**INFO5100 – Application Engineering and Development | Project Proposal**

**Semester:** Spring 2025

**Project Title: GreenHarvest–**

**`** **A Digital Bridge for Farming`**

**Created By**

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**1. Problem Statement**

More people today want to eat healthy and safe food, which makes organic farming important. But small farmers often face problems when they try to grow and sell organic crops. They don’t always know the right methods, can’t easily sell directly to customers, and find it hard to get government help.

Also, many farmers don’t know where to get expert advice, or how to get their crops certified as truly organic. When customers want to buy organic food, they often don’t trust what they see in stores because there’s no clear proof that it’s really organic.

There’s no single platform where farmers, experts, doctors, government officers, delivery people, and customers can all work together. We need a system that connects everyone, so that farmers can grow better, sell faster, and earn more.

**2. Solution Overview**

**GreenHarvest** is a Java-based multi-enterprise platform built to empower organic farmers and create a seamless digital network among key players in the organic farming industry.

The platform allows farmers to:

* Apply for expert-certified product validation,
* Sell directly to customers through a secure marketplace,
* Access health-related support,
* Apply for government subsidies,
* And coordinate with authorized distributors for efficient logistics.

For customers, it offers a trusted source for certified organic produce. Government officers, experts, and doctors can support farmers through approval workflows, educational events, and treatment systems. Distributors receive, manage, and fulfill delivery requests ensuring smooth and traceable logistics.

**3. Key Functionalities**

**3.1 Organic Certification Workflow**

Farmers submit requests for crop/product certification. Experts review and approve based on organic standards, improving transparency and consumer trust.

**3.2 Consumer Marketplace**

Customers can browse verified organic products and place orders directly from farmers. Orders are fulfilled through an integrated delivery system.

**3.3 Expert Consultation Forum**

A built-in forum allows farmers to post questions and receive credible answers from agricultural experts.

**3.4 Government Subsidy Application**

Farmers can apply for subsidies, which are reviewed by government officers through the system.

**3.5 Farmer Health Treatment Request**

Farmers can send medical requests. Doctors evaluate the case and provide care advice through the portal.

**3.6 Educational Event Enrollment**

Officers create and publish farming workshops or training events that farmers can view and register for.

**3.7 Distributor Coordination**

When customers place orders, distributors are notified. They handle order pickup from the farmer and delivery to the customer, ensuring logistics are streamlined and traceable.

**4. High-Level System Architecture**

The system uses a layered architecture featuring:

* **Network Layer:** Connects all user roles and manages real-time communication between enterprises and organizations.
* **Enterprise Layer:**
  + **Farmer Enterprise** – Crop listing, certification, and request management
  + **Expert Enterprise** – Advice and certification processing
  + **Government Enterprise** – Manages subsidies and events
  + **Hospital Enterprise** – Manages farmer health-related requests
  + **Customer Enterprise** – Interfaces for browsing, ordering, and feedback
  + **Distributor Enterprise** – Fulfills logistics and shipment requests

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**5. Organizations**

Each enterprise contains specialized organizations that handle specific functions:

 **Farmer Organization**

* Manages crop entries, requests for subsidies, certifications, and treatment.

 **Expert Organization**

* Handles organic certification and forum support for farmers.

 **Officer Organization**

* Oversees government-related processes like event creation and subsidy reviews.

 **Doctor Organization**

* Responds to medical help requests from farmers.

 **Distributor Organization**

* Coordinates delivery logistics, from farm pickup to customer delivery.

 **Customer Organization**

* Allows product discovery, order placement, and request tracking.

**6. User Roles**

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| **Role** | **What They Do** |
| **Farmer** | Grows crops, applies for certification, asks for help, lists products |
| **Expert** | Reviews certification requests and answers farming questions |
| **Officer** | Approves subsidy requests and creates training events |
| **Doctor** | Helps farmers with health problems and gives advice |
| **Customer** | Buys certified organic food directly from farmers |

**7. Use Cases**

**1. Getting a Crop Certified**

A farmer applies for organic certification for their tomatoes. An expert checks the method and approves it. The product is then listed in the online shop.

**2. Selling and Delivering to a Customer**

A customer places an order for organic rice. The system assigns the delivery to a distributor, who picks it up from the farmer and brings it to the customer’s house.

**3. Health Help for Farmers**

A farmer feels sick and sends a request in the app. A doctor replies with treatment advice through the system.

**4. Getting Government Support**

A farmer applies for a fertilizer subsidy. The officer checks the application and approves the request. The farmer receives the support.

**5. Attending a Training Event**

The government posts a training session on organic farming. Farmers see it in the app and register to join.

**6. Managing Delivery**

Once a customer places an order, the system informs a distributor. They go to the farm, pick up the product, and deliver it to the customer.