Chapter 1

Introduction

1.1   Introduction

In a world increasingly conscious of health and sustainability, the demand for organic agricultural products has seen a remarkable upsurge. The quest for chemical-free, environmentally friendly, and nutrient-rich foods has led to a growing community of both organic farmers and consumers. To bridge the gap and facilitate access to these wholesome products, we introduce our Android application.

Organic farming (OF) is a farming system that uses environmentally friendly methods of weed, pest, and disease control. The principles and practices of (OF) have been expressed in the standards of International Federation of Organic Agriculture Movements (IFOAM) as the principle of health, ecology, fairness, and care. The organic movement began after 1920, as a reaction by individual agricultural scientists and farmers against industrialized agriculture. Three important movements have been received within first half of the twentieth century: biodynamic, organic, and biological agriculture. In 1998, IFOAM adopted basic standards for OF and processing. Organic production methods are those where at least 95% of the ingredients of agricultural origin are organic. Organic content less than 70% in products may not refer to organic production methods.

All countries have established special logos for organic production to indicate that products are covered by the inspection scheme. Certified OF is now practiced in approximately 120 countries of the world. According to the last survey, more than 31 million ha is currently managed organically by at least 623 174 farms worldwide.

Enhanced soil fertility and higher floral and faunal diversity were found in OF experiments.

1.2 Motivation

The motivation behind this project is to create an Android application that facilitates the sale and supply of organic agricultural products. It's driven by the growing awareness of health benefits associated with organic foods, a desire to support sustainable farming practices, promote transparency in the food supply chain, and provide convenient access to organic products for consumers. Additionally, the project aims to empower local farmers, foster fair trade, and serve as an educational resource for users interested in making informed choices about their food.

Environmental Sustainability: Addressing concerns about conventional agriculture's impact on the environment by promoting organic farming practices. Health and Wellness: Supporting consumer demand for healthier food options free from synthetic pesticides and fertilizers. Market Demand: Responding to the increasing consumer interest and demand for organic produce. Education and Awareness: Educating farmers and consumers about the benefits of organic agriculture for both human health and the environment. Economic Opportunities: Exploring the potential economic benefits for farmers transitioning to organic practices and for businesses involved in the organic supply chain. Food Security: Contributing to long-term food security by promoting sustainable farming methods that enhance soil health and biodiversity. Regulatory Compliance: Ensuring compliance with organic certification standards and regulations to access organic markets. Innovation and Technology: Leveraging technology to improve efficiency and productivity in organic farming while maintaining its core principles. Community Development: Supporting local communities by creating jobs and fostering a sense of connection to the land through organic agriculture. Global Impact: Contributing to global efforts to mitigate climate change and protect ecosystems through sustainable agricultural practices.

1.3   Purpose

The purpose of creating an Android application for selling and supplying organic agricultural products is to provide a convenient platform for consumers to access high-quality organic produce. This app aims to promote healthy and sustainable living by connecting farmers and producers directly with environmentally conscious consumers. Additionally, it facilitates the growth of the organic farming industry by expanding market reach and increasing accessibility to organic products. Ultimately, the app serves to support a more sustainable food system while offering convenience and choice to consumers.

1.4   Problem Statement

To create android application for the purpose of selling and supplying the organic agri products. The problem statement for the economics of organic agriculture is that standards for certified organic production and processing tend to prefer natural products and avoid processing and chemical processes, which hampers efforts to increase recycling and resource utilization in organic agriculture. Even under optimal conditions and by using the most suitable crops, organic farming does not reach yields comparable with conventional farming and price per labour unit is always higher, which eventuates the necessity of grant support or marked bioproducts price rise in case of economic independence, or combination. Develop a sustainable business Android Application for the sale and distribution of organic agricultural products, focusing on efficient supply chain management, consumer education, and market penetration strategies.

1.5   Objectives

The main objective of this project is increase income of the farmer who does organic farming and also gives benefits to the customer by getting organic products which they want for their healthy life. It is a mobile based approach for better and clear trading of organic products. This application will act as unique and secure way to perform organic product trading. The objective for an organic products sales application project could be to create a user-friendly platform that connects organic product suppliers with consumers, promoting sustainability, health, and environmental consciousness.

Chapter 2
Literature Survey

2.1   Existing System

There is no any option to the farmers for advertisement of organic products. Farmer have to sell their products to the traders in market at low price, this effect on the income of farmers. Farmers who do the organic farming don't get fixed location at the market and it is difficult for the customer to find out those farmers.

2.2   Proposed System

The proposed system is interface between Farmer and customer for trading of organic product. This is a android based application, and Farmer have to register to this application by filling all the necessary information with organic production farming certificate. After registration farmer login into the system and upload all the information of available organic products with their prices. This all information is available to the customers when they login into the system. They are able to buy products which they want and also able to give feedback for particular product, so it is easy to determine reliability of production of farmer. The main aim of the application is to increase the income of farmer and it is also for beneficial to customer.

- **More user's Friendly:**

    The app which we developed is user friendly because the retrieval and storing of data about the product prices and best marketing places is maintained efficiently. Moreover, the graphical user interface is provided in the proposed system, which provides user to deal with the system very easily.

- **Very easy to access the data:**

The farmers can access all the data which is placed in the mobile app about best marketplaces where they can sell their goods immediately and pricing information.

- **Ratings and Reviews:**

The customer can give the review about the product. So it is help to find the best product.

- **Prime Location:**

Farmer can book particular location by paying some charges to the market committee and also it is beneficial for customer.

- **Mobile based Control:**

The mobile based control is maintained an agricultural market executive who updates and control the entire marketing system. So, there is no scope for errors.
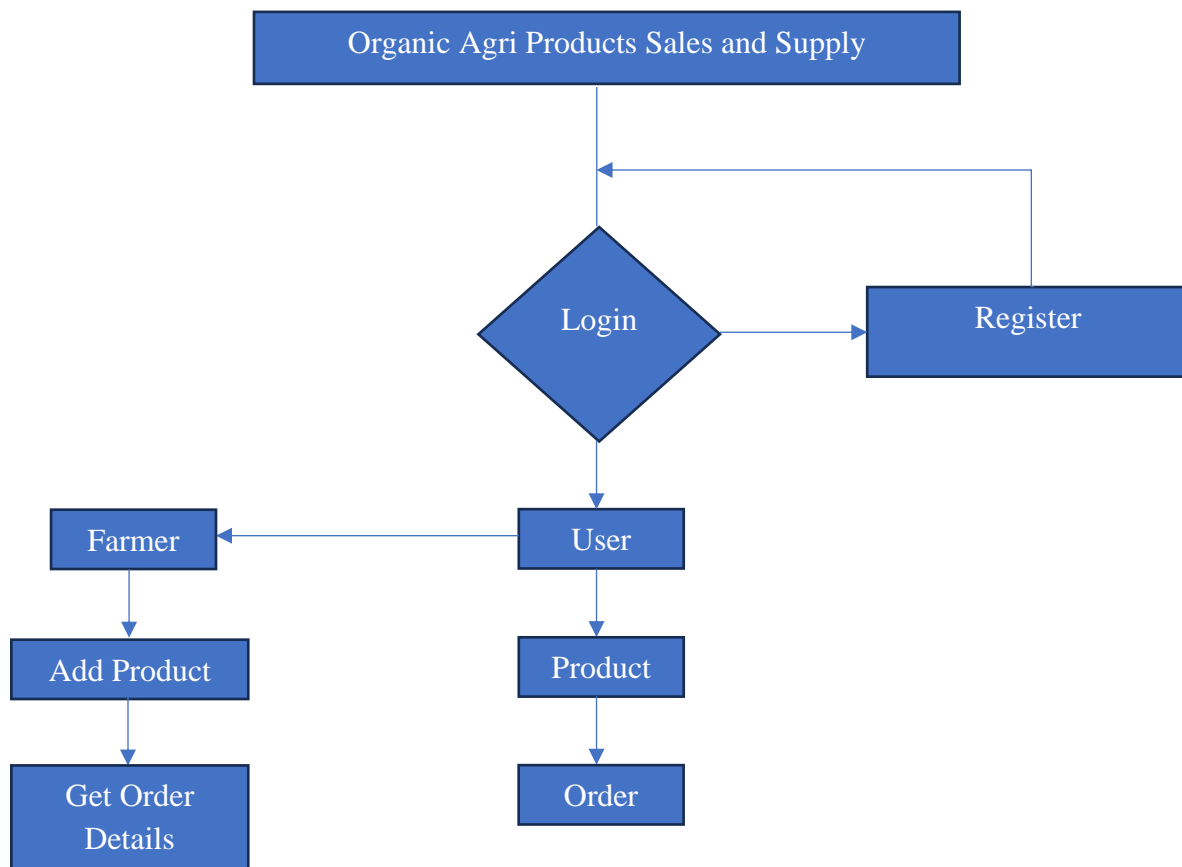

Fig. 2.2 – Workflow Diagram

- Login –

  When we open the application our first interface is the login page where user needs to login with there credentials and if user does not exist in system they needs to first register with there given credentials.

- User –

  When user logged in the system then user gets the information about the products list.

- Product –

  User gets the product list and user can choose the product whichever they want.

- Order –

  After choosing the product they place the order.

- Farmer –

  If user wants to sales his organic agri products then he needs to create his own farmer login account.

- Add Product –

  In this farmer can add their product details such as image , name , price , stock , description , farm location , etc.

- Get Order Details –

  Here farmer gets the order details of his product.

2.3   Feasibility Study

- Market Analysis: Research the demand for organic products in your target market. Identify potential customers, competitors, and market trends.

- Technical Feasibility: Assess the technical requirements for developing the Android application, including the necessary features, technology stack, and potential challenges.

- Financial Feasibility: Estimate the costs involved in developing, launching, and maintaining the application. Consider expenses such as development, marketing, operations, and ongoing support.

- Legal and Regulatory Compliance: Investigate any legal or regulatory requirements related to selling organic products online, such as certifications, labeling, and food safety regulations.

- Operational Feasibility: Evaluate the practicality of operating the application, including supply chain management, inventory management, order fulfillment, and customer service.

- Risk Analysis: Identify potential risks and challenges that could impact the success of the application, such as market competition, changing consumer preferences, or technical issues.

- Marketing and Sales Strategy: Develop a plan for promoting the application and acquiring customers. Consider strategies such as social media marketing, influencer partnerships, and targeted advertising.

- Revenue Model: Determine how the application will generate revenue, such as through product sales, subscription fees, advertising, or commissions on sales.

Feasibility study is very important part of development of any system it measures the benefit of system development for any organization. Feasibility analysis isn't really systems analysis and it isn't system design either. In, Feasibility analysis it is a cross life cycle activity and should be continuously performed throughout the system project.

1. **Economical**

   All the resources used for developing this system are open source and hence no cost is needed for the resources.

2. **Technical**

   When product is stored in this app there should be classification of those products will present. At the time of upload product should be relevant to each other than by classification. Classification of product should be proper for identification.

3. **Time**

   The time required for searching products and reserved market location will be reduced through this system. At the time of searching a particular product from classification of products categories requires less time

Chapter 3

Project Scope & Requirements Analysis

3.1   Project Scope

The scope of an organic products sales application project involves defining its features, user roles, platform (web, mobile, or both), design requirements, technology stack, integration needs, security measures, testing procedures, timeline, and budget. This includes determining functionalities like user registration, product browsing, ordering, payment processing, and delivery tracking, as well as specifying different user roles such as customers, sellers, and administrators. Additionally, it involves selecting appropriate technologies, integrating third-party services or APIs, ensuring security, planning testing procedures, setting project milestones and deadlines, and estimating the project budget.

Scope Description:

In scope:

1. This app is accessed by a farmer who does the organic farming and customers as well.

2. Farmers who certified by organic agriculture only those farmers can register this application.

3. The scope of the organic products sales application project encompasses the development of a comprehensive platform that allows users to browse, purchase, and track organic products.

4. This includes creating a user-friendly interface accessible via web and mobile devices, incorporating features such as user registration, product browsing, ordering, payment processing, and delivery tracking.

5. The application will support multiple user roles, including customers, sellers, and administrators, each with distinct functionalities and access levels.

6. Design considerations will ensure a visually appealing and intuitive experience, adhering to branding guidelines.

Out of scope:

1. When internet connection is not there system would not be able to access.

2. The farmers who have not organic farming certificate they cannot be register that application.

3.Non-Organic Products: The project does not involve sourcing, selling, or distributing non-organic agricultural products.

4.Non-Agricultural Products: Any products not directly related to agriculture, such as non-food items or agricultural machinery, are not included.

5.Large-Scale Farming Operations: Engaging in large-scale farming activities or owning agricultural land for production purposes is typically beyond the scope.

6.Research and Development: Conducting research or development of new organic farming techniques or products is generally not part of the project scope.

7.Policy Advocacy: Engaging in lobbying or advocacy efforts to influence agricultural policies or regulations related to organic farming is usually not included.

8.Supply Chain Beyond Distribution: The project may focus on distribution channels but may not involve managing upstream aspects of the supply chain, such as raw material sourcing or production processes.

Project Deliverable:

Organic Product Marketing and Trading System. A comprehensive catalog showcasing a variety of organic agricultural products. Established partnerships with organic farmers, cooperatives, and certified producers. Operational distribution channels ensuring timely product availability. A user-friendly online store platform for customer convenience. Marketing materials and strategies to attract customers. Detailed operational plan for product sourcing, inventory management, and logistics .Defined quality assurance standards throughout the supply chain. Customer support system for inquiries and issue resolution. Financial projections and budgets for business planning. Stakeholder communication strategy for transparency and engagement.

3.2   Requirement Gathering and analysis

The details of organic farming are collected from nearby village. The resources of our project are the farmers whom are doing organic farming. For this, we met one of the farmer named Mr. Dhanaji Patil from Pargaon, Tal-Hat, Dist-Kolhapur. He cultivates ladyfinger, bringles, chilies, corn, tomato, etc. by organic farming methods in his farm. He uses organic fertilizers in his farm which are derived from animal matter, animal excreta, vegetable matter and crop residues. He added that the crop gained by organic farming is nourished only by the organic fertilizers which are totally chemical free. To get the information about organic product marketing application we studied the research paper named "AN EFFECTIVE AGRICULTURE MARKETING BY USING ANDROID BASED APPLICATION–IJRTER" Authored by" Dr. M. Laxmaiah , K. Navneetha". It is significant to farmers to have a proper location where the maximum customers can reach to the farmers easily.

The best place is "Market". For this, we visited one of the marker near to us named Kodoli Market and also discussed with the marketing committee of the same. The topic of our discussion was "Prime Location". They showed positive response for creating a separate and convenient place for the farmers who are doing the organic farming and interested to sell their crops in that market. Only condition they presented was the extra charges for that location. This application will be helpful for the both farmers to sell their well nourished crops and also helpful for customers who want the products which are cultivated by the organic methods.

Organic products are grown under a system of agriculture without the use of chemical fertilizers and pesticides with an environmentally and socially responsible approach. This is a method of farming that works at grass root level preserving the reproductive and regenerative capacity of the soil, good plant nutrition, and sound soil management, produces nutritious food rich in vitality which has resistance to diseases.

India is bestowed with lot of potential to produce all varieties of organic products due to its various agro climatic regions. In several parts of the country, the inherited tradition of organic farming is an added advantage. These holds promise for the organic producers to tap the market which is growing steadily in the domestic and export market.

Fig.3.Organic Farming(Cabbage)

Chapter 4

Project Design & Modeling Details

4.1   Software Requirement Specification

1.Functional Requirements:

- Analyze the information of products provided by the farmers.
- Accessible for only those farmers who uploads the organic farming certification.
- Display the product details.
- Analyze ranking of ratings and reviews given by the customer.

2. Non-Functional Requirements:

- This app provide usability requirement by giving easy way which will handled easily by farmer and customer.
- The app should be so reliable that it would work for a long time   without   any problem, and we can easily trust the system.
- This app should provide smooth processing environment.

4.2   System Modules

Inventory Management: This module tracks the quantity, availability, and expiration dates of organic products in stock. It should also manage the sourcing of new organic products from suppliers.

Online Sales Platform: Create a user-friendly website or mobile app where customers can browse, search, and purchase organic products. This platform should include features like product listings, shopping carts, secure payment gateways, and order tracking.

Supplier Management: Manage relationships with organic farmers and suppliers. This module should handle procurement, pricing negotiations, quality control, and communication with suppliers.

- Order Processing: Once a customer places an order through the online platform, this module handles order fulfillment, including picking, packing, and shipping the organic products to the customer's location.

- Delivery Logistics: Coordinate the delivery of organic products to customers' addresses. This module should optimize delivery routes, track shipments in real-time, and provide delivery status updates to customers.

- Customer Relationship Management (CRM): Manage interactions with customers, including order history, preferences, feedback, and marketing communications. This module can help personalize the customer experience and build loyalty.

- Quality Assurance and Certification: Ensure that all organic products meet the required standards and certifications for organic farming. This module should track certification status, verify product authenticity, and maintain compliance with regulatory requirements.

- Analytics and Reporting: Collect and analyze data on sales, inventory levels, customer behavior, and supplier performance. This module can provide insights for business decision-making, such as optimizing product offerings, pricing strategies, and marketing campaigns.

By integrating these modules into your system, you can create a comprehensive solution for selling and supplying organic agricultural products effectively and efficiently.

a) **User:**

In this module, farmer and customer register and login to the application by providing security parameters i.e., username and password.

b) Certification:

Farmer can upload the organic farming certificate. This module is accessible for a farmer only who does the organic farming.

c) Location:

Using this module, farmer can give the location of farm for the customer directly go there and buy the products.

d) Feedback:

Here customer can give the ratings and reviews for the products after using that product as well as for the application.
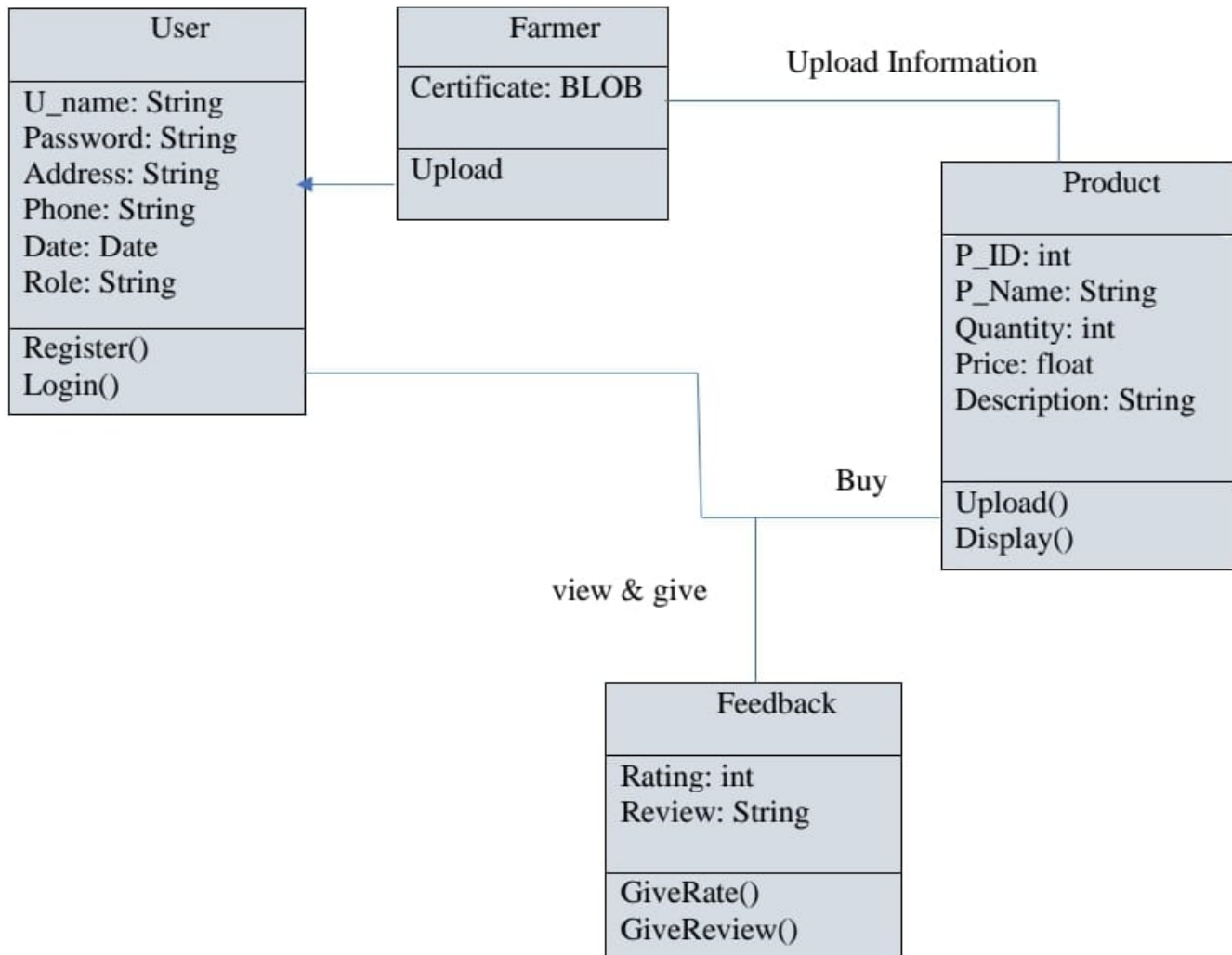
4.3 System Modeling and design

a) Class diagram

Figure-4.3(a) - Class Diagram

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- A class diagram is a type of static structure diagram that describe the structure of a system by showing the system's classes, their attributes, operations(methods),and the relationships among objects.

- There are six classes in this class diagram, they are Farmer, Customer, Certification, Login, Product, Feedback.

- Farmer Class:

When farmer login into the system he have to upload certificate of organic farming given by APEDA, under the National Program for Organic Production of the Govt. of India, then he upload all product information (* represents more than one product) which is accessible to all the customer. Farmer is also able to see feedback given by the customer for particular product.

- Customer Class:

After login into the system customer can able to buy one or more than one product from farmer and also give feedback to the user about the product.

- Product Class:

Product class include all the product information like product ID,product Name, Quantity, Price and Description.

- Feedback Class:

Using feedback class we give feedback to the customer's product after its use.
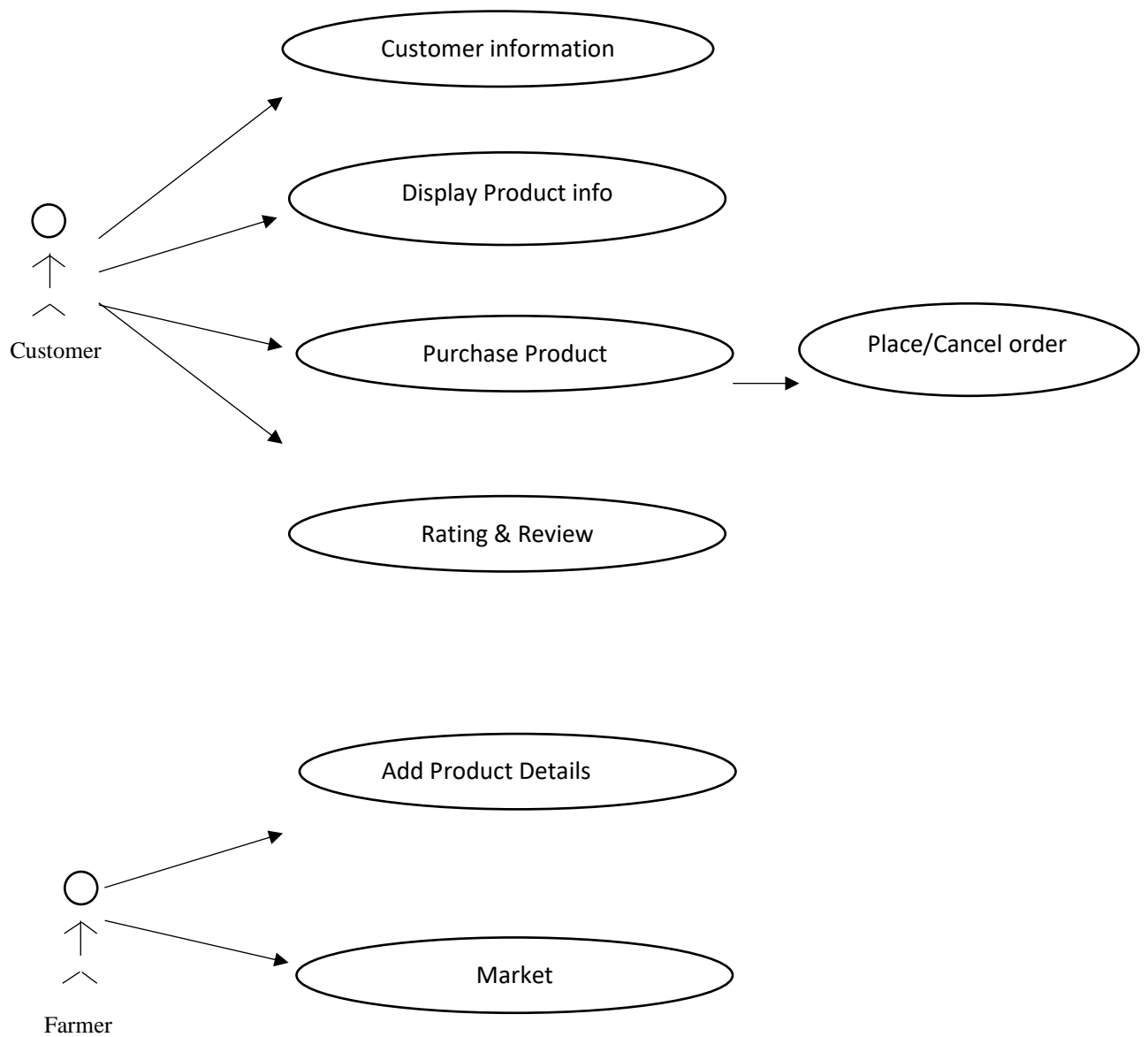
b) Use-case Diagram

Figure-4.3(b) – Use Case Diagram

- To capture the dynamic aspect of a system and gather the requirements of system.

- Use case diagram is used to get outside view of a system.

- Above diagram representing the organic product marketing and trading. Here, we find nine use cases and two actors(customer, Farmer).

- The customer actor have four use cases. It consist of customer information, product information, purchase product, rating and review.

- The farmer actor have two use cases. It consist of add product details, market.

c) Sequence Diagram
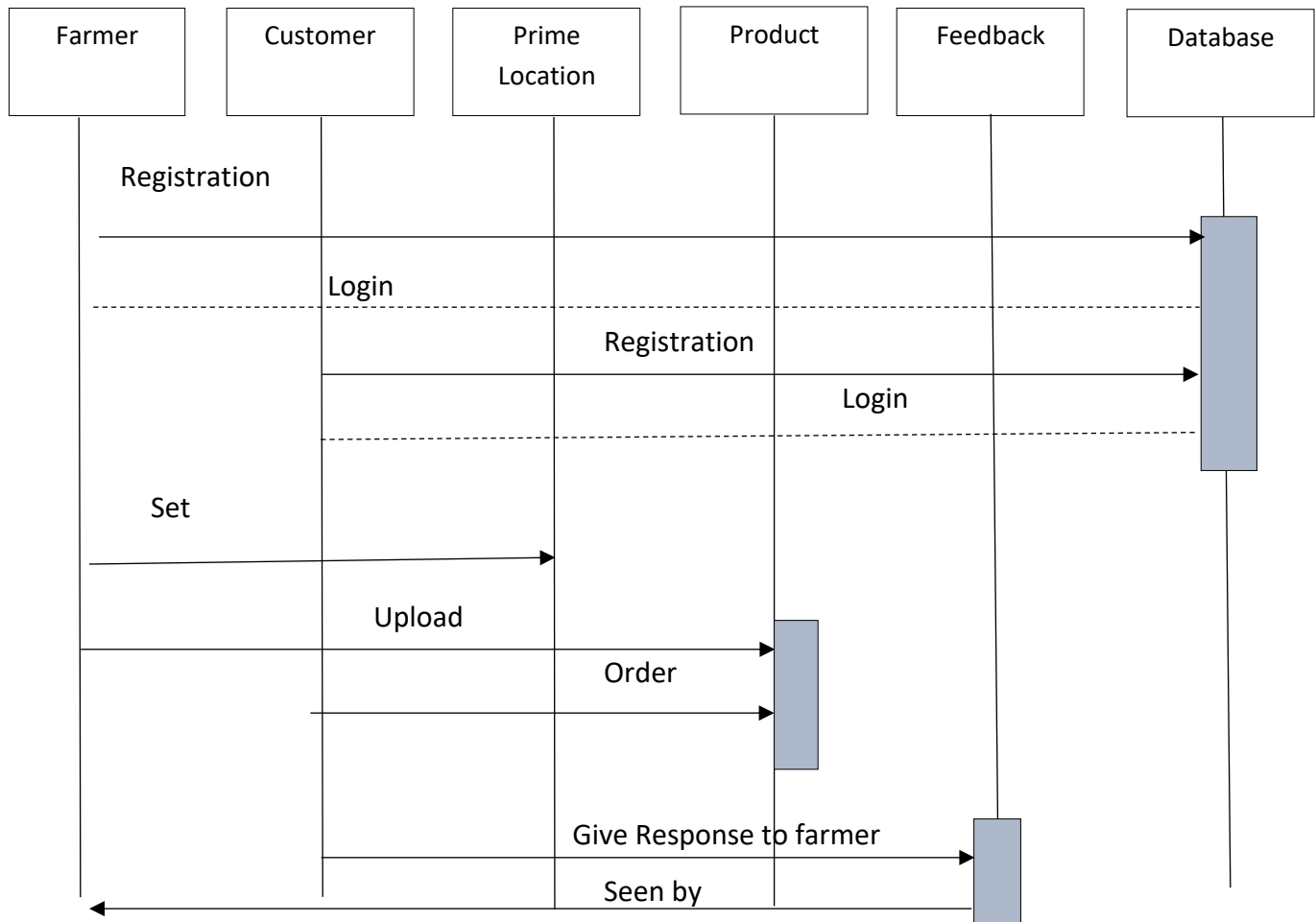
Figure-4.3(c) – Sequence Diagram

- A sequence diagram simply depicts interaction between objects in a sequential order i.e. the order in which these interaction take place.

- There are six actors in sequence diagram (Farmer, Customer, Prime Location, product, Feedback, Database).

• When Farmer Register into the system then the all data is gets filled into the database and then at the time of login data is checked from database. Farmer set his prime location if he want to go to the market for buying his product which is easily searchable by customer. Otherwise his address is nothing but their home address.

• For customer it is same as farmer registration and login only the thing is customer do not have to upload any certificate of organic production like farmer. Customer can order products use them and then give feedback to the product. Page 20

• Feedback is given to the product which is helpful to determine reliability of product available at the farmer.

d) Data Flow Diagram

DFD Level 0:

It is also known as context diagram.It's designed to be an abstraction view, showing the system as a single process with its relationship to external entities. It represent the entire system as single bubble with input and output data indicated by incoming/outgoing arrows.

Fig4.3d - DFD level 0

DFD Level 1:

The Level 0 DFD is broken down into more specific, Level 1 DFD. Level 1 DFD depicts basic modules in the system and flow of data among various modules. Level 1 DFD also mentions basic processes and sources of information.

In 1-level DFD, context diagram is decomposed into multiple bubbles/processes. In this level we highlight the main functions of the system and breakdown the high level process of 0-level DFD into sub processes.

• It provides a more detailed view of the Context Level Diagram.

• Here, the main functions carried out by the system are highlighted as we break into its Subprocesses.
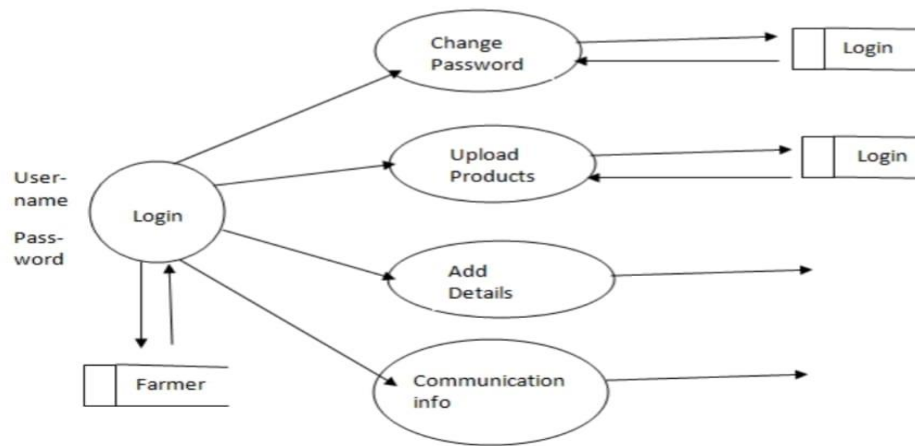
Farmer:

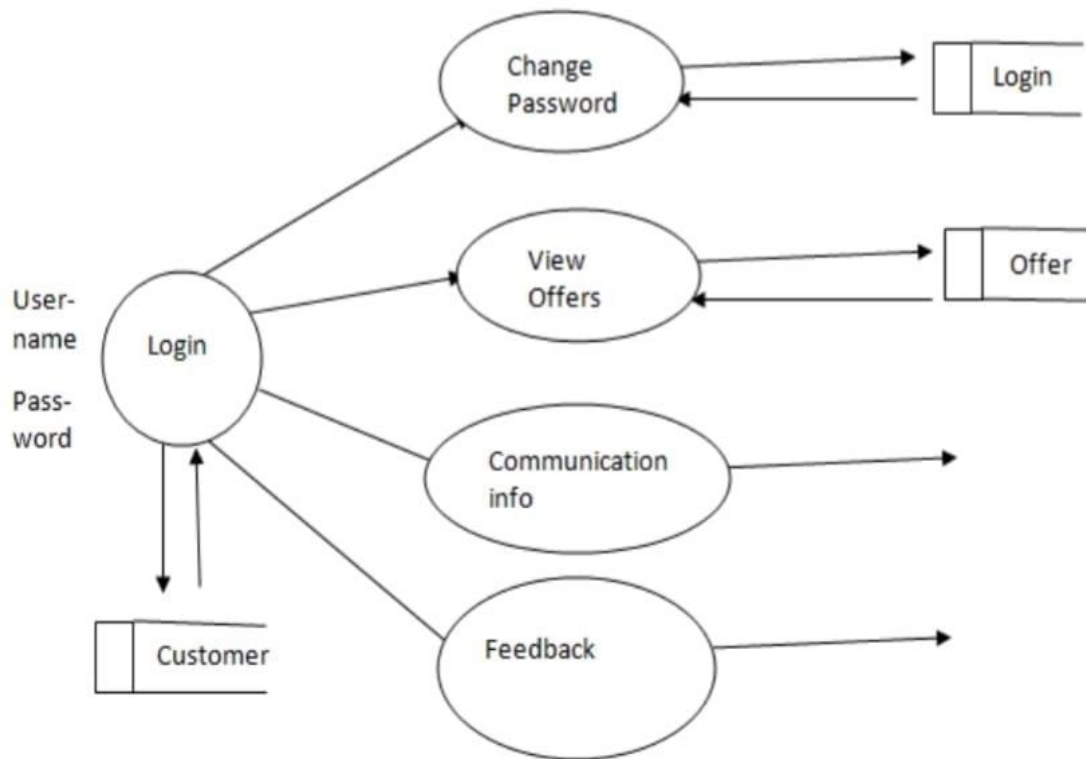

Fig4.3d - DFD level 1 Farmer

Customer:

Fig4.3d - DFD level 1 Customer

DFD Level 2:

A level 2 data flow diagram (DFD) offers a more detailed look at the processes that make up an information system than a level 1 DFD does. It can be used to plan or record the specific makeup of a system.

In 2-level DFD goes one step deeper into parts of 1-level DFD.It can be used to plan or record the specific/necessary detail about the system's functioning.
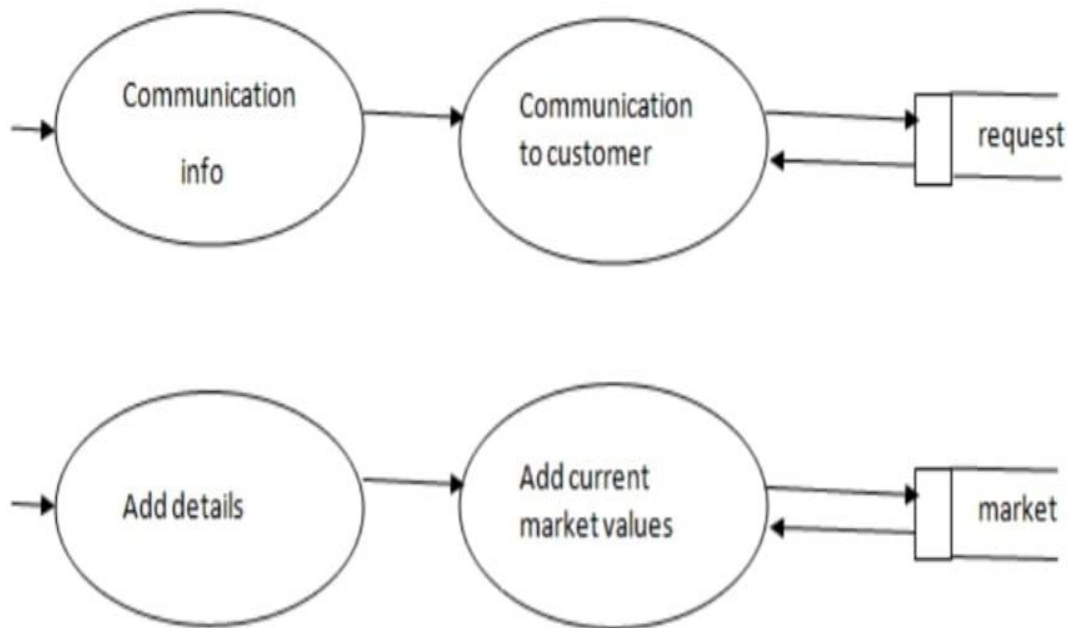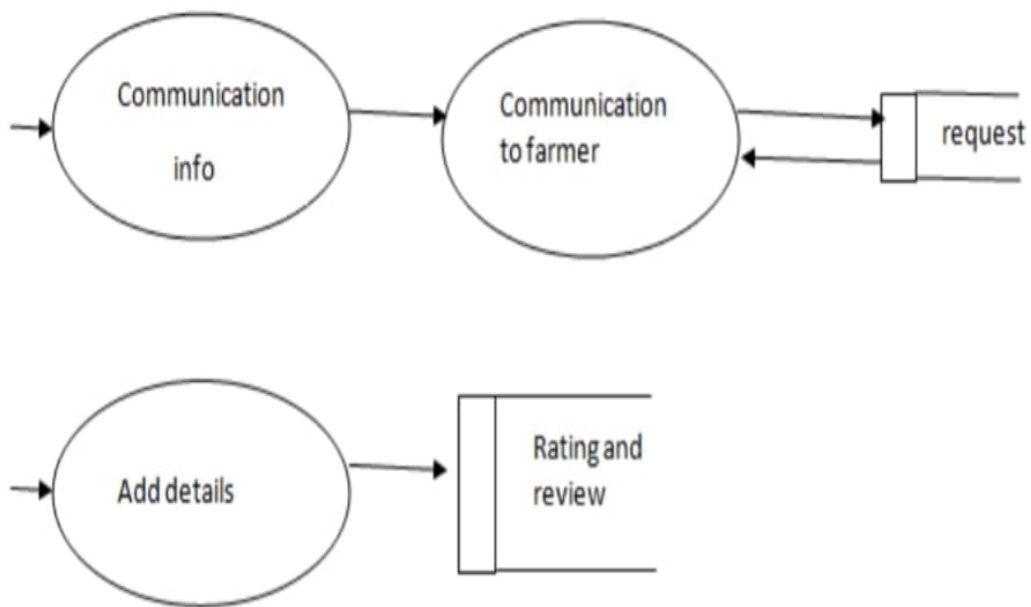
Farmer

Fig4.3d - DFD level 2 Farmer

Customer

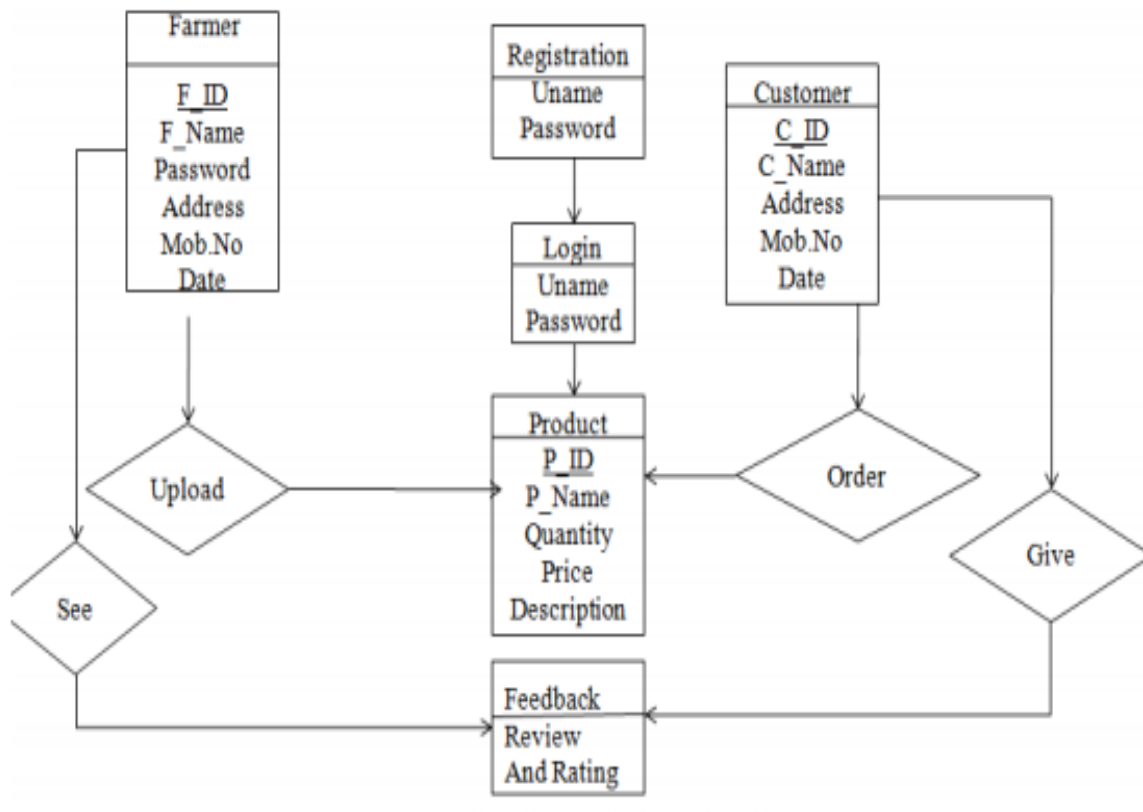
Fig.4.3d - DFD Level Customer

4.4   Database design

Figure-4.4 - Database Design

Entity Relationship Model:

An Entity–relationship model (ER model) describes the structure of a database with the help of a diagram, which is known as Entity Relationship Diagram (ER Diagram). An ER model is a design or blueprint of a database that can later be implemented as a database. The main components of E-R model are: entity set and relationship set.

4.5   System Architecture

Frontend means what user actually see in the beginning; in this case it is a mobile based android application. Frontend collect the data from the user and hand the data over to the backend. So that, backend can act upon that data, process that data, store that data for future retrievals and return the output of the process to the user.

Internet used for transferring of the data which is the common way of transferring the data from frontend to the backend. Web server helps in plugin means run the application using various languages.

Web Server, Application logic, Database, File System are far remote from the user and it can be located anywhere across the globe. These all are the components of backend.
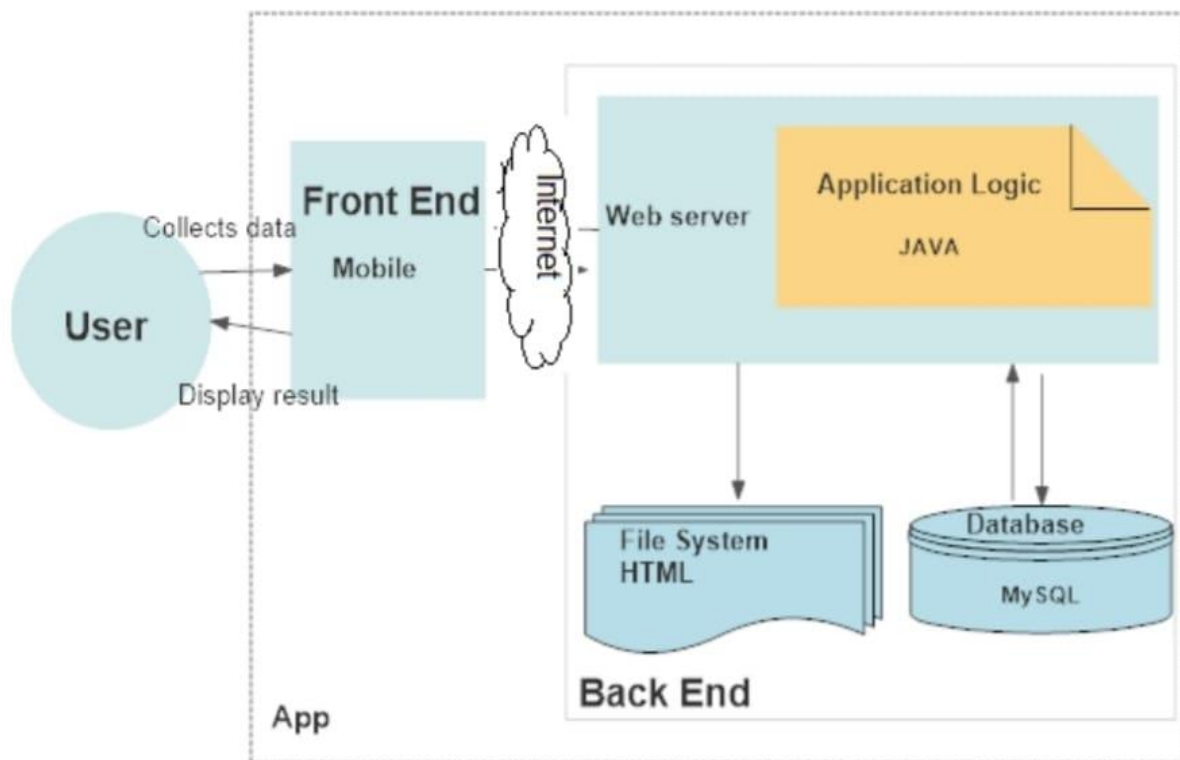

Fig.4.5- System Architecture

Chapter 5

Implementation and Coding

5.1   Software Requirements With relevant justifications

1. Integrated Development Environment (IDE):

Requirement:

Android Studio

Justification:

Android Studio is the official IDE for Android app development, providing essential tools, emulators, debugging capabilities, and seamless integration with Android SDK and libraries. It offers a robust development environment for building, testing, and debugging Android applications efficiently.

2. Programming Language:

Requirement:

Java (or Kotlin)

Justification:

Java is a modern, expressive, and concise programming language officially supported by Google for Android development. It offers features like null safety, coroutines, extension functions, and   interoperability with Java, making development faster, safer, and more productive.

3. Version Control System:

Requirement:

Git (with GitHub, GitLab)

Justification:

Git is a distributed version control system that enables collaboration, code versioning, branching, merging, and code reviews. Integrating with platforms like GitHub, GitLab allows for efficient code management, team collaboration, and version history tracking.

4. Database Management System (DBMS):

Requirement:

Firebase Firestore (for data storage)

Justification:

A reliable DBMS is needed for storing and managing structured data such as user profiles, menus, orders, reservations, and transaction records. MySQL and PostgreSQL are traditional relational database systems, while Firebase Firestore offers a NoSQL cloud database for real-time data synchronization and scalability.

5. Authentication and Authorization:

Requirement:

OAuth 2.0 (for secure user authentication) and JSON Web Tokens (JWT) for session management.

Justification:

OAuth 2.0 is a widely adopted protocol for secure authentication and authorization, allowing users to log in securely using third-party services (e.g., Google, Facebook). JWTs are used for session management and access control, ensuring secure communication between the app and backend services**.**

6. Deployment and Hosting:

Requirement:

Google Play Store (for Android app distribution), Firebase Hosting for backend hosting

Justification:

Deploying the Android app on the Google Play Store allows for easy distribution to users, app updates, and visibility to a wide audience. Firebase Hosting or cloud platforms like AWS/GCP provide scalable hosting solutions for backend services, ensuring reliability, uptime, and scalability.

5.2 Hardware Requirements With relevant justifications

1. Development Machine:

Requirement:

High-performance laptop or desktop computer.

Justification:

A powerful development machine with sufficient RAM (8GB or more), a fast processor (Intel Core i5 or equivalent), and ample storage (SSD recommended) is essential for efficient app development, running emulators, testing, debugging, and handling resource-intensive tasks.

2. Android Device:

Requirement:

Android smartphone or tablet

Justification:

Testing the app on real Android devices is crucial for ensuring compatibility, performance optimization, user experience validation, and detecting device-specific issues that may not be apparent on emulators. A range of devices with different screen sizes, resolutions, and Android versions should be available for thorough testing.

3. Server/Backend Hosting:

Requirement:

Cloud hosting service (e.g., AWS, Google Cloud Platform, Firebase Hosting)

Justification:

Hosting the backend services (APIs, databases) on reliable cloud platforms offers scalability, high availability, automatic scaling, data redundancy, and cost-effective resource management. It ensures seamless integration with the Android app, real-time data synchronization, and secure data storage.

4. Database Server:

Requirement:

Database server (e.g., MySQL, PostgreSQL)

Justification:

A dedicated database server is needed to host and manage the relational database system (e.g., MySQL, PostgreSQL) used for storing structured data such as user profiles, menus, orders, reservations, and transaction records. The server should have sufficient resources (CPU, RAM, storage) to handle database operations efficiently and support concurrent user interactions.

5. Networking Equipment:

Requirement:

Reliable internet connection, routers, switches.

Justification:

A stable and high-speed internet connection is essential for development, testing, deployment, and ongoing maintenance of the system. Networking equipment such as routers and switches should be configured for reliable connectivity, data transmission, and security (e.g., firewall, VPN) to protect sensitive data and ensure smooth communication between devices and servers.

6. Backup and Recovery System:

Requirement:

Backup storage devices (e.g., external hard drives, cloud backup services)

Justification:

Implementing a backup and recovery system is critical for data protection, disaster recovery, and minimizing downtime in case of hardware failures, data corruption, or cyberattacks. Backup storage devices and cloud backup services offer data redundancy, versioning, and recovery options to safeguard critical system data and ensure business continuity.

Chapter 6

Testing

6.1   Fundamentals of Testing

1.Testing:

Testing is the process of evaluating a system or software to identify any discrepancies between actual and expected results. It is performed to ensure that the software meets the specified requirements and works as intended.

2.Purpose of Testing:

The main purpose of testing is to uncover defects or bugs in the software and provide confidence in its quality. It helps identify areas for improvement and ensures that the software is reliable, functional, and meets user expectations.

3.Testing Objectives:

The primary objectives of testing include verifying the correctness and completeness of the software, validating that it meets the user requirements, detecting defects and errors, and ensuring the software's reliability and robustness.

4.Testing Techniques:

Various testing techniques are used to ensure comprehensive coverage of the software. These techniques include unit testing, integration testing, system testing, acceptance testing, regression testing, and performance testing. Each technique focuses on different aspects of the software and helps identify different types of defects.

5.Test Plan:

> A test plan is a document that outlines the testing approach, objectives, scope, and schedule. It defines the test strategy, test cases, and test environment. The test plan serves as a roadmap for the testing process, ensuring that all necessary aspects are covered.

6.Test Cases:

> Test cases are specific scenarios or conditions that are designed to test the functionality of the software. They consist of inputs, expected outputs, and preconditions. Test cases are created based on the requirements and specifications of the software to ensure comprehensive testing coverage.

7.Test Execution:

> Test execution involves running the test cases on the software and comparing the actual results with the expected results. It helps identify any discrepancies or defects in the software. Test execution is typically performed in a controlled testing environment to ensure accurate and reliable results.

8.Test Documentation:

> Throughout the testing process, documentation plays a crucial role. It includes test plans, test cases, test results, defect reports, and any other relevant information. Test documentation helps in maintaining a record of the testing activities, tracking progress, and facilitating communication among the testing team and stakeholders.

9.Test Completion and Evaluation:

> After executing all the planned tests and addressing the identified defects, the testing process is considered complete. A final evaluation is conducted to assess the overall quality of the software and determine if it meets the defined acceptance criteria. The testing team provides recommendations and feedback for further improvements.

6.2   Test Plan of the Project

1.Introduction

-Overview of the project

-Purpose and objectives of the test plan

-Scope and limitations of testing

2.Test Strategy

-Test levels (unit testing, integration testing, system testing, etc.)

-Test types (functional, non-functional, regression, etc.)

-Entry and exit criteria for each test level

-Test environment and infrastructure requirements

3.Test Deliverables

-List of documents and artifacts to be produced during testing

-Test cases, test scripts, and test data

-Test reports, defect reports, and other testing documentation

4.Test Schedule

-Timeline for test preparation, execution, and completion

-Milestones and deadlines for each testing phase

-Resource allocation for testing activities

5.Test Environment

-Hardware and software requirements for the test environment

-Configuration management of test environments

-Test data and test database setup

6.Test Evaluation

-Criteria for evaluating test results

-Defect reporting and management process

-Metrics and measurements for assessing testing progress and effectiveness

-Criteria for determining test completion and exit criteria

7.Risks and Assumptions

-Identification of potential risks and their impact on testing

-Mitigation strategies for identified risks

-Assumptions made during testing

8.Test Team and Responsibilities

-Roles and responsibilities of the testing team members

-Communication and coordination channels

-Training and skill development requirements

9.Approval and Sign-Off

-Sign-off process for test plan approval

-Stakeholder and project manager approval

6.3. Test Cases and Test Result

6.3.1 Login:

Test case#:1		Priority :Moderate	
Test Objective: Login verification.			
Test Description: Username, Password checked.			
Test Environment: JAVA			
Test setup or pre-conditions: User initiates any control mechanism like login button			
Operation Performed	**Condition Tested**	**Expected Results**	**Actual Results**
Verification	It is checked that user name and password is verified.	If not Verified "user is not valid" message is displayed. Otherwise if User is not registered then "Register here" is displayed.	Login Successful
Pass: Yes	**Conditional Pass:**	**Fail:**	
Problems/Issues: Nil			

Table-6.3.1 - Login

6.3.2 Registration for user:

Test case#:3		Priority :Moderate	
Test Objective: Registration Verification.			
Test Description: Username, Password			
Test Environment: JAVA			
Test setup or pre-conditions: System must be connected to internet			
Operation Performed	**Condition Tested**	**Expected Results**	**Actual Results**
Verification	It is checked that the proper username and minimum 6 characters password is given.	If the fields like username, password are not field then it shows error. And if the password is less than 6 characters it displays "Minimum 4 characters needed" message.	Registration Successful
Pass: Yes	**Conditional Pass:**	**Fail:**	
Problems/Issues: Nil			

Table-6.3.2 – Registration of user

6.3.3 Upload Product:

Test case#:3		Priority: Moderate	
Test Objective: Upload product			
Test Description: product name, category, price, location, description, stock, product image			
Test Environment: JAVA			
Test setup or pre-conditions: System must be connected to internet			
Operation Performed	**Condition Tested**	**Expected Results**	**Actual Results**
Verification	For uploading product it product name, category, price, location, description, stock, product image. It is compulsory to give all details.	Product image ,name, price, stock and farm location should be entered.	Upload Successful.
Pass: Yes	**Conditional Pass:**	**Fail:**	
Problems/Issues: Nil			

Table-6.3.3 – Upload Product

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Chapter 7

Project Plan & Schedule

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7.1   Project Planning & Project Resources

Project planning is a multifaceted process that involves meticulous coordination of various resources to achieve predetermined goals efficiently. At its core, it encompasses defining the project scope, setting objectives, and establishing a roadmap for execution. A crucial aspect of project planning is resource management, which entails identifying, allocating, and utilizing resources effectively throughout the project lifecycle.

Resources encompass a wide array of elements, including human resources, financial capital, equipment, materials, and time. Each resource plays a vital role in the project's success, and careful consideration must be given to optimizing their utilization. Human resources, for instance, involve selecting individuals with the necessary skills and expertise to perform specific tasks, while financial resources necessitate budget allocation and cost management to ensure project sustainability. Moreover, the availability of equipment and materials must be synchronized with project timelines to prevent delays and bottlenecks.

Efficient resource management is contingent upon thorough planning and ongoing monitoring. Project managers must conduct a comprehensive assessment of resource requirements at the outset, taking into account factors such as project complexity, duration, and risk profile. This assessment serves as the foundation for resource allocation, enabling the equitable distribution of resources based on priority and criticality.

Throughout the project lifecycle, diligent monitoring of resource utilization is essential to identify potential inefficiencies or shortages promptly. By leveraging project management tools and techniques, such as Gantt charts and resource histograms, project managers can track resource consumption against planned allocations and intervene as necessary to mitigate risks or reallocate resources as needed.

Effective communication and collaboration among project team members are also paramount to resource optimization. By fostering an environment of transparency and

accountability, project managers can ensure that resources are utilized judiciously and that any emerging issues are addressed promptly.

In summary, project planning and resource management are intricately intertwined processes essential for project success. By integrating resource considerations into the planning phase and implementing robust monitoring mechanisms, project managers can enhance efficiency, mitigate risks, and ultimately deliver successful outcomes.

7.2   Project Scheduling

Scheduling mainly concerns with minimum days required for completion each and every phase of project development. The Waterfall Model of Software Engineering is also taken into consideration while doing planning, scheduling and development of the project.

Project scheduling is a critical aspect of project management that involves creating a timeline for the execution of tasks and activities required to achieve project objectives. It serves as a roadmap, outlining the sequence of events, milestones, and dependencies necessary for successful project completion.

At its core, project scheduling involves several key steps. First and foremost, project managers must identify all the tasks and activities required to accomplish the project goals. This often involves breaking down the project into smaller, manageable components, known as work breakdown structure (WBS).

Once the tasks are identified, the next step is to determine the duration of each task and the order in which they need to be completed. This process helps establish dependencies between tasks, ensuring that certain activities cannot begin until others are finished.

After establishing task durations and dependencies, project managers can create a project schedule using various scheduling techniques and tools. One common approach is the Gantt chart, which provides a visual representation of the project timeline, including start and end dates for each task.

Throughout the scheduling process, it's important to consider factors that may impact the project timeline, such as resource availability, constraints, and risks. Contingency planning is also essential to account for potential delays or changes in the project scope.

Once the schedule is developed, it must be communicated effectively to all project stakeholders to ensure alignment and understanding. Regular monitoring and updates are

necessary to track progress, identify any deviations from the schedule, and make adjustments as needed to keep the project on track.

Ultimately, effective project scheduling requires careful planning, attention to detail, and proactive management to ensure that tasks are completed on time and within budget, ultimately leading to successful project outcomes.
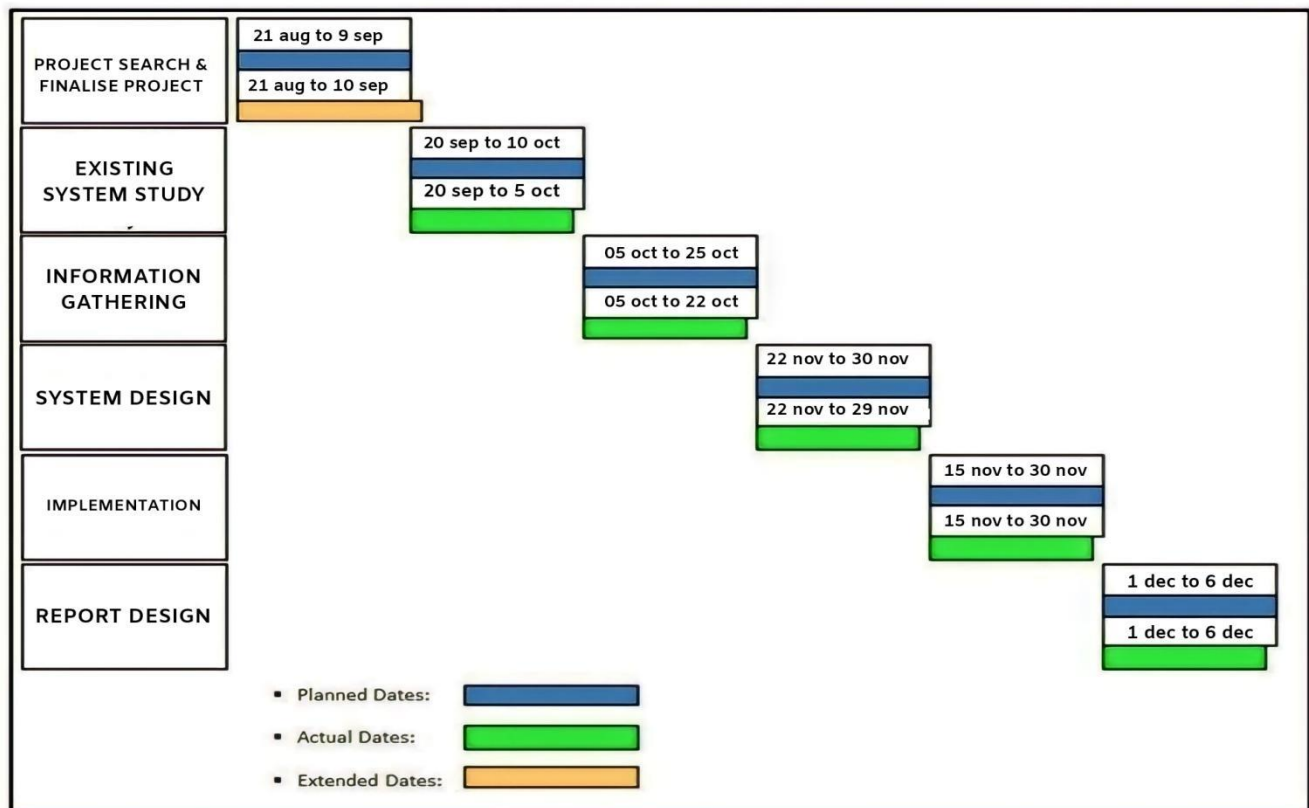

Figure-7.2 – Gantt Chart

Chapter 8
Risk Management & Analysis

8.1   Project Risk Identification

Here mostly identification of source or root of risk is done Identify Risks: Consider risks such as market competition, changing consumer preferences, supply chain disruptions, regulatory changes, and technological challenges. Assess Risks: Determine the likelihood and potential impact of each risk on the project's objectives. Prioritize risks based on their severity and likelihood of occurrence. Mitigation Strategies: Develop strategies to mitigate or reduce the impact of identified risks. This could involve diversifying suppliers, staying updated on industry regulations, investing in robust IT infrastructure, or creating contingency plans for sudden market shifts. Monitoring and Control: Regularly monitor the project environment for new risks and reassess existing ones as the project progresses. Implement controls to manage risks effectively and adjust strategies as needed. Communication and Stakeholder Engagement: Keep stakeholders informed about potential risks and mitigation efforts. Encourage open communication to address concerns and adapt strategies collaboratively. Documentation: Maintain comprehensive documentation of risk management activities, including risk registers, mitigation plans, and outcomes of risk assessments.

Sr. No	Risk	Identification of Risk	Classification of Risk	Plan for minimizing the risk	Implement mitigation action	Communicate risk status.
1.	Risk of use of low speed internet.	By checking the internet speed.	Network risk.	Use of high speed internet that properly work.	Do proper connection and interfacing	By checking the speed of internet
2.	Failure of Network	By checking network	Network risk	Checking network connection after interval of time	Provide alternate way of network	Checking network connection after interval of time
3.	Failure of Reserve Market Location	By checking in Market Location Module	Hardware risk	Checking network connection after interval of time	Provide alternate way of network	One should capable to reserve market location

Table 8.1 - Risk Identification

8.2 Project Risk Analysis

The Risk Analysis means risk containment and mitigation. First, we have identified the risks and then planned. Then ready to act when a risk arises, drawing upon the experience and knowledge of the entire team to minimize the impact of risk on project. The most software engineering project is inherited risky because of the various potential problems that might arise due to new and unproven technologies, user and functional requirement, complex application and system architecture, performance and organization issues.

Sr.No.	Risk	Risk Analysis	Risk Management
1.	Missuse of organic farming certification	If farmer uploads the organic farming certificate and suppose farmer sells organic and inorganic products.	Customer can gives the rating and reviews by using that particular products.
2.	Customer unable to buy the product.	If customer orders the product but not buys that product then problem occurs to the farmers.	Farmer give time limit to buy the products, within that time only customer can buy that products .

Table 8.2 - Risk Analysis & Management

CHAPTER 9

Configuration Management

9.1 Installation/Uninstallation

9.1.1 Android Studio

Purpose:

Android Studio is the official Integrated Development Environment (IDE) for Android app development. It provides tools for building, debugging, and testing Android applications.

Installation Procedure:

Download Android Studio:

Visit the official Android Studio download page (https://developer.android.com/studio).

Click on the download button for your operating system (Windows, macOS, or Linux).

Run the Installer:

Once the download is complete, run the installer executable.

Follow the on-screen instructions to complete the installation process.

Choose the components you want to install (Android Studio IDE, Android SDK, Android Virtual Device), and select the installation location.

Download SDK Components:

Android Studio will prompt you to download additional SDK components required for development.

Follow the prompts to download and install these components.

Launch Android Studio:

    After the installation is complete, launch Android Studio.

    Follow the initial setup wizard to configure the IDE preferences and SDK settings.

Set Up Emulator or Connect Device:

    You can set up an Android Virtual Device (AVD) emulator or connect a physical Android device for testing your apps.

Start Developing:

    Once everything is set up, you can start developing Android apps using Android Studio.

Configuration:

- SDK Manager: Android Studio provides an SDK Manager to manage SDK packages and updates.
- AVD Manager: Use the AVD Manager to create and manage Android Virtual Devices for testing.
- Project Structure: Configure project-specific settings like dependencies, build types, and flavors.
- Plugins and Extensions: Android Studio supports plugins and extensions to enhance functionality, such as additional language support or integration with third-party services.

9.2 User Manual

9.2.1 Input Screenshots

Fig 9.1 – Input Screenshots

Fig 9.1 – Input Screenshots

9.2.2 Output Screenshots
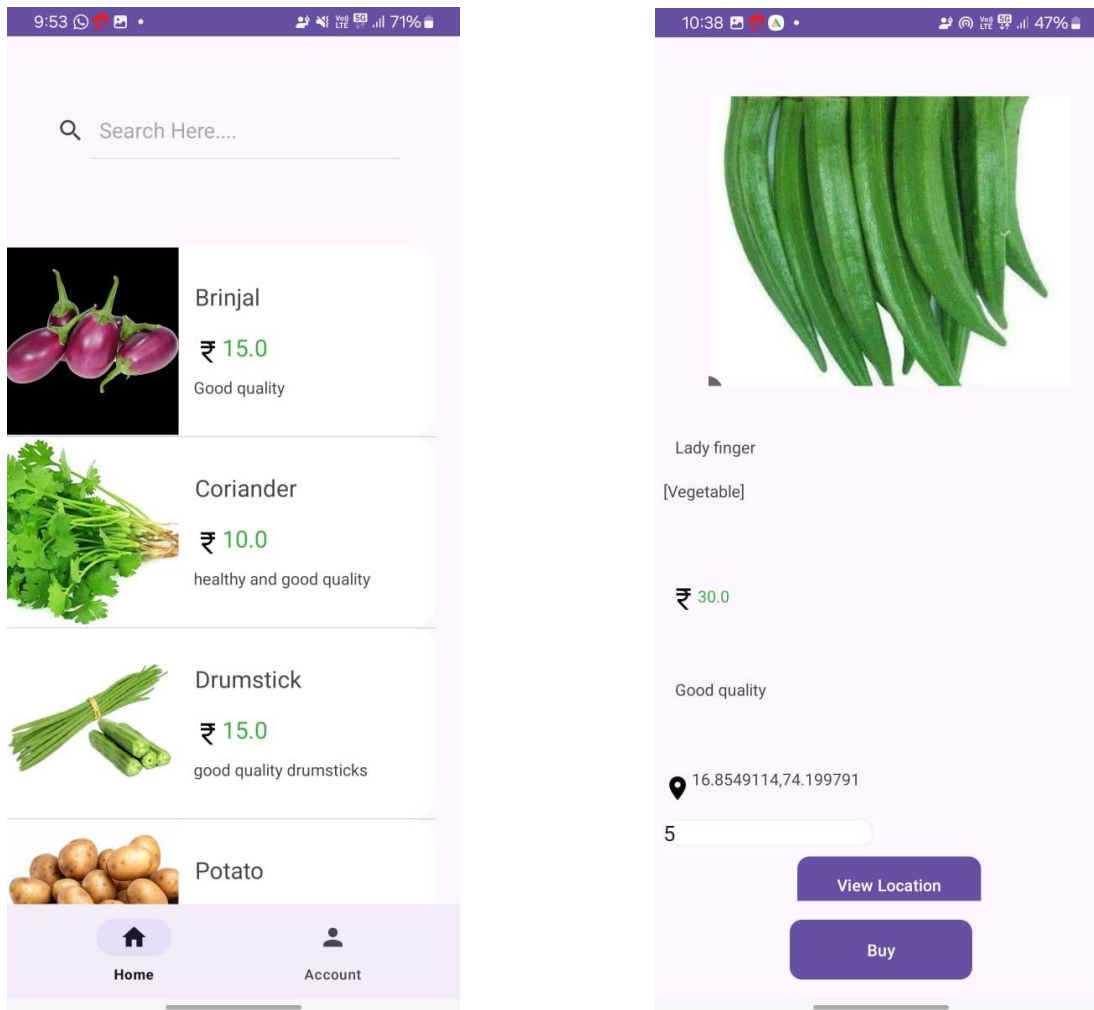

Fig 9.2- Output Screenshots
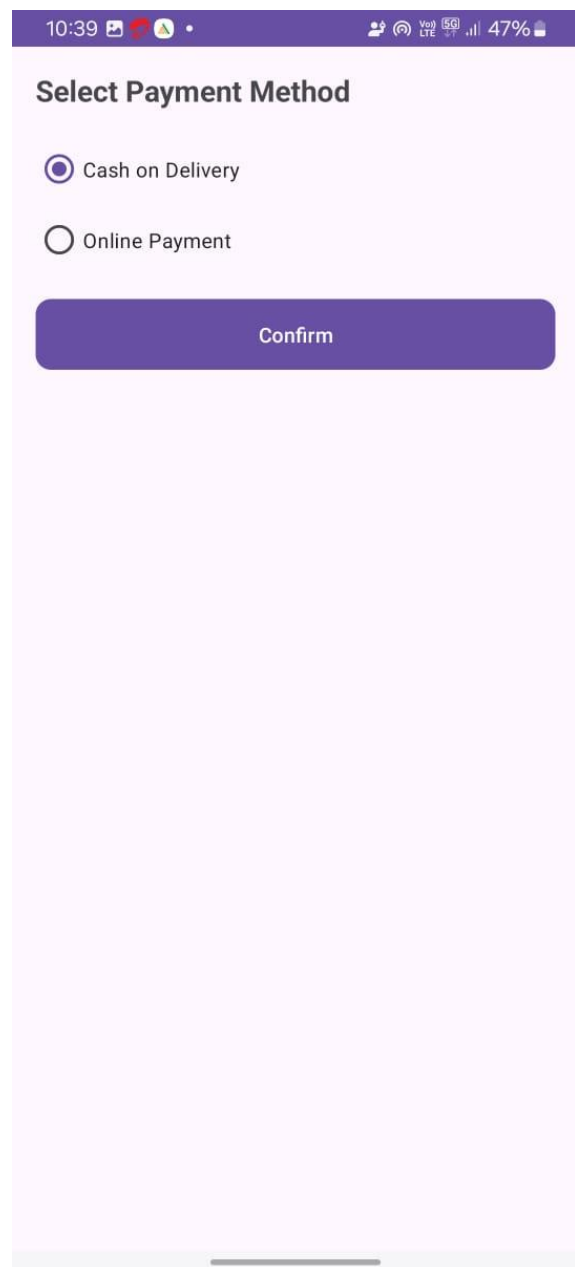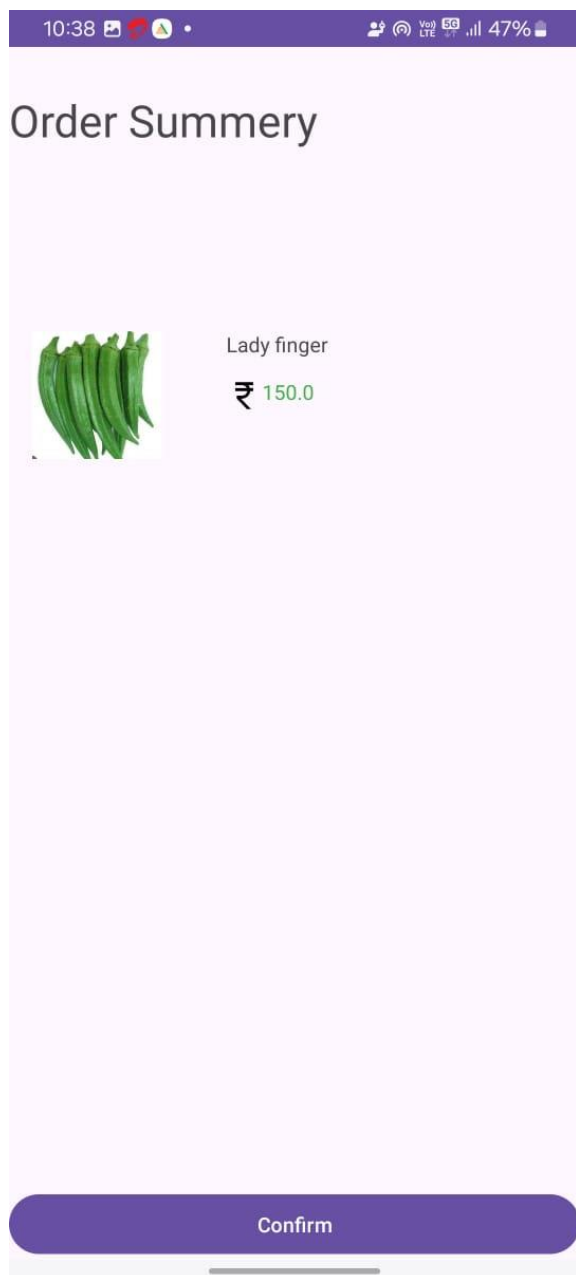
Fig 9.2- Output Screenshots

CHAPTER 10

Conclusion and Future Scope

10.1 Conclusion

The development of the organic agriculture products sales application has been a significant step towards promoting sustainable farming practices and providing consumers with healthier options. Throughout the project, we successfully implemented features such as product listings, and user-friendly interfaces. However, we also encountered challenges such as integrating real-time inventory management.

Looking ahead, there is immense potential for further enhancements, including expanding the product range, enhancing user engagement through personalized recommendations, and integrating feedback mechanisms for continuous improvement. Overall, this project underscores the importance of technology in advancing the organic agriculture sector and meeting the growing demand for organic products in the market.

10.2   Future Scope

- Global Expansion: Extend the app's reach to serve customers in different regions or countries, offering locally sourced organic products.
- Personalized Recommendations: Implement an algorithm to suggest products based on user preferences, purchase history, and browsing behavior.
- Subscription Service: Introduce a subscription model for regular delivery of organic produce to customers' doorsteps.
- Social Integration: Allow users to share their purchases, recipes, and experiences with organic products on social media platforms.

- Educational Resources: Provide articles, videos, and guides on organic farming practices, sustainability, and healthy living.

- QR Code Scanning: Enable customers to scan QR codes on products to access detailed information about their origins, production methods, and certifications.

- Bulk Ordering: Facilitate bulk purchases for businesses, restaurants, or community organizations interested in buying organic products in large quantities.

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