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Fertilizer Shop Management System

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Abstract - This paper presents the design and development of a web-based Fertilizer Shop Management System intended to automate the sale and distribution of fertilizers and agricul tural chemicals. The system streamlines tasks such as product ordering, user management, billing, and feedback collection. The application ensures ease of use, data accuracy, and increased operational efficiency for both administrators and customers.

Index Terms—E-commerce, Fertilizer Management, Web Application, Online Ordering, Agricultural Technology

1.INTRODUCTION

The Fertilizer Shop Management System is developed to replace the manual, error-prone process of tracking fertilizer sales and inventory. Traditionally, shopkeepers and customers rely on physical visits and handwritten logs. Our system addresses these inefficiencies by providing an online portal for viewing, ordering, and managing agricultural products. This is especially beneficial for farmers in rural areas who can access essential goods without needing to travel.

2. LITERATURE REVIEW

Past systems were largely manual, involving paper logs and direct transactions, which led to issues such as data loss, delayed operations, and limited accessibility. Recent advances in web technologies have enabled small-scale businesses to digitize operations effectively.

3. PROPOSED SYSTEM

The proposed system enables:
- Secure user authentication
- Product catalog and search features
- Real-time order processing
- Admin dashboard for managing inventory and users
- Feedback and billing modules

4. SYSTEM MODULES

The Fertilizer Shop Management System is divided into several key functional modules. Each module is designed to perform specific tasks to streamline the fertilizer sales and management process.

A. User Module

The User Module enables customers to interact with the system. Key features include:
- User Registration and Authentication: Users can create accounts and login securely using username and pass word.
- Product Browsing: Authenticated users can browse products by category (e.g., fertilizers, seeds, pesticides).
- Add to Cart and Wishlist: Users can add items to a cart and modify the list before finalizing their order.
- Order History: Users can view the status of current orders their past orders.
- Feedback Submission: Post-delivery feedback can be submitted for individual products.

B. Admin Module

The Admin Module empowers system administrators to manage core business data. Key operations include:
- User Management: View, edit, or remove registered users and monitor feedback activity.
- Product Management: Add, update, or delete product entries including name, description, price, quantity, and images.
- Order Management: Process incoming orders, update order status (confirmed, dispatched, delivered), and manage returns or cancellations.
- Feedback Moderation: Review and moderate user submitted feedback.
- Analytics and Reports: Generate sales reports, inventory summaries, and user activity logs.

C. Order Processing Module

The Order Processing Module handles the entire purchase f low. It includes:
- Cart Checkout: Collects delivery information and con firms selected items.

• Payment Method: Currently supports Cash on Delivery (COD); future scope includes online payments.
• Order Confirmation: Automatically assigns order ID and stores transaction in the database.
• Invoice Generation: Generates a PDF bill available for download or print.

D. Feedback Module

This module collects and displays user feedback. It plays a critical role in quality control and customer satisfaction:
• Feedback Form: A simple form where users can rate products and write reviews.
• Feedback Display: Ratings are shown publicly on product pages to assist other buyers.
• Feedback Analytics: Admin can view average ratings and flag or delete inappropriate reviews.

E. Product Catalog Module

This module manages the inventory and display of products:
• Category Management: Pesticides, Fertilizers, seeds are organized in categories and subcategories.
• Product Details Page: Each product has a dedicated page showing description, price, image, and availability.
• Search and Filters: Users can filter by price, brand, or type and perform keyword searches.

5. REQUIREMENT

The development of this system utilized the following hardware and software resources:

Name of Equipment	Specification	Cost	Available
Laptop Desktop /	i5 processor, 4 GB RAM, Mouse, 500 GB HDD	Rs. 50,000	Yes
Operating System	Windows 10 proper setup	-	Yes
Visual studio code	17.0	Free	Yes
React	React.Js	Free	Yes
Node.js and npm	Latest LTS version	Free	Yes
Firefox/Chr o me	Latest version	Free	Yes
Localhost	3000(React),270 17(MongoDB), 5000(Express backend)	Free	Yes
Postman	Latest version	Free	Yes
(API testing)			
MySQL	Version 8	Free	Yes
Total		**Rs 50,000**	

6. DIAGRAMS

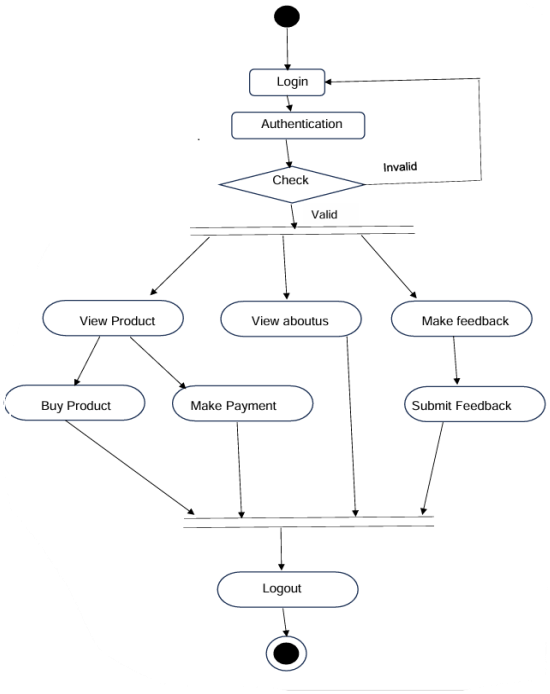

Fig 1: Activity Diagram User Module

Fig 2: Activity Diagram Admin Module

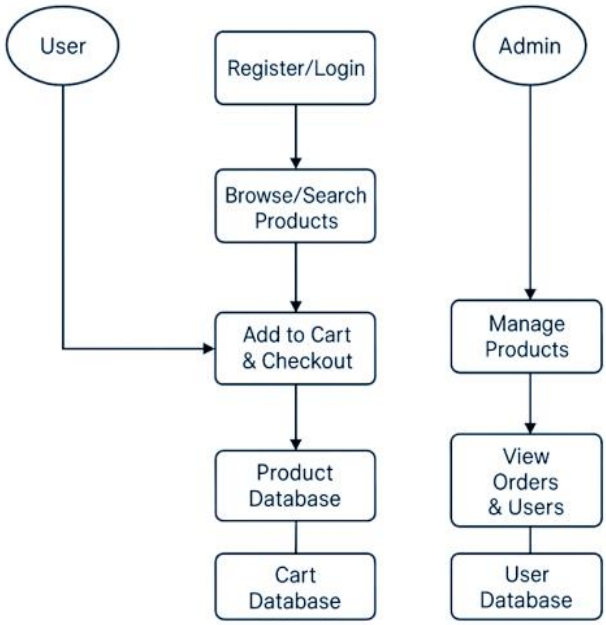

Fig 3: Data Flow Diagrams

7. RESULTS AND TESTING

The system was rigorously evaluated through unit and functional testing to verify its stability. Various test cases were conducted to validate role-based access for both admin and user functionalities. Key processes such as login, order submission, invoice generation, and feedback handling were tested to ensure proper integration with the database and smooth form operations.

8. CONCLUSION

The Fertilizer Shop Management System significantly en hances operational efficiency, reduces paperwork, and supports rural digitalization. It is scalable and can be extended with features like SMS alerts, multilingual support, and real-time inventory updates.

9. FUTURE WORK

Potential improvements include:
- Mobile App Integration
- AI-based fertilizer recommendation
- Integration with government subsidy databases

10. REFERENCES

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