledging the request.
 |
| Basic Flow | Users logged in1. The customer logs into the support portal or contacts support via email, chat, or phone.
2. The customer submits a support request, providing relevant details (e.g., issue description, screenshots, error messages).
3. The system generates a support ticket and assigns it a unique ID.
4. The support team reviews the request and assigns it to an appropriate representative.
5. The representative analyzes the issue and responds to the customer with a resolution or follow-up questions.
6. The customer provides additional information if needed.
7. The representative provides a final resolution.
8. The ticket is marked as resolved or escalated if further action is required.
9. .
 |
| Alternate Flow | * A1: Customer Provides Incomplete Information
	+ The system prompts the customer for additional details before submitting the request.
* A2: Issue Requires Escalation
	+ If the issue is complex, the representative escalates it to a higher-tier support team.
* A3: Customer Is Not Satisfied With Resolution
	+ The customer can reopen the ticket and provide additional feedback.
* A4: Automated Response Solves the Issue
	+ The system provides an automated response with a knowledge base article, resolving the issue without human intervention.
 |
| Exceptional Flow | * The system is down, preventing the submission of support requests.
* The customer provides incorrect or insufficient contact information, making follow-up impossible.
* The issue reported is outside the scope of support services.
 |
| Assumptions | * Customers have access to support documentation before submitting a request.
* Support agents have the necessary tools and permissions to handle requests.
 |
| Business Rule | * Tickets should be responded to within a predefined SLA (e.g., 24 hours for standard issues, 4 hours for critical issues).
* Tickets must be categorized based on urgency and complexity.
* A resolution summary should be provided in the ticket before closure.
 |
| Constraints |  |
| Dependencies | User data must be stored securely. |

|  |  |
| --- | --- |
| **Use Case ID** | UC010 |
| **Use Case Name** | Delivery Scheduling |
| Created By | Mr.ABC Last Updated By  |
| Date Created |  Last Revision By  |
| Actors | * Customer (Primary Actor)
* Logistics Team, Warehouse Staff, System Scheduler
 |
| Pre Conditions | * The order is confirmed and ready for dispatch.
* Delivery address and preferred delivery time slots are available.
* Logistics team has capacity to schedule deliveries.
 |
| Post Conditions | *  The order is successfully delivered and marked as completed in the system.
* The customer receives confirmation of delivery.
 |
| Basic Flow | Users logged inCustomer places an order and selects a preferred delivery window (if available). The system checks logistics availability and optimizes the delivery schedule. Warehouse staff prepares the order for dispatch.The system assigns a delivery agent based on availability and proximity.Customer receives a notification with the estimated delivery time and tracking details.The delivery is completed, and confirmation is updated in the system.  |
| Alternate Flow | A1: If the selected delivery slot is unavailable, the system suggests alternative slots.A2: If the logistics team is overbooked, the order is deferred to the next available slot. A3: If the delivery is delayed due to unforeseen circumstances, the customer is notified with an updated schedule. |
| Exceptional Flow | * Delivery agent unavailability.
* Incorrect address provided by the customer.

 Customer not available at the time of delivery.  |
| Assumptions | * The system has real-time access to logistics and delivery personnel availability.
* Customers provide accurate delivery addresses and contact details.
* The logistics team follows an optimized routing system for deliveries.
* External factors such as weather conditions or traffic may impact delivery schedules.
 |
| Business Rule | * Orders must be assigned a delivery slot within a predefined service level agreement (SLA).
* Priority customers (such as premium members) get first preference for delivery scheduling.
* Same-day delivery is only available for orders placed before a cutoff time.
* The system must optimize delivery routes to reduce logistics costs and travel time.
* Customers can reschedule delivery up to a certain number of times before additional charges apply..
 |
| Constraints |  |
| Dependencies | User data must be stored securely. |

**Make an ERD of creating a Ticketing life cycle.**



**User Stories ( Mahafeed Online Fertilizer Application)**

|  |  |  |
| --- | --- | --- |
| **User Story No:** 1 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to create an account so that I can place orders. |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Users can register with email, phone, and password. Users receive an OTP for verification.  Users get a confirmation email upon successful registration. |

|  |  |  |
| --- | --- | --- |
| **User Story No:** 2 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to browse fertilizers by category so that I can find suitable products |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Users can view product categories. Users can apply filters (brand, price, type). Users can search by keyword. |

|  |  |  |
| --- | --- | --- |
| **User Story No:** 3 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to view product details so that I can make an informed purchase |
| **BV:** 500 | **CP: 3** |
| **Acceptance Criteria:** Users see product images, descriptions, specifications, and price. Users can check stock availability. Users can view customer ratings and reviews. |

|  |  |  |
| --- | --- | --- |
| **User Story No:** 4 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to add products to the cart so that I can purchase them later. |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Users can add products to the cart. Users can remove or update quantities. Users see a summary of items before checkout. |

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| **User Story No:** 5 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to checkout securely so that I can place an order. |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Users can enter a shipping address. Users can select a payment method. Users get order confirmation and estimated delivery date. |

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| **User Story No:** 6 | **Task:** 2 | **Priority:** Medium |
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| As a customer, I want to track my order so that I know the delivery status. |

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| **BV:** 200 | **CP: 1** |
| **Acceptance Criteria:** Users can view the real-time order status. Users get tracking details via email/SMS. Users receive notifications for shipment updates.. |

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| **User Story No:** 7 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to receive order confirmation and updates via email/SMS. |
| **BV:** 500 | **CP: 5** |
| **Acceptance Criteria:** Users receive order confirmation via email/SMS. Users get notifications for shipment and delivery. Users can opt out of SMS/email notifications. |

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| **User Story No:** 8 | **Task:** 2 | **Priority:** MEDIUM |
| As an admin, I want to manage customer inquiries so that I can provide support. |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Admins can view and respond to customer queries. Admins can categorize queries by type. Customers receive replies via email/SMS. |

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| **User Story No:** 9 | **Task:** 2 | **Priority:** MEDIUM |
| As an admin, I want to generate sales reports so that I can analyze performance. |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Admins can generate reports for sales, revenue, and top-selling products. Reports can be exported in CSV/PDF format.Reports can be filtered by date range. |

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| **User Story No:** 10 | **Task:** 2 | **Priority:** MEDIUM |
| As a logistics partner, I want to receive order shipping details so that I can schedule deliveries. |
| **BV: 200** | **CP: 1** |
| **Acceptance Criteria:** Logistics partners receive order details via the system. They can access customer addresses and contact details. Delivery agents can mark orders as dispatched. |

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| **User Story No:** 11 | **Task:** 2 | **Priority:** MEDIUM |
| As a customer, I want to select my preferred delivery date so that I can receive orders conveniently. |
| **BV:** 500 | **CP: 1** |
| **Acceptance Criteria:** Users can choose available delivery slots. Only valid delivery dates are shown. Users get a confirmation email with the selected date.. |

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| **User Story No:** 12 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to manage user roles so that I can control platform access. |
| **BV:** 500 | **CP: 3** |
| **Acceptance Criteria:** Admins can assign roles (Customer, Manager, Delivery Partner). Different roles have different access levels. Unauthorized users cannot access restricted features. |

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| **User Story No:** 13 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to pay via multiple payment options so that I can use my preferred method. |
| **BV:** 500 | **CP: 5** |
| **Acceptance Criteria:** Payment options include credit/debit cards, UPI, net banking. Payments are processed securely via a payment gateway. Users receive an invoice after successful payment. |

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| **User Story No:** 14 | **Task:** 2 | **Priority:** LOW |
| As a customer, I want to subscribe to newsletters so that I receive offers and updates |
| **BV:** 100 | **CP: 3** |
| **Acceptance Criteria:** Users can enter their email to subscribe. Users receive periodic newsletters about offers and new products. Users can unsubscribe at any time. |

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| **User Story No:** 15 | **Task:** 2 | **Priority:** LOW |
| As an admin, I want to manage blog content so that I can share agricultural tips. |
| **BV:** 100 | **CP: 2** |
| **Acceptance Criteria:** Admins can create, edit, publish, and delete blog posts. Blogs can include images and videos. Blogs appear in a dedicated section of the website. |

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| **User Story No:** 16 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to search for a specific fertilizer by name, so that I can quickly find the product I am looking for |
| **BV:** 500 | **CP: 3** |
|  Search bar available on all product listing pages.Customers can search using product name or SKU.Search results should update dynamically. |

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| **User Story No:** 17 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to choose my preferred payment method so that I cancomplete my purchase conveniently. |
| **BV:** 500 | **CP: 3** |
|  Payment gateway supports credit card, PayPal, and digital wallets.Transactions are processed within 5 seconds. |

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| **User Story No:** 18 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to compare products side-by-side so that I can choosethe best option |
| **BV:** 500 | **CP: 3** |
| Users can select up to three products to compare.Key attributes are displayed for easy comparison. |

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| **User Story No:** 18 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to choose my preferred payment method so that I cancomplete my purchase conveniently. |
| **BV:** 500 | **CP: 3** |
|  Payment gateway supports credit card, PayPal, and digital wallets.Transactions are processed within 5 seconds. |

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| **User Story No:** 19 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to filter fertilizers by NPK ratio, organic/inorganic type, and application method, so that I can narrow down my choices. |
| **BV:** 500 | **CP: 3** |
|  Customers can apply multiple filters simultaneously.Filters update the product list dynamically.Applied filters are visible and can be removed. |

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| **User Story No:** 20 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to read detailed product descriptions, including benefits, application methods, and safety precautions, so that I can make an informed purchase decision. |
| **BV:** 500 | **CP: 3** |
| Clicking on a product opens a detailed product page.Page displays benefits, application methods, and safety precautions.Customers can view additional details via expandable sections. |

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| **User Story No:** 21 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to view product images and videos, so that I can understand the physical appearance and application of the produc |
| **BV:** 500 | **CP: 3** |
| Each product page has high-quality images and videos.Customers can zoom into images.Videos should be embedded and playable. |

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| **User Story No:** 22 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to view my past orders, so that I can easily reorder my frequently used products. |
| **BV:** 500 | **CP: 3** |
| Customers can see order history in their account dashboard.Each order displays date, product list, and total cost.Option to reorder directly from past orders.. |

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| **User Story No:** 23 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to save my favorite products to a wishlist, so that I can purchase them later.. |
| **BV:** 500 | **CP: 3** |
| Customers can add products to a wishlist.Wishlist accessible from the account dashboard.Option to move items from wishlist to cart. |

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| **User Story No:** 24 | **Task:** 2 | **Priority:** HIGH |
| As a customer, I want to request express delivery if I need urgent supplies, so that I can get my products faster |
| **BV:** 500 | **CP: 3** |
| Express delivery option available during checkout.Additional charges for express delivery displayed clearly.Orders marked as express should have priority processing. |

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| **User Story No:** 25 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to create and manage discount offers so that I can attract more customers and increase sales. |
| **BV:** 500 | **CP: 3** |
| The admin should be able to create a percentage-based or fixed-amount discount.The admin should be able to set a start and end date for the discount.The discount should be applicable to selected products or categories.Users should see the discounted price on the product page and at checkout.The system should ensure discounts do not exceed product price. |

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| **User Story No:** 26 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to upload, update, and delete product images/videos so that customers can view product details clearly. |
| **BV:** 500 | **CP: 3** |
| The admin should be able to upload multiple images and videos for a product.The system should allow setting a primary image as the default product thumbnail.Images should support common formats (JPEG, PNG, GIF), and videos should support MP4.The system should display an error message if the file exceeds the size limit. Customers should be able to zoom in on images for a closer view. |

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| **User Story No:** 27 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to set stock levels for products so that the system can manage inventory efficiently. |
| **BV:** 500 | **CP: 3** |
| The admin should be able to define the available stock quantity for each product.The system should automatically update stock levels after each purchase.The system should notify the admin when stock falls below a predefined threshold.Products should be marked as "Out of Stock" when inventory reaches zero. |

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| **User Story No:** 28 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to view and process customer orders so that I can fulfill them on time. |
| **BV:** 500 | **CP: 3** |
| The admin should be able to see a list of all orders with order details.Orders should have statuses such as "Pending," "Processing," "Shipped," and "Delivered."The admin should be able to update the order status and notify the customer. The system should allow downloading invoices for each order. |

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| **User Story No:** 29 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to assign orders to delivery partners so that products are shipped on time. |
| **BV:** 500 | **CP: 3** |
| The admin should be able to select a delivery partner for each order. The system should send an automated notification to the assigned delivery partner.The admin should be able to track the delivery status. Customers should receive tracking updates for their orders. |

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| **User Story No:** 30 | **Task:** 2 | **Priority:** HIGH |
| As an admin, I want to process customer refund and return requests so that I can ensure customer satisfaction. |
| **BV:** 500 | **CP: 3** |
| The system should allow customers to request a return within a predefined period.The admin should be able to approve or reject refund requests based on return policies.Refunds should be processed automatically if approved. Customers should receive notifications about the refund status. |

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| **User Story No:** 31 | **Task:** 2 | **Priority:** MEDIUM |
| As an admin, I want to generate sales reports so that I can analyze revenue and business performance. |
| **BV: 200** | **CP: 3** |
| The system should allow generating sales reports for custom date ranges.The report should include total revenue, number of orders, and top-selling products.The admin should be able to export reports in CSV or PDF format. |

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| **User Story No:** 32 | **Task:** 2 | **Priority:** LOW |
| As an admin, I want to send promotional emails to customers so that I can increase sales and engagement. |
| **BV:** 100 | **CP: 3** |
| The admin should be able to create and schedule email campaigns.Emails should include personalized content such as customer name and order history.The system should track email open and click rates for performance analysis.Customers should have the option to unsubscribe from promotional emails. |

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| **User Story No:** 33 | **Task:** 2 | **Priority:** HIGH |
| As a Sales representative, I want to receive bulk order inquiries from customers so that I can provide them with special pricing and offers. |
| **BV:** 500 | **CP: 3** |
| Customers should be able to submit a bulk order inquiry form with product details and quantity.The admin should receive notifications for new inquiries.The system should store bulk order inquiries in a dedicated dashboard for review. |

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| **User Story No:** 34 | **Task:** 2 | **Priority:** LOW |
| As a Sales representative, I want to apply special discounts for bulk buyers so that I can encourage large purchases. |
| **BV: 100** | **CP: 3** |
| The system should allow the admin to set custom pricing for bulk orders.Discounts should be applied automatically when a customer meets the bulk order threshold.Customers should be notified of their bulk discount before checkout. |

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| **User Story No:** 35 | **Task:** 2 | **Priority:** MEDIUM |
| As a sales representative, I want to schedule follow-up calls with customers so that I can improve engagement and increase sales. |
| **BV: 2**00 | **CP: 3** |
| The system should allow scheduling follow-up calls for specific customers. A reminder notification should be sent to the sales representative before the call.The system should log call details, including the outcome and next steps. |

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| **User Story No:** 36 | **Task:** 2 | **Priority:** HIGH |
| As a delivery partner, I want to receive assigned orders so that I can fulfill deliveries efficiently. |
| **BV:** 500 | **CP: 3** |
| The system should notify the delivery partner when a new order is assigned.The delivery partner should be able to view order details, including pickup location, customer address, and contact information.The system should track order status changes in real-time. |

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| **User Story No:** 37 | **Task:** 2 | **Priority:** HIGH |
| As a delivery partner, I want to update the delivery status so that customers and the admin can track the progress. |
| **BV:** 500 | **CP: 3** |
| The delivery partner should be able to update the status to "Out for Delivery," "Delivered," or "Failed Delivery."Customers should receive real-time notifications on their order status.The admin should be able to view all delivery updates in the order management dashboard. |

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| **User Story No:** 38 | **Task:** 2 | **Priority:** HIGH |
| As a delivery partner, I want to mark a failed delivery with a reason so that the admin and customer service team can take the necessary action. |
| **BV:** 500 | **CP: 3** |
| The system should provide predefined failure reasons (e.g., "Customer Unavailable," "Incorrect Address," "Weather Delay").The delivery partner should be able to add a custom note explaining the failure.The system should notify the admin and customer about the failed delivery.. |

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| **User Story No:** 39 | **Task:** 2 | **Priority:** HIGH |
| As a support agent, I want to process customer refund requests so that I can ensure fair and efficient refunds |
| **BV:** 500 | **CP: 3** |
| Customers should be able to request a refund through the website or app.The support agent should be able to review refund requests with order details and reasons.Refunds should be processed based on predefined policies (e.g., refund within 7 days for defective items).The system should notify the customer once the refund is approved or rejected.The refund status should be updated in the order history. |

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| **User Story No:** 40 | **Task:** 2 | **Priority:** HIGH |
| As a support agent, I want to escalate complex customer complaints to senior support or management so that issues are resolved efficiently. |
| **BV:** 500 | **CP: 3** |
|  The system should allow agents to escalate complaints with detailed notes. The escalated complaint should be assigned to a senior support agent or manager.Customers should receive updates on the escalation progress.The system should track and log all escalated complaints for review. |