# 2.0 Existing System Analysis.

Existing System:

1. The existing system focuses on explaining the importance of crops and their safety.
2. It lacks a detailed budget template for crop cultivation, making it challenging for farmers to input and track their expenses.
3. Barefoot supplies fertilizers and pesticides in Tanzania, while Agriweb primarily deals with animals.

Gap Analysis:

1. Limited focus on crop cultivation in Zanzibar: The existing system primarily caters to Tanzania and does not provide specific information on crop cultivation in Zanzibar.
2. Lack of a comprehensive budgeting tool: The system does not offer a detailed budget template, hindering farmers from effectively managing their expenses.
3. Absence of supply for fertilizers and pesticides in Zanzibar: While Barefoot supplies in Tanzania, there's a gap in providing these resources specifically for Zanzibar.
4. Language barrier: The existing system is in English, which may not be accessible to all farmers, especially those more comfortable with Swahili.
5. Limited emphasis on crop-related information: Agriweb focuses more on animals, leaving a gap in crop-related information and resources.
6. Absence of direct input for farmers post-harvest: The system lacks a feature for farmers to input information after harvest, such as yields and profits.

Enhancements Needed:

1. Expansion to include information on crop cultivation in Zanzibar.
2. Development of a detailed budget template for crop cultivation to assist farmers in managing their expenses effectively.
3. Establishment of a supply chain for fertilizers and pesticides in Zanzibar.
4. Translation of the existing system into Swahili for broader accessibility.
5. Inclusion of crop-specific information and resources.
6. Integration of a feature for farmers to input post-harvest data, such as yields and profits.

The scope of the enhanced system can be outlined as follows:

1. **Geographical Scope:**
   * The system will cover both Tanzania and Zanzibar, providing information and support tailored to the specific agricultural practices and needs of farmers in these regions.
2. **Crop Cultivation:**
   * The system will extensively focus on crop cultivation, offering guidance on various crops, cultivation techniques, and best practices.
3. **Budgeting and Financial Management:**
   * A comprehensive budgeting tool will be included to assist farmers in planning, tracking, and managing their expenses related to crop cultivation.
4. **Post-Harvest Data Input:**
   * A feature will be integrated to allow farmers to input information post-harvest, such as yields and profits, enabling them to analyze the success of their cultivation efforts and make informed decisions for future seasons.
5. **User-Friendly Interface:**
   * The system will have an intuitive and user-friendly interface, making it accessible to farmers with varying levels of technological expertise.
6. **Education and Resources:**
   * In addition to cultivation and budgeting tools, the system will provide educational resources, and guidelines to empower farmers with knowledge and skills for sustainable and successful crop cultivation.
7. **Collaboration with Local Stores:**
   * Information on reputable local stores for obtaining fertilizers and pesticides will be included, fostering collaboration between the system and trusted suppliers.

Module

The proposed agricultural support system can be organized into various modules to effectively manage and address different aspects of crop cultivation, budgeting, and post-harvest activities. Here's a suggested modular breakdown:

1. **Information and Education Module:**
   * Provides comprehensive information on crop varieties, cultivation techniques, pest management, and safety measures.
   * Includes articles, guides to educate farmers.
2. **Financial Management Module:**
   * Incorporates a detailed tool for farmers to input and track their expenses throughout the cultivation cycle.
   * Provides insights into cost-effective practices and potential savings.
3. **Post-Harvest Data Input Module:**
   * Enables farmers to input data on their yields, sales, and profits post-harvest.
   * Generates reports and analytics to help farmers assess the success of their cultivation practices.
4. **User Authentication and Management Module:**
   * Manages user profiles, ensuring secure access and data privacy.
   * Allows farmers to register, log in, and personalize their experience.
5. **Local Store Information Module:**
   * Includes a directory of local stores selling fertilizers and pesticides, with reviews and ratings.
   * Facilitates partnerships with local suppliers for timely and reliable access to agricultural inputs.
6. **Analytics and Reporting Module:**
   * Compiles and presents analytics on crop performance and other key metrics.
   * Generates reports to help farmers make informed decisions.

Requirement

The functional requirements of the proposed agricultural support system can be categorized into various aspects to ensure its effectiveness in providing comprehensive assistance to farmers. Here are the functional requirements:

1. **User Authentication and Profile Management:**
   * Farmers should be able to create accounts, log in securely, and manage their profiles.
   * User roles should be defined, such as regular farmers, administrators, and suppliers.
2. **Information and Education:**
   * Provide a user-friendly interface for accessing information on crop varieties, cultivation techniques, pest management, and safety measures.
   * Include multimedia content such as videos and images for better understanding.
3. **Crop Cultivation Guidance:**
   * Offer step-by-step guidance on cultivating specific crops, including recommended planting schedules, soil preparation, irrigation, and harvesting methods.
   * Allow farmers to create and customize their crop cultivation plans.
4. **Budgeting and Financial Management:**
   * Develop a comprehensive budgeting tool for farmers to input and track expenses related to crop cultivation.
   * Include categories such as seeds, fertilizers, pesticides, labor, and equipment.
5. **Post-Harvest Data Input:**
   * Include a feature for farmers to input data post-harvest, such as yields, sales, and profits.
   * Generate reports and analytics based on the entered data.
6. **User Feedback and Support:**
   * Implement a feedback mechanism for users to submit comments, suggestions, and report issues.
   * Establish a support system to address user inquiries and technical problems.
7. **Local Store Information:**
   * Include a directory of local stores selling fertilizers and pesticides, along with reviews and ratings.
   * Facilitate partnerships with local suppliers for timely access to agricultural inputs.
8. **Analytics and Reporting:**
   * Compile and present analytics on crop performance, budget adherence, and other key metrics.
   * Generate reports to help farmers make informed decisions about their cultivation practices.
9. **Security and Data Privacy:**
   * Implement robust security measures to protect user data.
   * Ensure compliance with data privacy regulations and standards.
10. **Accessibility and Usability:**
    * Design the system with a user-friendly interface accessible to users with varying levels of technological expertise.
    * Ensure compatibility with different devices and browsers.

what will be the non functional requirements of this system

Non-functional requirements define the aspects of the system that are not directly related to specific functionalities but are essential for ensuring the system's overall performance, usability, and security. Here are some non-functional requirements for the proposed agricultural support system:

1. **Performance:**
   * **Response Time:** The system should provide quick responses to user interactions, with minimal latency.
   * **Scalability:** The system should be scalable to handle an increasing number of users and data over time.
   * **Throughput:** Ensure that the system can efficiently process a large number of simultaneous transactions.
2. **Reliability:**
   * **Availability:** The system should be available for use during critical times, with a minimum uptime percentage.
   * **Fault Tolerance:** Implement mechanisms to handle system failures gracefully, ensuring minimal disruption to users.
   * **Data Integrity:** Ensure the accuracy and integrity of data stored within the system.
3. **Security:**
   * **Authentication and Authorization:** Implement secure user authentication and authorization mechanisms to protect user accounts and sensitive data.
   * **Data Encryption:** Use encryption to secure communication between the system and users.
   * **Access Controls:** Define and enforce access controls to ensure that users can only access data and functionalities relevant to their roles.
4. **Usability:**
   * **User Interface Design:** Create an intuitive and user-friendly interface that is easy to navigate and understand.
   * **Accessibility:** Ensure the system is accessible to users with disabilities and complies with accessibility standards.
5. **Scalability:**
   * **Database Scalability:** Design the database architecture to scale with an increasing amount of data.
   * **System Scalability:** Ensure the system infrastructure can scale horizontally or vertically to accommodate a growing user base.
6. **Compatibility:**
   * **Browser Compatibility:** Ensure compatibility with major web browsers (e.g., Chrome, Firefox, Safari).
7. **Maintainability:**
   * **Modularity:** Design the system with modular components to facilitate easier updates and maintenance.
   * **Documentation:** Provide comprehensive documentation for administrators and developers to understand the system's architecture, functionalities, and APIs.
8. **Backup and Recovery:**
   * **Data Backup:** Implement regular data backup procedures to prevent data loss.

Actors

1. **Farmers:**
   * **Role:** Primary users of the system seeking information, guidance, and tools for successful crop cultivation.
   * **Interactions:** Accessing educational resources, utilizing crop cultivation guidance, budgeting tools, and inputting post-harvest data.
2. **Administrators:**
   * **Role:** System administrators responsible for managing user accounts, system settings, and addressing support issues.
   * **Interactions:** User authentication and management, monitoring system health, addressing feedback and support requests.
3. **Suppliers:**
   * **Role:** Businesses or individuals supplying fertilizers and pesticides to farmers.
   * **Interactions:** Managing product information, receiving and fulfilling orders, updating inventory, and interacting with the supply chain module.
4. **Local Store Owners:**
   * **Role:** Owners or managers of local stores selling agricultural inputs.
   * **Interactions:** Updating store information, responding to user reviews, and potentially collaborating with the system for promotions or partnerships.
5. **System Analysts/Developers:**
   * **Role:** IT professionals responsible for maintaining, updating, and enhancing the system.
   * **Interactions:** Implementing system updates, monitoring system performance, and addressing technical issues.
6. **Regulatory Authorities:**
   * **Role:** Government bodies or agencies overseeing agricultural practices and compliance.
   * **Interactions:** Monitoring the system for adherence to regulatory standards, ensuring data privacy and security.
7. **Educational Content Contributors:**
   * **Role:** Individuals or organizations providing educational content on crops and cultivation practices.
   * **Interactions:** Contributing guides, articles, and multimedia content to the education module.

Sequence diagrams

1. Farmer Registration Sequence Diagram

* The farmer fills in the registration details.
* The system validates the details.
* If the details are valid, a confirmation message is shown, and the farmer proceeds to submit the registration and is redirected to the login page.
* If the details are invalid, an error message is displayed, and the farmer revises the registration details until they are valid.

1. Authorization Sequence Diagram

the authorization is based on permission and roles. This diagram shows the process of the system admin to authorize a contributor.

1. System admin enters contributor role information.
2. The Information is saved in the database.
3. The process ends with the system admin getting the contributor’s status.
4. Article Download Sequence Diagram

* The farmer accesses the article section of the system.
* The system displays a list of available articles to the farmer.
* The farmer selects the desired article to download.
* The system retrieves the article from the database.
* The system begins transferring the article data to the farmer.
* Once the transfer is complete, the system notifies the farmer that the article download is successful.

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