
## Department of Software Engineering

University of Gujrat


# *AgroConnect*

## Submitted By:

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## Supervised By:

**Dr Muhammad Usman Sana**

# DECLARATION

I certify that project title ***"AgroConnect"*** is under my supervision with students **Ahmed Atta Ur Rehman, Ahsan Ullah and Ahmed Mubashir** of Software Engineering, Faculty of Computing & Information Technology, University of Gujrat, Pakistan, worked under my supervision.

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Dated: Sep 12, 2024

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# Final Year Project Proposal

## *1.1 Introduction:*

In today's modern era, small-scale farmers often face significant hurdles in reaching their consumers directly, relying on traditional marketplaces that limit their ability to maximize profits. Consumers, on the other hand, are becoming more conscious about sourcing fresh, local produce but are met with difficulties in finding convenient, direct purchasing options. The gap between local farmers and consumers continues to widen, with no efficient platform to bring them together.

**AgroConnect** is designed to solve this problem by offering a seamless digital marketplace where small farmers can list their produce, set prices, and sell directly to consumers. This platform will not only give farmers greater control over their sales but also allow consumers to easily discover and purchase fresh, locally-grown products.

**AgroConnect** is an online marketplace that not only connects small farmers (Sellers) with consumers (Customers) to directly buy and sell fresh produce. In addition to facilitating crop sales, the platform introduces **Dealers**, who provide crop-related medicines and advice on crop diseases. To enhance the experience, **Gemini**, an AI-powered assistant, helps farmers identify crop diseases and offers suggestions to consult Dealers for medication purchases or further advice. Chat API or TalkJs Library is used for conversion between seller and customer.

## *1.2. Project Title:*

Our project title is **"AgroConnect"**

## *1.3. Project Overview statement:*

**AgroConnect** enables farmers (Sellers) to list and sell their crops directly to customers. Customers can browse the platform to find local produce. Dealers can also register to sell crop-related products (medicines) and provide advice on crop health. The AI system, Gemini, will offer farmers insights into crop health and suggest dealers for medicine purchases. The platform will also include a chat system powered by a chat API, allowing sellers and dealers, or customers and dealers, to communicate in real-time.

**Project Title:** AgroConnect

**Project Manager:** Dr Muhammad Usman Sana

**Project Members:**

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**Project Goal:** Our main project goal is to develop an online marketplace platform, AgroConnect, for both small farmers and consumers. This platform will enable farmers to easily upload their produce, manage inventory, and handle sales directly to local buyers. Consumers can access information about nearby farms, browse fresh produce, and arrange delivery or pickup. Additionally, the platform will provide seasonal recommendations, secure payment options, and AI features like chatbots for customer support, supporting both local agriculture and seamless consumer transactions.

**Objectives:**

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| 1 | **Users Registration**<br>• Farmer Registration<br>• Consumer Registration |
| 2 | **Product Management**<br>• Uploading Produce Listings<br>• Managing Inventory |
| 3 | **Sales Management**<br>• Processing Orders<br>• Managing Delivery / Pickup Options |
| 4 | **Additional Services**<br>• Chatbot for Customer Support<br>• Seasonal Product Recommendations<br>• Secure Payment Methods<br>• Use of AI to help about crops |

**Project Success Criteria:** The success of **AgroConnect** will be evaluated based on the ease of use and efficiency of the platform for farmers and consumers. Key criteria include a reduction in the time it takes for farmers to list products and for consumers to find and purchase fresh produce, seamless delivery or pickup processes, user adoption, and overall user satisfaction with the platform. The successful implementation of AI features, such as the **chatbot** for customer support and will also be a key indicator of success.

**Assumptions:** We assume that both small farmers and consumers will readily adopt the platform and use AI features, such as the chatbot and image recognition, to enhance their experience.
**Risks:** The main risks include building and maintaining user trust, particularly around issues of privacy, data security, and the performance of AI tools like image recognition and chatbots.
**Obstacles:** Potential obstacles include convincing farmers to transition from traditional sales methods to an online platform, ensuring access to the internet for rural farmers, and preventing incomplete or inaccurate product listings with AI-powered identification.

**Type of project:** ❑ Research ❑ **Development**

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| **Target End users:**<br>1. Small Farmers<br>2. Consumers<br>3. Delivery Service Providers<br>4. Local Retailers |
| Development Technology: ❑ **Object Oriented** ❑ Structured |
| Platform: ❑ **Web based** ❑ Distributed<br>❑ Desktop based ❑ Setup Configurations<br>❑ Other |
| Approved By: |
| Date: |

## *1.4. Project Goals & Objectives:*

- **Develop an online platform** that connects small farmers with local consumers.
- **Enable farmers** to upload and manage their produce listings easily.
- **Allow consumers** to search for nearby farms, order fresh produce, and arrange delivery or pickup.
- **Provide AI-powered tools**, including a chatbot for customer support and for other purposes also.
- **Offer seasonal recommendations** to help consumers discover seasonal and fresh products.

## *1.5. High-level system components:*

- Farmer Registration
- User Registration
- Product Management
- Order Management
- AI Features

## *1.6. List of optional functional units:*

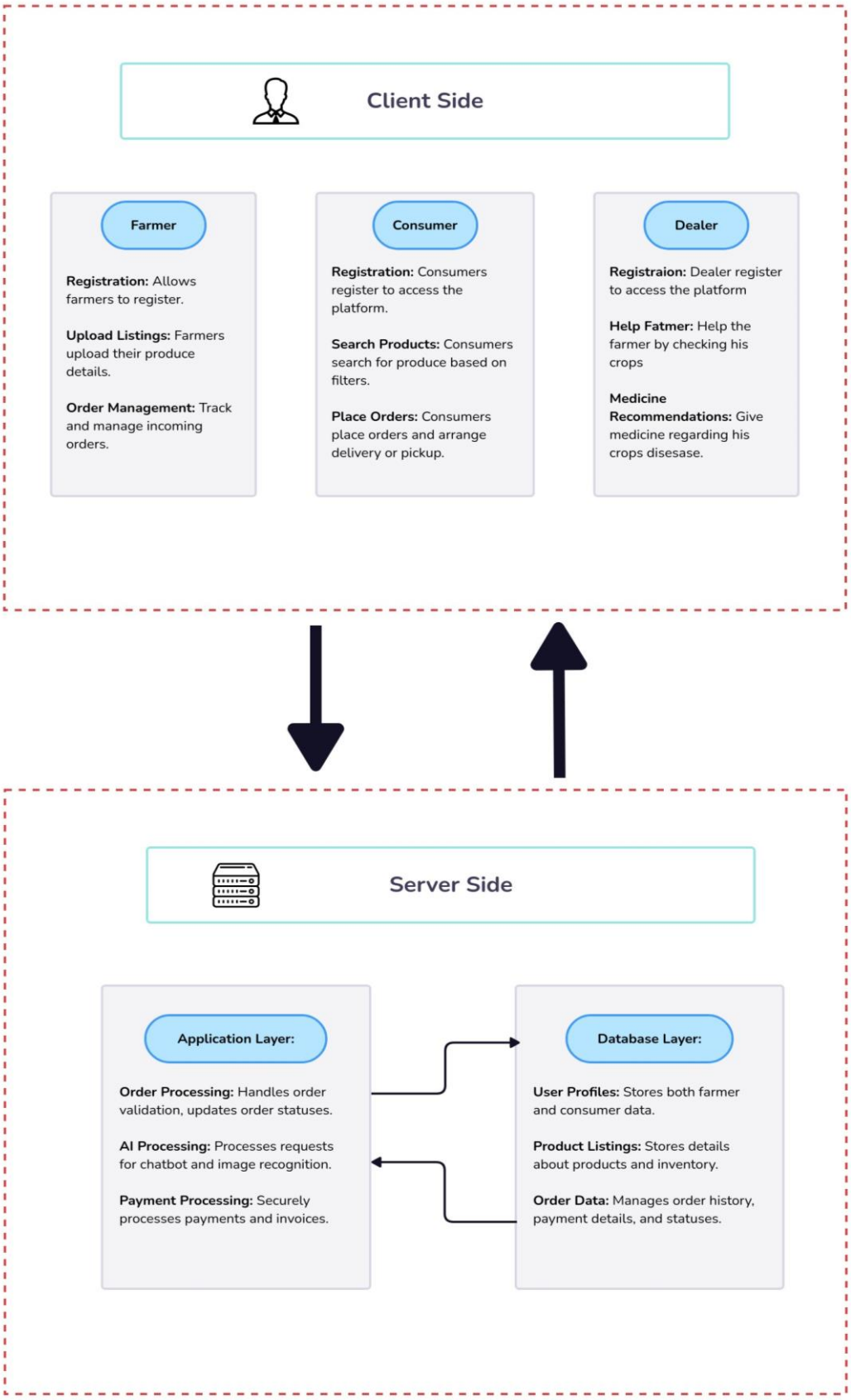
- **Vendor Collaboration**: Allow farmers to collaborate with local vendors, delivery services, or retailers to expand their reach and manage logistics.
- **Customization Options**: Enable consumers to customize their orders, such as specifying packaging preferences or requesting specific delivery times.
- **Product Review System**: Allow consumers to leave reviews and ratings for the produce and service provided by the farmers, helping to build trust and transparency.
- **Subscription Model**: Introduce a subscription service for regular produce deliveries based on consumer preferences or seasonal availability.
- **AI Features:** Gemini is used for AI-powered crop health information system that provides farmers with disease-related information and directs them to relevant dealers for treatment or further advice.

## *1.7. Exclusions:*

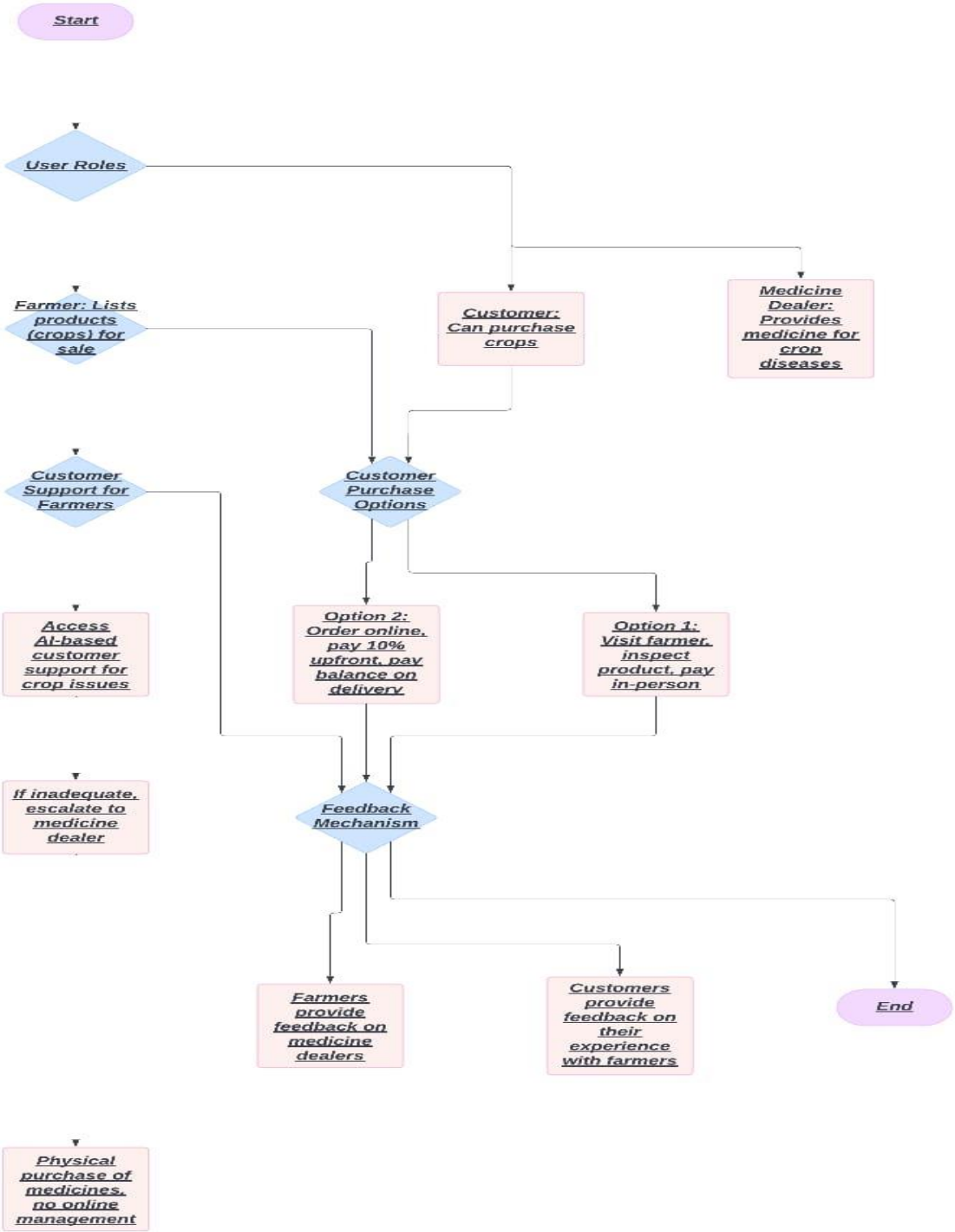
- **Transportation Services:** The platform will exclude logistics and transportation services, leaving delivery arrangements to farmers or third-party services, in order to focus on core functionalities like product listings, ordering, and AI-powered tools.
- **Large-Scale Commercial Farms:** AgroConnect will cater to small local farmers, excluding large-scale commercial farming operations to maintain the focus on supporting local agriculture.

## *1.8. Application Architecture:*

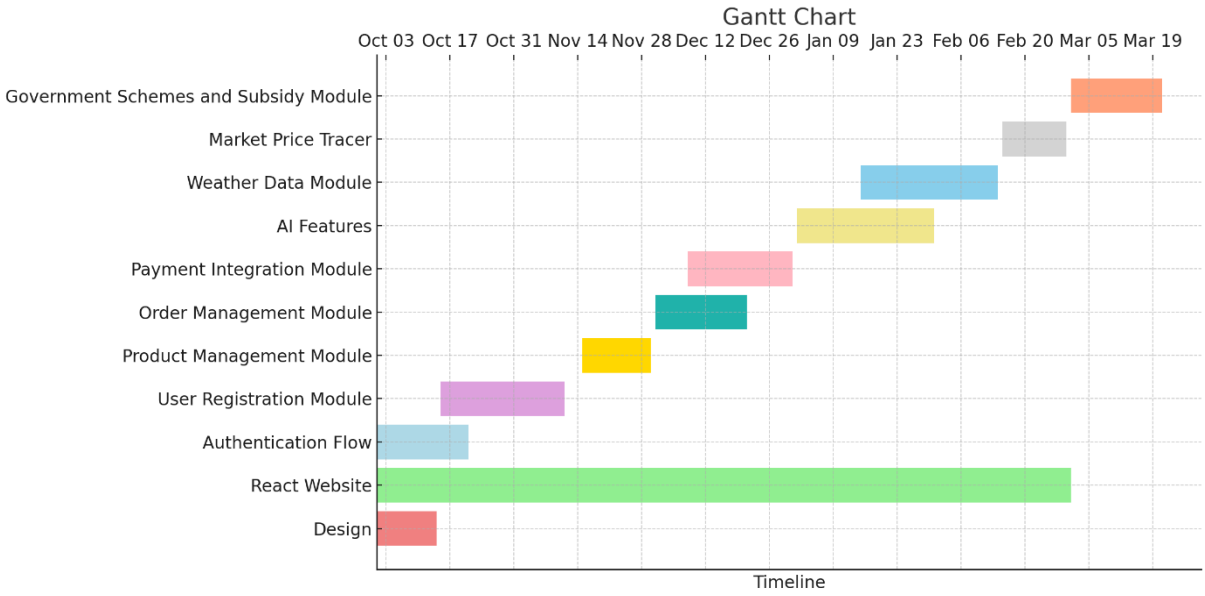
- The **Client Tier** represents the user-facing experience. Consumers can seamlessly browse produce, search for nearby farms, place orders, and arrange delivery or pickup. Farmers can manage their listings, update inventory, and process orders. This tier is developed using a modern web framework like React.js.
- The **Application Tier** serves as the central business logic layer, representing the server-side operations. This layer handles key functionalities such as validating product uploads, processing consumer orders, managing AI features like the chatbot and image recognition, and ensuring secure payment transactions.
- The **Data Tier** consists of a backend database (PostgreSQL), where all the application data is stored and retrieved. This includes farmer profiles, produce listings, consumer orders, transaction histories, and AI-generated data like image recognition results. Efficient data management ensures scalability and performance.


Client Side
Farmer
Registration: Allows farmers to register.
Upload Listings: Farmers upload their produce details.
Order Management: Track and manage incoming orders.
Consumer
Registration: Consumers register to access the platform.
Search Products: Consumers search for produce based on filters.
Place Orders: Consumers place orders and arrange delivery or pickup.
Dealer
Registraion: Dealer register to access the platform
Help Fatmer: Help the farmer by checking his crops
Medicine Recommendations: Give medicine regarding his crops disesase.
Server Side
Application Layer:
Order Processing: Handles order validation, updates order statuses.
AI Processing: Processes requests for chatbot and image recognition.
Payment Processing: Securely processes payments and invoices.
Database Layer:
User Profiles: Stores both farmer and consumer data.
Product Listings: Stores details about products and inventory.
Order Data: Manages order history, payment details, and statuses.

## *Workflow Diagram:*



## *Gantt Chart*




## *1.9. Hardware and Software Specification:*

The system requires at least **1GB of RAM** and a **secure internet connection** to run the AgroConnect application smoothly. Users will need a modern web browser such as **Google Chrome**, **Mozilla Firefox**, or **Microsoft Edge** for optimal performance and compatibility.

## *1.10. Tools and technologies used with reasoning:*

- **IDE**: Visual Studio Code
- **Version Control**: Git, GitHub
- **Language:** JavaScript, Python
- **Framework:** React.js (Frontend), Django (Backend)
- **Hosting:** Vercel or AWS

We will use **Visual Studio Code** as our integrated development environment due to its open-source nature, lightweight design, and support for essential tools like JavaScript, Python, and version control. **Git** will manage version control, with **GitHub** hosting the repository for collaboration. The frontend will be built using **React.js** for a dynamic, responsive user interface, while the backend will use **Python's Django** framework for its simplicity, security, and scalability. **PostgreSQL** is the chosen database for its robust performance and ability to manage large datasets. For deployment, we will utilize **Vercel** or **AWS** to provide a secure, scalable, and flexible infrastructure for the platform's growth and traffic management.