# CDAC Group Project Report Details

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**Project Name : AgroMart**

**Group Number :7**

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**Guidance : Mr. Manoj Pawar Sir**

- **Introduction:**

Agriculture is the backbone of the economy in many regions, providing livelihoods to a significant portion of the population and contributing substantially to national GDP. Despite its critical importance, farmers often face challenges such as limited access to real-time information, market prices, and expert advice, which can hinder their productivity and income.

The agriculture portal is designed to address these challenges by serving as a comprehensive digital platform that empowers farmers and agricultural stakeholders with timely, relevant, and actionable information. Its purpose is to bridge the information gap by providing access to weather updates, market prices, best farming practices, government schemes, and a community forum for knowledge sharing.

The agriculture portal plays a crucial role in transforming traditional farming methods by making modern tools and information accessible to all, thus fostering a more resilient and productive agricultural community.

- **Problem Defination & Scope:**

- **Problem Defination:**

Agriculture remains a vital sector for many countries, especially in rural areas where it is the primary source of income and sustenance for millions of farmers. However, this sector faces numerous challenges that impede its growth and the well-being of those dependent on it. Key problems include:

Lack of Access to Timely Information: Farmers often struggle to obtain real-time data on weather conditions, crop prices, pest infestations, and best practices, leading to poor decision-making and reduced yields.

Limited Connectivity with Agricultural Experts: Many farmers lack direct access to agricultural experts who can provide critical advice on crop management, disease control, and resource optimization.

Inadequate Market Access: Farmers often face challenges in accessing markets to sell their produce at fair prices, leading to exploitation by middlemen and reduced profitability.

- **Goals & Objectives:**

- A platform to reach a broader audience, including local and regional buyers, without relying on intermediaries.

- Connect farmers with agricultural experts and resources.

- Promote sustainable farming techniques.

- Enhance market access and fair pricing.

- Empower farmers through education and community support.

- **Major Constraints & Outcomes:**

**Constraints:**

**Limited internet access and digital literacy.**

 Farmers in rural or remote areas may have poor internet connectivity or limited digital skills.

**Data Accuracy and Reliability:**

 The portal relies on accurate and up-to-date information from various sources (e.g. market prices).

**Language and Cultural Barriers:**

 Developing, maintaining, and upgrading the portal requires significant financial resources.

**Infrastructure Limitations:**

Adequate server infrastructure and support systems are needed to handle the portal's traffic and data.

**User Adoption and Engagement:**

Farmers might be hesitant to adopt new technologies or may have varying levels of engagement with the portal.

**Outcomes:**

- Improved decision-making for farmers with real-time information.

- Increased access to expert advice and agricultural resources.

- Enhanced ability to secure government schemes and subsidies.

- Greater adoption of sustainable farming practices.

- Improved market access and fair pricing for farmers.

- Strengthened community through knowledge sharing and support.

- Boosted overall productivity and economic growth in agriculture.

- **Software Requirement Specification:**

**Front End:**

- React: A JavaScript library for building & designing a visually appealing user interface.

- Material-UI: Leveraging powerful library for creating intuitive & responsive components.

**Back End:**

- Spring Boot: A Java-based framework for building production-ready applications.

- MySQL: An open-source relational database management system that allowing to manage product information, user profiles & order details.

- feature:   Java 7,8

- **Purposed System:**

Agriculture portal designed to tackle the key challenges faced by farmers and agricultural stakeholders. It aims to provide real-time information, including weather forecasts and crop prices, to support informed decision-making. The portal connects farmers with agricultural experts through various channels, such as forums and video consultations, to offer personalized advice and support. It simplifies access to government schemes and subsidies by providing clear information and streamlined application processes. Additionally, the portal includes an e-commerce platform that enables farmers to list and sell their produce directly to buyers, enhancing market access and reducing reliance on intermediaries. With a comprehensive resource library, the portal offers educational materials on sustainable farming practices and modern agricultural techniques.

A community forum allows farmers to share experiences, seek advice, and collaborate with peers. Designed with a user-friendly interface and multilingual support, the system ensures accessibility for all users, regardless of their digital literacy. Overall, the agriculture portal aims to enhance productivity, sustainability, and economic growth within the agricultural sector through innovative technology and comprehensive support.

- **Scope:**
- Facilitate expert consultations and personalized advice.
- Streamline access to government schemes and subsidies.
- Enable direct market access through an e-commerce platform.
- Offer educational resources on sustainable farming.
- Build a community forum for knowledge sharing and support.
- Ensure a user-friendly, multilingual interface for accessibility

- **System Modules:**
- **Admin Module**
- **User Management:** Admins can manage user accounts, including registration, authentication, and role assignments (e.g., admin, customer, seller).
- **Content Management:** Control and update website content, including articles, resources, and educational materials.

- **Product Module**

- **Product Listings:** Manage product categories, add, update, or remove product listings, and set pricing information**.**

- **Product Search and Filters**: Implement search functionality and filters to help users find products easily.

- **Product Reviews and Ratings:** Allow customers to leave reviews and ratings for products, and manage these reviews.


- **Customer Module**

- **User Registration and Profile Management**: Enable customers to register, update personal information, and manage their profiles.

- **Order Management:** View , manage current orders, and handle returns or exchanges.

- **Wishlist and Cart:** Allow customers to create wishlists, add items to their shopping cart, and proceed to checkout.


- **Seller Module**

- **Seller Registration and Profile Management:** Enable sellers to register, create, and update their profiles, and manage their storefronts.

- **Product Management:** Add, update, or remove products, set prices, and manage inventory for their listings.

- **Order Processing:** View and manage incoming orders, update order status, and handle fulfillment**.**


- **Performance Requirements:**

- **Scalability:** The system must handle increasing numbers of users and data volumes without degradation in performance.

- **Availability:** Ensure high uptime and reliability, with minimal downtime or disruptions to service.

- **Security:** Implement robust security measures to protect user data and ensure privacy.

- **User Experience:** Deliver an intuitive, user-friendly interface that is easy to navigate and accessible on various devices.

- **Support:** Offer responsive technical support and troubleshooting to address user issues promptly.

- **H/W Requirements & S/W Requirements:**

- **H/W Requirements:**

- **RAM**: 8 GB (minimum)

- **Processor**: I3 ,I5

- **Storage**: 1 TB SSD (minimum)

- **Operating System**: Windows 10 or 11

- **Network**: 500 mbps

- **S/W Requirements:**

- **Frontend**:

- **React**: Latest stable version (18.2.0)

- **Node.js**: LTS version for development (20.12.2)

- **Development Tools**: Visual Studio Code or any preferred code editor

- **Backend**:

- **Spring Boot**: Latest stable version (3.2)

- **Java**: JDK 17 or later

- **Build Tools**: Maven or Gradle for dependency management and builds

- **Eclipse:** 4.28.0

- **Lombok:** 1.18.34 envious ferret

- **Database**:

- **MySQL**: Version 8.0.36 or later

- **Database Management Tools**: MySQL Workbench or similar

- **Test Cases:**

**User Registration and Authentication**

**Test Case 1: User Registration**

**Objective:** Verify that a new user can register successfully.

**Steps:**

Navigate to the registration page.

Enter valid details (name, email, password).

Click "Register."

**Expected Result:** User should be successfully registered, and a confirmation email should be sent.

**Test Case 2: User Login**

**Objective:** Ensure that registered users can log in.

**Steps:**

Navigate to the login page.

Enter valid credentials (email and password).

Click "Login."

**Expected Result**: User should be directed to their dashboard.

**Test Case 3: Password Recovery**

**Objective:** Verify the password recovery functionality.

**Steps:**

Click "Forgot Password" on the login page.

Enter the registered email address.

Follow the instructions in the email to reset the password.

**Expected Result:** User should be able to reset their password and log in with the new credentials.

## 2. Product Management

### Test Case 4: Adding a Product

**Objective:** Verify that a seller can add a new product.

**Steps:**

Log in as a seller.

Navigate to the product management page.

Click "Add New Product."

Enter product details (name, description, price, quantity).

Click "Save."

**Expected Result:** The new product should be listed on the portal.

### Test Case 5: Editing a Product

**Objective:** Ensure that a seller can update product information.

**Steps:**

Log in as a seller.

Navigate to the product management page.

Select an existing product to edit.

Modify product details.

Click "Update."

**Expected Result:** Product details should be updated accordingly.

**Test Case 6: Removing a Product**

**Objective**: Verify that a seller can remove a product from the listing.

**Steps:**

Log in as a seller.

Navigate to the product management page.

Select a product to delete.

Click "Delete."

**Expected Result:** The product should be removed from the portal.


**3. Order Processing**

**Test Case 7: Placing an Order**

**Objective**: Ensure customers can successfully place an order.

**Steps:**

Log in as a customer.

Navigate to the product listing page.

Add products to the cart.

Proceed to checkout.

Enter shipping and payment details.

Click "Place Order."

**Expected Result:** Order should be successfully placed, and a confirmation should be displayed.


**5. Community Forum**

**Test Case 8: Posting a Message**

**Objective**: Ensure users can post messages in the community forum.

**Steps:**

Log in as a user.

Navigate to the community forum.

Click "New Post."

Enter message content and click "Post."

**Expected Result:** The message should appear in the forum.

**Test Case 9: Moderating Forum Posts**

**Objective:** Verify that admins can moderate forum posts.

**Steps:**

Log in as an admin.

Navigate to the forum moderation section.

Review posts and select one for moderation.

Apply moderation actions (e.g., delete, flag).

**Expected Result:** The moderation actions should be applied, and the post should be updated or removed accordingly.

- **Future Scope:**

Agriculture portal includes several key enhancements to expand its capabilities and impact. Integrating advanced analytics and artificial intelligence (AI) will provide predictive insights into crop yields and market trends, helping farmers make more informed decisions. Developing dedicated mobile applications will increase accessibility and usability, while integrating Internet of Things (IoT) devices will offer real-time data on soil conditions and crop health. Utilizing blockchain technology will enhance transparency and traceability in the supply chain. The portal will also expand its e-commerce features to include live auctions and subscription services, providing more opportunities for transactions. Multilingual support and regional customization will make the platform more accessible and relevant to a diverse user base.

Forming partnerships with agricultural research institutions and other organizations will bring additional resources and expertise. Enhancing community engagement through interactive tools like webinars and virtual field trips will foster a more connected and supportive farming community. Finally, continuous updates will ensure regulatory compliance and allow for expansion into new regions or countries, keeping the portal at the forefront of technological and industry developments.

- **References:**

https://docs.spring.io/spring-boot/index.html

https://react.dev/

https://dev.mysql.com/doc/

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