Project Proposal: Application Development with CRUD Functionality

Problem Statement:

A key societal problem I have identified is the lack of an organized platform for small-scale local farmers
to connect with consumers and businesses for direct sales. Many small farmers struggle with selling their produce
due to limited marketing resources and the dominance of larger competitors in the market. This creates waste,
financial strain, and unequal access to fresh, local food.

Local farmers contribute significantly to local economies and communities, but many do not have a digital platform
that allows for direct transactions. Food waste and unsold inventory are pressing concerns, and consumers are often
unaware of available local produce. My web application aims to address this problem by creating a marketplace where
small farmers can sell their produce directly to local buyers.

Target Audience:

Primary Users: Small local farmers, local consumers, and businesses like restaurants, grocery stores,
and food processors.
User Benefits: Farmers will have a platform to list and sell their products directly, enabling them to reach

more customers and reduce waste. Consumers and businesses will benefit by gaining direct access to fresh,

local produce, often at more competitive prices. The application will also allow for sorting and filtering

to help users find the products they need quickly.

Technology Stack:

Chosen Stack: LAMP (Linux, Apache, MySQL, PHP)

Justification: The LAMP stack is chosen for its cost-effectiveness, ease of use, and wide availability. PHP allows for rapid development and seamless integration with MySQL for CRUD operations. Additionally, MySQL is

ideal for relational database design, which will be crucial in managing product listings, users, and transactions.

Component Usage:

- Linux: Hosting the web application for security and stability.
- Apache: Web server to handle requests.
- MySQL: For managing and storing data such as user profiles, product listings, and transaction history.
- PHP: Back-end logic and CRUD operations processing.

Application Features:

1. User Registration and Login: CRUD operations will allow users to create accounts, log in, and manage their profiles.
2. Product Listings: Farmers can create, update, and delete product listings.
3. Shopping Cart and Checkout: Consumers can manage their shopping cart and proceed to

checkout.

4. Order Management: Both consumers and farmers can view and manage orders.

Database Design:

The database will include the following tables:

- Users Table: Stores user information, including farmers and buyers.

- Products Table: Contains product details, such as name, price, and stock quantity.

- Orders Table: Tracks orders and links them to users and products.

- Reviews Table: Stores product reviews and feedback.

User Interface and Experience:

The UI will be simple and intuitive, with clean navigation and filtering options.

Farmers will have a dashboard to manage listings, while consumers will have an easy-to-use cart and checkout system.

The design will be mobile-friendly and prioritize ease of use for non-tech-savvy users.

Security Considerations:

Input validation will be enforced to prevent SQL injection and cross-site scripting.

Authentication will be handled using PHP sessions with secure password hashing. Role-based authorization will restrict

access to sensitive areas of the application.

Project Timeline:

1. Planning Phase (Weeks 1-2): Finalize project scope, gather requirements, create wireframes.

2. Development Phase (Weeks 3-6): Set up environment, implement CRUD for user registration, login, product listings.

3. Testing Phase (Weeks 7-8): Test features and fix bugs.

4. Deployment Phase (Week 9): Deploy the application on a cloud server and conduct final testing.

Challenges and Risks:

1. Potential learning curve for farmers using digital platforms.

2. High transaction volumes may strain the server and affect performance.

Mitigation: A user-friendly design and optimized database will help mitigate these challenges.

Conclusion:

This web application will bridge the gap between small local farmers and consumers, providing a platform that

supports local agriculture and reduces food waste. It will have a significant positive impact on local economies

and food distribution by simplifying transactions and offering farmers access to a broader audience.