E - COMMERCE APPLICATION FOR FARMERS

A PROJECT REPORT

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BONAFIDE CERTIFICATE

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INTERNAL EXAMINER **EXTERNAL EXAMINER**

ABSTRACT

In recent eras, with the use of different technological developments, a huge amount of data is shared in a network. Due to this overhead, The drastic growth of the population has led to a multi fold rise in demand for food and crops, giving away ample opportunities in the agriculture sector to expand upon a commendable rate.

An online market application for agriculture can provide a convenient platform for farmers and consumers to connect, exchange information, and conduct business transactions in the digital realm. The application can act as a virtual marketplace where farmers can advertise their products and services, and consumers can browse and purchase these offerings with ease. The application can facilitate the exchange of information about crop yields, farming techniques, and market trends, providing valuable insights for both farmers and consumers.

The system's architecture comprises a user interface layer for user interactions, an application layer for processing business logic, and a database for data storage and retrieval. By eliminating intermediaries, the project seeks to empower farmers, promote transparency, and provide consumers with access to fresh and locally sourced agricultural products.

In general, the farmer-consumer project focuses on establishing a direct connection between farmers and consumers, bypassing intermediaries.

highlights the objectives of empowering farmers, ensuring fair prices, promoting local and sustainable agriculture, enhancing food traceability, and improving consumer access to fresh and quality products.

ACKNOWLEDGEMENT

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INTRODUCTION

1.1. Agriculture

Agriculture has been the backbone of human civilization since its inception, providing food, fiber, and other essential resources. In today's world, agriculture is facing a multitude of challenges, including climate change, population growth, and the need for sustainable practices. To address these challenges, innovative solutions are required, and one such solution is the development of agriculture-based applications.

An agriculture-based application is a software tool that leverages technology to assist farmers, agricultural researchers, and other stakeholders in the agricultural industry. These applications can be used to streamline various aspects of agriculture, such as crop management, livestock management, soil analysis, and market analysis. They can also be used to provide real-time weather updates, irrigation scheduling, and pest control management, among other things.

Agriculture-based applications are becoming increasingly popular, as they offer several benefits over traditional agricultural practices. For instance, they can provide accurate and up-to-date information on crop growth, soil moisture levels, and other variables, enabling farmers to make informed decisions about planting, harvesting, and other activities. Additionally, these applications can help farmers increase their productivity and profitability by reducing waste, optimizing resource use, and improving crop yields.

Another advantage of agriculture-based applications is that they can help reduce the environmental impact of agriculture. For example, they can provide information on the optimal use of water, fertilizer, and pesticides, which can help reduce waste and minimize pollution. They can also help promote sustainable farming practices, such as conservation tillage, cover cropping, and intercropping.

Agriculture is a vital sector that plays a critical role in the economy of many countries, providing food, fiber, and other essential resources. However, the sector is facing several challenges, including climate change, population growth, and the need for sustainable practices.

Agriculture-based applications are software tools that leverage technology to assist farmers, agricultural researchers, and other stakeholders in the agricultural industry. These applications can be used to streamline various aspects of agriculture, such as crop management, livestock management, soil analysis, and market analysis. They can also be used to provide real-time weather updates, irrigation scheduling, and pest control management, among other things.

The use of technology in agriculture has been gaining momentum in recent years, with the development of advanced sensors, robotics, and data analytics tools. These innovations have enabled the creation of sophisticated agriculture-based applications that can provide valuable insights into the agricultural process. For example, some applications use sensors to collect data on soil moisture levels, temperature, and nutrient content, which can be used to optimize irrigation and fertilizer application.

Agriculture-based applications offer several benefits over traditional agricultural practices. They can provide accurate and up-to-date information on crop growth, soil moisture levels, and other variables, enabling farmers to make informed decisions about planting, harvesting, and other activities. Additionally, these applications can help farmers increase their productivity and profitability by reducing waste, optimizing resource use, and improving crop yields.

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The benefits of agriculture-based applications are not limited to farmers alone. They can also provide valuable insights to other stakeholders in the agricultural industry, such as researchers, policymakers, and agribusinesses. For example, market analysis applications can provide information on price trends and supply and demand dynamics, which can help agribusinesses make informed decisions about production and marketing.

Here are various types of agriculture, each with its unique set of practices and characteristics. Some of the most common types of agriculture are:

- Subsistence Agriculture
- Commercial Agriculture
- Organic Agriculture
- Intensive Agriculture
- Extensive Agriculture
- Mixed Agriculture
- Agroforestry

1.1. SUBSISTENCE AGRICULTURE

This type of agriculture involves the production of food and other agricultural products for the farmer's own consumption and the consumption of their family members. Subsistence agriculture is practiced in many developing countries and is often characterized by small-scale farming methods and the use of traditional tools and techniques.

1.1.2 COMMERCIAL AGRICULTURE

Commercial agriculture is practiced with the primary aim of generating profit. It involves large-scale production of crops and livestock, using modern farming techniques, machinery, and technology. Commercial agriculture is often heavily dependent on inputs such as fertilizers, pesticides, and irrigation systems.

1.1.3 ORGANIC AGRICULTURE:

Organic agriculture is a farming system that emphasizes the use of natural inputs such as compost, manure, and natural pesticides instead of synthetic chemicals. It aims to produce healthy and nutritious food while minimizing harm to the environment.

1.1.4 INTENSIVE AGRICULTURE

Intensive agriculture involves high input levels of labor, capital, and technology to produce high yields per unit area. This type of agriculture often uses modern machinery, genetically modified crops, and advanced irrigation systems to maximize production.

1.1.5 EXTENSIVE AGRICULTURE

Extensive agriculture involves the cultivation of crops and livestock over a large area of land. It is typically practiced in regions where land is abundant and cheap, and it often uses less intensive farming techniques.

1.1.6 MIXED AGRICULTURE

Mixed agriculture involves the cultivation of both crops and livestock on the same farm. It is a common practice in many parts of the world and can be an effective way to diversify income sources and reduce risk.

1.1.7 AGROFORESTRY:

Agroforestry is a farming system that combines the cultivation of trees and crops on the same plot of land. It is a sustainable practice that can help reduce soil erosion, improve soil fertility, and provide additional income sources for farmers. These are just a few examples of the many types of agriculture. The type of agriculture practiced in a particular region often depends on factors such as climate, soil type, and economic conditions.

In conclusion, agriculture-based applications have the potential to revolutionize the way we approach agriculture by providing innovative solutions to the challenges facing the industry. By leveraging technology and data, these applications can help farmers increase productivity, reduce waste, and promote sustainable practices. As such, they have become an essential tool for anyone involved in agriculture, from small-scale farmers to large agribusinesses. The development and adoption of these applications are critical to ensuring the sustainability and profitability of the agriculture sector in the years to come.

CHAPTER-2

LITERATURE SURVEY

Indian agriculture began by 9000 BCE in northwest India with the early cultivation of plants and domestication of crops and animals. Indian subcontinent agriculture was the largest producer of wheat and grain. They settled life soon followed with implements and techniques being developed for agriculture. Double monsoons led to two harvests being reaped in one year. Indian products soon reached the world via existing trading networks and foreign crops were introduced to India. Plants and animals considered essential to their survival by the Indians—came to be worshiped and venerated.

The middle ages saw irrigation channels reach a new level of sophistication in India and Indian crops affected the economies of other regions of the world. Land and water management systems were developed with the aim of providing uniform growth. Despite some stagnation during the later modern era, the independent republic of India was able to develop a comprehensive agricultural program.

The Vision of this project is to ensure fair prices to the farming community by devising new techniques and by making use of the online market. An application, that serves as a platform for the movement of agricultural products from the farms directly to the consumers or retailers. This mobile and web application provides the privilege for both farmers and consumers or retailers to buy and sell the required farm products without the involvement of a middleman at its right profitable price. The agriculture experts shall analyze the product that comes into this platform, approve it and provide ratings based on quality. This makes all the available farm products easily accessible. Hence it provides freedom of pricing and freedom of access. Through this, we can ensure farmers make selling decisions most advantageously.

The agricultural marketing system is an important aspect of the agricultural sector. It involves the various processes involved in bringing agricultural products from the point of production to the point of consumption. Several studies have been conducted to examine the agricultural marketing system, including its challenges, opportunities, and best practices. Agricultural marketing systems vary widely across different regions and countries, depending on factors such as infrastructure, market structures, and government policies.

The agricultural marketing system is often characterized by information asymmetry, which can lead to inefficiencies and unequal bargaining power among market participants. Smallholder farmers often face challenges in accessing markets, due to factors such as lack of infrastructure, poor quality control, and limited access to market information. The use of technology, such as mobile phones and e-commerce platforms, can improve market access and efficiency for smallholder farmers.

The role of intermediaries in the agricultural marketing system can be both beneficial and detrimental to smallholder farmers, depending on their bargaining power and the level of competition in the market. Public-private partnerships can be effective in improving agricultural marketing systems by addressing key challenges such as infrastructure, market information, and quality control. Value chain development, which involves linking smallholder farmers with buyers and other value chain actors, can improve the profitability and sustainability of agricultural production.

Liu feng et al. [1] used ARIMA (p,d,q) model to predict the monthly price trend of cabbage. The results confirmed that ARIMA (0,1,1) model was feasible for the short-term prediction of cabbage price.

Miao kaichao [2] adopted the exponential smoothing method to predict the annual price of tomatoes The results showed that the model had a high fitting degree under the condition of good linearity of analysis and prediction. Take the prices of tomatoes as the research object,

Li Ganqiong et al. [3] employed ARIMA, ARCH, and GARCH3 methods respectively to predict tomato prices. The results verified that the GARCH model had higher accuracy in prediction. From the perspective of the fluctuation of vegetable prices and market volume,

Zhang Biao et al. [4] constructed the prediction models for the whole vegetables, fruit vegetables, leaf vegetables, and root vegetables respectively by using seasonal indexes. The model predicted that the prices would continue to show a slow upward trend of seasonal changes in the next two years. The traditional time sequence forecasting method had a high accuracy in predicting the time series data with linear characteristics. However, as the market became more and more complicated, nonlinear, and irregular gradually, this type of method brought great difficulties in the parameter adjustment of the forecasting model and reflected certain limitations during predicting the price. With the development of artificial intelligence, intelligent forecasting methods such as neural networks, support vector machines, and extreme learning machines had gradually become the focus of price prediction research. In these methods, the BP neural network method had the advantages of strong nonlinear mapping ability and flexible network structure in time series prediction. At the same time, the BP neural network method also could make the sample prediction error approximate to the minimum.

Saurabh A et.al.[5] E- Agriculture is the rising field that focuses on rural and agricultural development through the information and communication process. The E- Agriculture is the platform that supports the marketing of agricultural products.

Kalyani Khodaskar et.al [6] Virtual Fruits Market, An application for farmers using Android Here both farmers and purchasers can log in to the application. Farmers can give complete details of their products. A purchaser can select from the various products of the application and this application shows the road map to the farmer who has a particular crop within him with the distance and price.

Georgia Athanasopoulou et.al. eMatch [7] An Android application for finding friends in your location. People can rate interest categories on their scale range of ten. Friends of the same categories are being tracked and viewed by users. They implement an algorithm to carry out the matching of one set of an interested person with the other and then connect each.

Manav Singhal, Krishi Ville [8] Android-based Solution for Indian Agriculture Information and Communication Technology (ICT) in agriculture is an emerging field focusing on the enhancement of agricultural and rural development in India. It involves innovative applications using ICT in the rural domain. They can use the advancement of ICT to provide accurate and timely, relevant information and services to the farmers, facilitating an environment for remunerative agriculture. This paper describes a mobile-based application for farmers that would help them in their farming activities. Android-based mobile application Krishi-Ville which would take care of the updates of the different agricultural commodities, weather forecast updates, and agricultural news updates.

Yanshan Wang, et al. [9] Clinical information extraction applications. This is an interdisciplinary field of medicine and computer science. Developing a clinical NLP talent is very difficult because of the limited availability of clinical data and analysis of data sources used in clinical information research and also hope to provide addressing the data challenge in this domain. It provided a list of clinical IE tools used in the articles. This paper summarizes their characteristics (what tools are used for what specific tasks) and their licenses. The methodologies adopted in clinical IE showed finally. It describes the practical applications of the clinical domain, including disease areas that have been studied, drug-related studies, and the utility of IE for optimizing clinical workflow

CHAPTER – 3

REQUIREMENTS & SPECIFICATIONS

3.1 FUNCTIONAL REQUIREMENTS

This application provides a convenient platform for farmers and consumers to connect, exchange information, and conduct business transactions in the digital realm. The application can act as a virtual marketplace where farmers can advertise their products and services, and consumers can browse and purchase these offerings with ease. This application can be designed to be user-friendly, with an intuitive interface that makes it easy for farmers to upload product information and for consumers to search for products based on their preferences. The application can encourage farmers to adopt environmentally-friendly practices, such as organic farming, and promote products that are sustainably produced. This can help create a more environmentally conscious market and support the development of sustainable farming practices.

3.2 HARDWARE REQUIREMENTS

- Preprocessor : Core i3
- RAM : 4GB
- Hard disk : 500GB
- Speed : 4.2GHz

3.3 SOFTWARE REQUIREMENTS

- Operating System : Up to Windows 11
- Application : Visual Studio, XAMPP
- Languages used : HTML, CSS, PHP, Javascript

3.4 LANGUAGE DESCRIPTION

3.4.1 HTML

HTML (Hypertext Markup Language) is a markup language used for creating web pages and web applications. In the context of system requirements, HTML is used to define the visual and structural elements of a user interface. It is used to define the page structure, navigation elements, and forms. HTML provides a standardized way to create web pages that can be accessed on any device with a web browser. It allows for the separation of content and presentation, making it easier to maintain and update the system. Overall, HTML plays a critical role in the development of user interfaces for web-based systems, providing a standardized and flexible way to create engaging and interactive user experiences. HTML5 was first released in a public-facing form on 22 January 2008, with a major update and "W3C Recommendation" status in October 2014. Its goals were to improve the language with support for the latest multimedia and other new features; to keep the language both easily readable by humans and consistently understood by computers and devices such as web browsers, parsers, etc., without XHTML's rigidity; and to remain backward-compatible with older software.

3.4.2 CSS

CSS (Cascading Style Sheets) is a style sheet language used for describing the presentation of a document written in HTML or other markup languages. CSS is used to define the visual appearance of a user interface. The features of css are given bellow:

• Styling: CSS is used to define the styling of various HTML elements such as fonts, colors, borders, backgrounds, and layout. It allows for the separation of content and presentation, making it easier to maintain and update the system.

• Responsive design: CSS is used to create responsive designs that adapt to different screen sizes and devices. CSS helps to ensure that the user interface looks and functions correctly on desktops, tablets, and smartphones.

• Animations and effects: CSS is used to create animations and other visual effects such as transitions, hover effects, and scroll effects. CSS helps to create engaging and interactive user experiences.

• Accessibility: CSS is used to improve the accessibility of a user interface by providing styles that are compatible with assistive technologies such as screen readers.

3.4.3PHP

PHP (Hypertext Preprocessor) is a server-side scripting language used for web development. PHP is a powerful and versatile language that is well-suited for developing complex web applications providing the necessary functionality and security to ensure a smooth and reliable user experience. The features of PHP are given bellow:

- Server-side scripting: PHP is used for server-side scripting, which means that the PHP code runs on the server before the web page is sent to the user's browser. This allows for dynamic content and interactive features, such as user registration, login, shopping carts, and more.
- Database integration: PHP can be used to connect to databases such as MySQL, allowing for the storage and retrieval of data in web applications. This is essential for e-commerce applications, as it enables users to make purchases, track orders, and manage their accounts.
- Security: PHP includes a variety of security features, such as input validation, encryption, and secure session management, which are essential for protecting user data and preventing unauthorized access to the system.
- Scalability: PHP is highly scalable, allowing for the efficient handling of a large number of user requests and transactions. This is important for e-commerce applications that may experience high levels of traffic during peak periods.
- Open source: PHP is an open source language, which means that it is freely available and can be customized to meet the specific needs of a web application. This makes it a popular choice for web developers and ensures a large community of users and resources.

3.4.4 JAVASCRIPT

JavaScript is a programming language used to create interactive and dynamic web pages. JavaScript is used for client-side scripting, which means that the code runs in the user's web browser. The features of javascript are given bellow:

- User interaction: JavaScript is used to add interactivity to a web page, such as form validation, pop-up messages, drop-down menus, and more. This helps to improve the userexperience and provide a more engaging and dynamic interface.

- Animation and effects: JavaScript is used to create animations and other visual effects such as slideshows, scrolling, and parallax scrolling. This helps to make the user interfacemore visually appealing and engaging.

- DOM manipulation: JavaScript can be used to manipulate the Document Object Model (DOM) of a web page, which allows for dynamic updates and changes to the content. It provides the programming interface to HTML and XML. It defines the logic structure ofa document. It defines the way the document is accessed and manipulated (create, modifyand remove elements in the page dynamically).

- Integration with other technologies: JavaScript can be used to integrate with other technologies such as APIs, Ajax, and JSON. This enables web applications to communicate with servers and other web services, enabling dynamic and real-time updates to content.

CHAPTER -4

SYSTEM DESIGN

4.1 SYSTEM ARCHITETURE

The diagram provides an overview of the different layers and their interactions within your project.

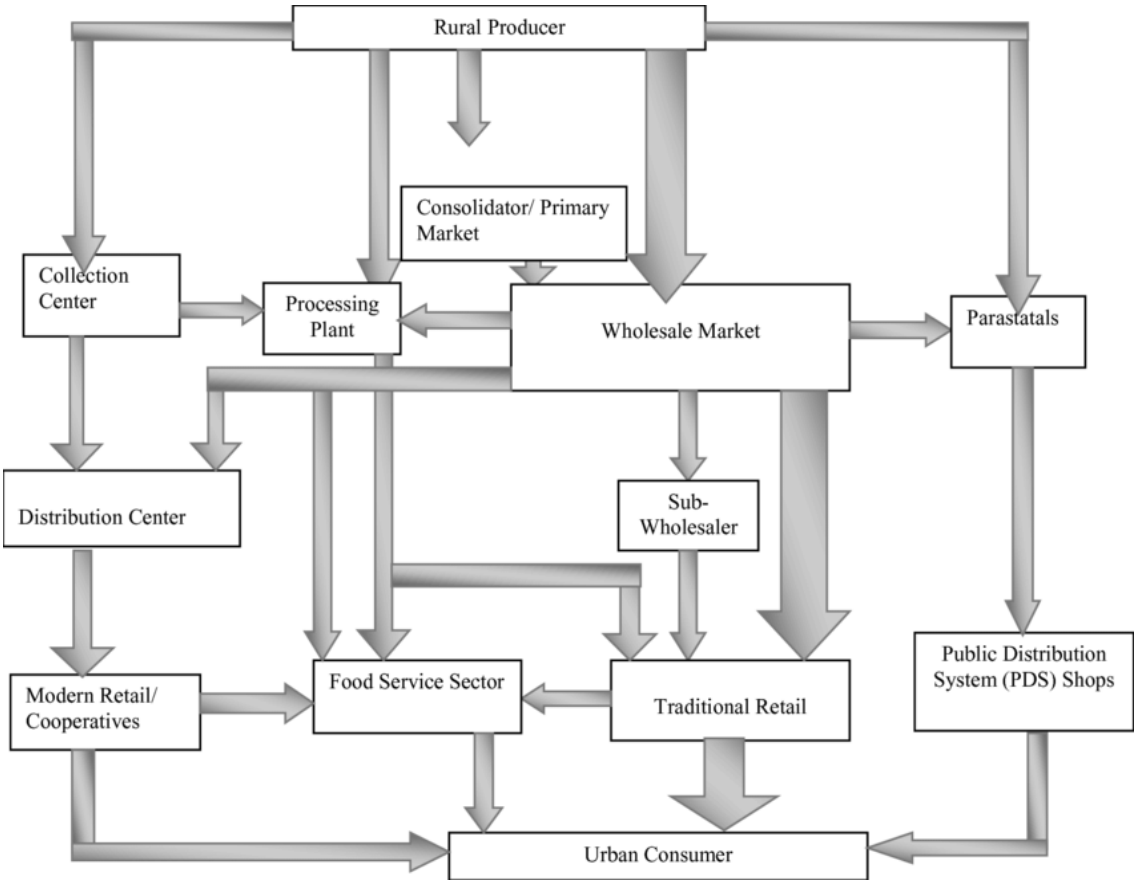


Fig. No.4.1.1 System Architeture

User Interface:

Represents the user interface layer, where farmers and consumers interact with the application. It can include web interfaces, mobile applications, or other user-facing components.

Application Layer:

Contains the core application logic and functionality. Handles user requests, processes business logic, and orchestrates interactions between various components.

Database:

Represents the data storage component. Stores information about farmers, products, consumers, and other relevant data for the application. Provides data retrieval and persistence capabilities.

4.2 SEQUENCE DIAGRAM

A sequence diagram or system sequence diagram shows process interactions arranged in time sequence in the field of software engineering. It depicts the processes and objects involved and the sequence of messages exchanged between the processes and objects needed to carry out the functionality.

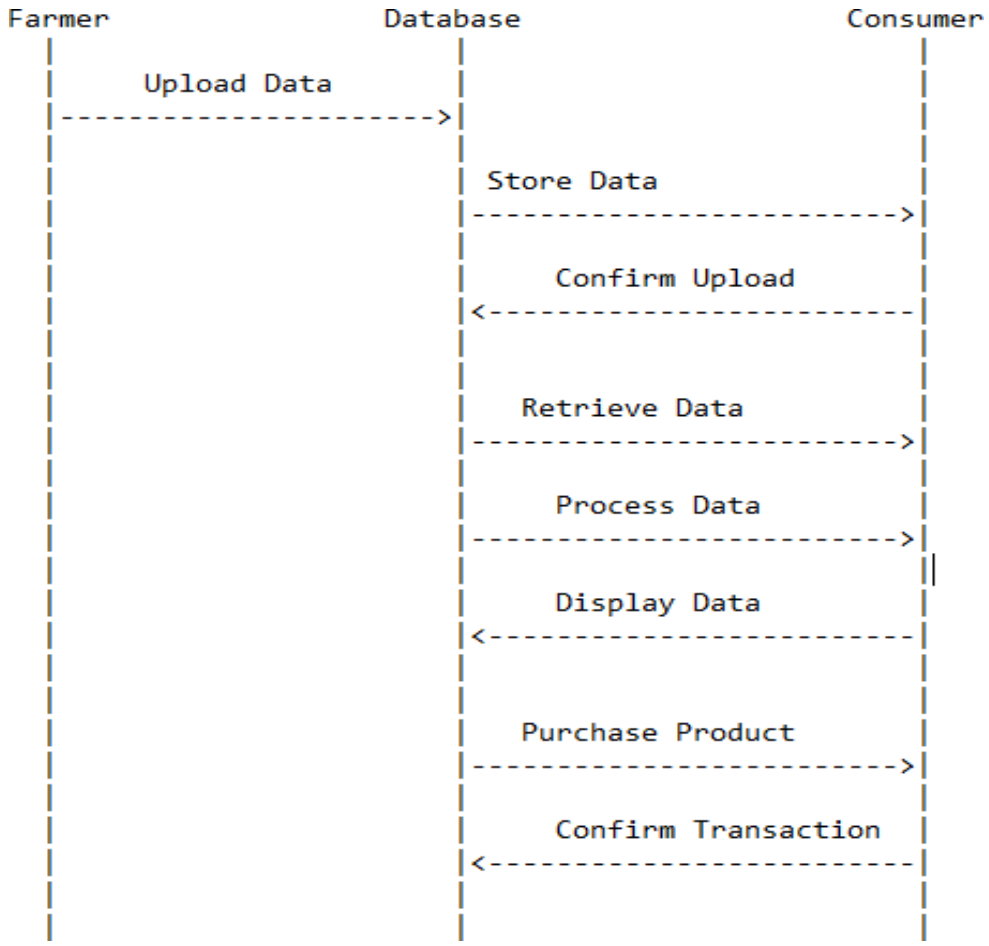


Fig. No. 4.2.1 Sequence Diagram

In this sequence diagram, the farmer initiates the interaction by uploading their data to the database. The consumer then retrieves the data, which is displayed to them. The consumer can then choose to purchase a product, and the transaction is confirmed.

4.3 ENTITY RELATIONSHIP DIAGRAM

An Entity-Relationship (ER) diagram is a visual representation of the entities, relationships, attributes, and constraints within a system or domain. It is a conceptual modeling tool used in software engineering and database design to represent the structure of a database.

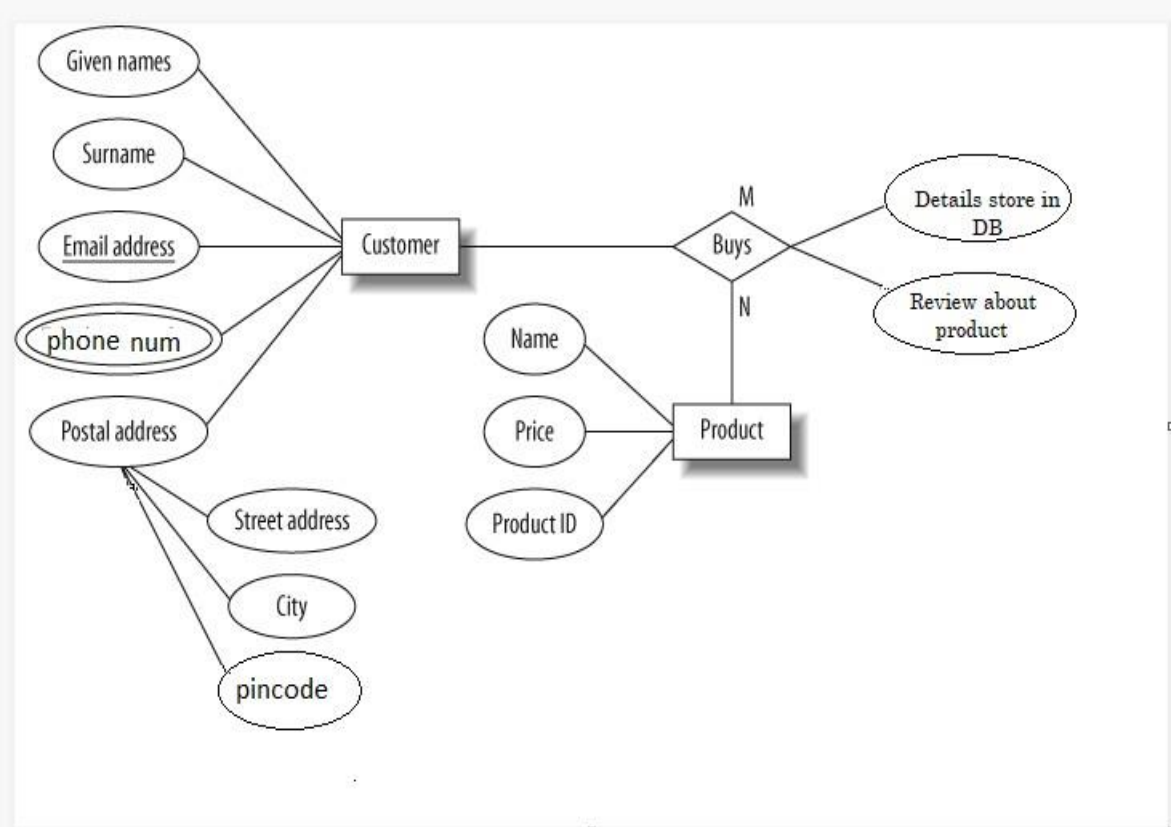


Fig. No.4.3.1 Entity Relationship Diagram

It helps in designing and understanding the structure of a database or information system by presenting the entities as rectangles, attributes as ovals, and relationships as lines connecting the entities. An ER diagram is a powerful tool used in database design and systems analysis.

CHAPTER - 5

SYSTEM IMPLEMENTATION

5.1 MODULE DESCRIPTION

The system defined as the four modules, they are

- Login Module
- Farmer Page Module
- Consumer Page Module
- Report Module

5.1.1 LOGIN MODULE

The login module is an essential component of a system that enables farmers and consumers to access the system with their respective credentials. It provides a secure and convenient way for users to authenticate themselves and gain access to the features and functionalities of the system. This module allows new users, both farmers and consumers, to register by providing their necessary information such as name, email address, contact details, and any other required details. This information is stored securely in the system's database for future reference. The module ensures the security of the system by verifying the authenticity of the user's credentials. It checks if the provided username and password match the ones stored during registration.

If the credentials are valid, the user is granted access to the system. Once registered, users can access the system by entering their login credentials, such as a username and password. The login interface validates the entered credentials against the stored user data in the database. The login module could provide a password recovery function in order to help users who might forget their passwords. This may entail providing a link to reset the password tothe user's registered email address or asking the user a series of security questions to confirm their identity. The login module is crucial for system security, user management, and personalized user experiences. By implementing this module effectively, both farmers and consumers can securely access the system and utilize its features based on their specific roles andpermissions.

5.2 FARMER PAGE MODULE

Farmers can oversee their products, involve with customers, track sales, and access key tools and information relevant to their farming activities using the Farmer Page module, which offers a full user interface. It aims to increase communication, improve farming procedures, and give farmers useful information to help them run their farms more efficiently. In order to give farmers within the system a specific interface, the Farmer Page module was created. Farmers can use it as a platform to manage their products, engage with customers, and access various functions pertaining to their farming operations.

5.2.1 PRODUCT MANAGEMENT

The Farmer Page allows farmers to manage their products. When necessary, they can add new items to their inventory, change product information (such as name, description, price, and quantity), and delete or designate items as sold out. It allows farmers to keep track of their available inventory. Farmers can view the current stock of each product, monitor the quantity of items sold, and receive notifications when their stock is running low.

5.2.2 PROFILE MANAGEMENT

A farmer's contact information, farm location, and any unique credentials or qualifications can all be updated and maintained. Consumers can build trust by learning more about the farmers thanks to this information. They can view order details, such as the products ordered, quantity, and customer information.

5.2.3 OVERVIEW

The performance of their sales, popular items, client preferences, and other relevant data are all accessible to farmers in reports and insights. Such statistics can aid farmers in decision-making and routine improvement. Farmers can respond to inquiries, address customer concerns, provide updates on product availability, and negotiate deals or offers.

5.3 CONSUMER PAGE MODULE

The Consumer Page module aims to provide consumers with a user-friendly and convenient interface to explore agricultural products, make purchases, communicate with farmers, and track their orders. The Consumer Page module is designed to provide a dedicated interface for consumers within the system. It serves as a platform where consumers can browse and search for products, place orders, interact with farmers, and access various features related totheir purchasing activities.

5.3.1 PRODUCT DETAILS

In general, the module has a product brochure where customers may browse and look for different agricultural goods supplied by farmers. Each product's name, description, price, availability, and any pertinent certifications or quality labels are all included in the catalog's full details.

5.3.2 ADD TO CART

Consumers may have the option to save their favorite products or create a wishlist for future reference. This feature allows them to easily access and revisit products they are interestedin without having to search for them again.

5.3.3 REVIEWS

Customers may be able to leave reviews and ratings for the things they have purchased using the module's possible feature. This makes it possible for users to exchange opinions, insights, and recommendations with one another, enhancing the system's general openness and credibility.

5.4 REPORT

The Report module empowers users to extract meaningful information from the system's data and transform it into actionable insights. This module is designed to provide a platform where users can generate and access various reports within the system. It enables users to extract valuable insights, statistics, and data summaries for analysis, decision-making, and record- keeping purposes.

5.4.1 DATA VISUALIZATION

Data visualization in the Report module presents information through graphs, charts, and tables, aiding users in understanding trends and patterns quickly and effectively. Data visualization techniques are frequently used in reports within the module to convey information in a simple and understandable way. This helps users easily comprehend patterns, trends, and relationships within the data, facilitating effective analysis, decision-making, and communicationof insights.

5.4.2 GENARATING REPORT

Users of the module can produce reports using particular criteria and parameters. Users can choose the type of report they want to create, such as sales, inventory, financial, or performance reports. To customize the resulting report, they can choose the time period, filters, and other pertinent criteria. Users may have the option to customize the layout, format, and content of the generated reports. Recurring reports can be set up by users to be created at certain intervals (e.g., daily, weekly, or monthly) and sent to specified recipients through email or other communication channels.

5.4.3 SECURITY

The Report Page module may include security measures and access controls to ensure that generated reports are accessible only to authorized users. User roles and permissions can be applied to determine who can generate, view, or modify reports within the system.

CHAPTER -6
SYSTEM TESTING

In order to test the validity of the system, there are four possible testing steps are carried out. The details of testing activities are listed below.

a. Unit testing
b. Integration testing
c. System testing
d. Recovery testing
e. Performance Testing
f. Usability Testing

6.1 Unit Testing

The programme is subjected to tests that focus on specific units or components of the system to determine whether each one is completely functional during this first round of testing. The primary goal of this project is to see if the application works as intended. A unit can refer to a function, an individual programme, or even a method in this phase, while a white-box can refer to anything. To complete the task, the testing method is commonly used. One of the most significant advantages of this testing phase is that it may be executed every time a piece of code is modified, allowing problems to be fixed as promptly as possible. Before submitting software to testers for formal testing, software engineers frequently conduct unit tests.

In our system, embedding, extraction and evaluation models are tested separately for testing their functionalities. The system used nearly 50 different images in different format is tested and verified.

6.2 Integration Testing

Individuals can use integration testing to merge all of the modules in a system and test them all at once. This level of testing is intended to discover problems in the interfaces between modules and functions. This is especially advantageous because it determines how well the components work together. Keep in mind that no matter how well each modules runs, if they aren't correctly integrated, the system functionality will suffer. Individuals can use a variety of testing methodologies to conduct these types of tests, but the method that will be utilized to complete the task will be heavily influenced by how the units are defined.

In this system, all the three modules are combined using bottom-up approach and test is carried out with nearly 50 images of different format. All the modules are working fine without any deviation.

6.3 System Testing

System testing is the first level of testing in which the entire application is examined. At this level, the purpose is to determine whether the system has met all of the requirements and to ensure that it fulfils quality standards. Independent testers who were not involved in the development of the application perform system testing. This testing is carried out in a setting that closely resembles that of production. System testing is critical because it ensures that the application complies with the customer's technical, functional, and business requirements. Integration part Once completed, to check that the requirements are satisfied or not.

6.4 Recovery Testing

Recovery testing evaluates the system's ability to recover from failures or disruptions, such as crashes, hardware failures, or network outages. It verifies that the system can restore data, resume operations, and maintain data integrity.

6.5 Performance Testing:

Performance testing evaluates the system's performance and scalability under various workload conditions. It assesses factors such as response time, throughput, resource utilization, and stability to ensure the system meets performance expectations.

6.6 Usability Testing

Usability testing assesses the system's user-friendliness and measures how easily users can navigate and interact with the software. It focuses on aspects such as user interface design, accessibility, and user satisfaction.

CHAPTER-7

CONCLUSION AND FUTURE ENHANCEMENT

7.1 CONCLUSION

Agricultural applications have become increasingly important in modern farming practices, offering numerous benefits to farmers, agricultural researchers, and the overall industry. Through the integration of technology, data analytics, and automation, these applications have revolutionized the way farmers manage their crops, optimize resources, and make informed decisions. They have contributed to increased productivity, reduced environmental impact, and improved profitability in the agricultural sector

In conclusion, agricultural applications have significantly transformed the agricultural sector, and future enhancements should focus on precision farming, leveraging machine learning and AI, IoT integration, crop-specific solutions, blockchain technology, climate adaptation, and farmer education and accessibility. These advancements have the potential to further optimize farming practices, increase productivity, and ensure sustainable and profitable agriculture in the years to come.

7.2 FUTURE ENHANCEMNET

E-commerce Integration: Enhancing agricultural product sales applications with e-commerce capabilities can enable farmers to directly sell their products online. This integration can provide a wider customer reach, streamline the ordering process, and facilitate secure online transactions.

Mobile App Development: Developing mobile applications specifically designed for agricultural product sales can offer farmers and buyers a convenient platform for browsing products, placing orders, and receiving notifications. Mobile apps can also provide personalized recommendations based on user preferences and location.

Supply Chain Transparency: Enhancing agricultural product sales applications with blockchain technology can improve transparency and traceability throughout the supply chain. Buyers can have access to detailed information about the origin, production methods, and quality of the agricultural products, ensuring trust and promoting sustainable practices.

Geolocation and Delivery Tracking: Incorporating geolocation features and real-time delivery tracking into agricultural product sales applications can provide buyers with accurate information about the delivery status of their orders. This enhances customer satisfaction and improves logistics efficiency.

Integration with Payment Gateways: Streamlining the payment process by integrating agricultural product sales applications with secure payment gateways can simplify transactions for both farmers and buyers. Multiple payment options, including online banking, digital wallets, and credit/debit cards, should be supported to cater to a broader customer base.

Customer Reviews and Ratings: Including customer review and rating features in agricultural product sales applications can help build trust and credibility among potential buyers. Farmers can receive feedback on their products, enabling them to improve quality and better understand customer preferences.

Integration with Social Media: Allowing users to share product listings and promotions on social media platforms can help increase visibility and attract a larger audience. Integration with social media channels can also enable farmers to engage directly with customers, respond to queries, and build relationships.

Analytics and Insights: Providing farmers with analytics and insights on sales performance, customer preferences, and market trends can empower them to make data-driven decisions. Aggregated data can help farmers identify opportunities, optimize pricing strategies, and improve overall sales effectiveness.

Collaboration and Networking: Enhancing agricultural product sales applications with features that facilitate collaboration and networking among farmers, buyers, and other stakeholders can create a community-driven platform. This can encourage knowledge sharing, joint marketing efforts, and partnerships for collective growth.

Integration with Agricultural Certifications: Incorporating agricultural certifications, such as organic or fair-trade labels, into product listings can help buyers make informed choices and support sustainable agriculture practices. This integration adds value to the products and enhances their marketability.

APPENDIX – I

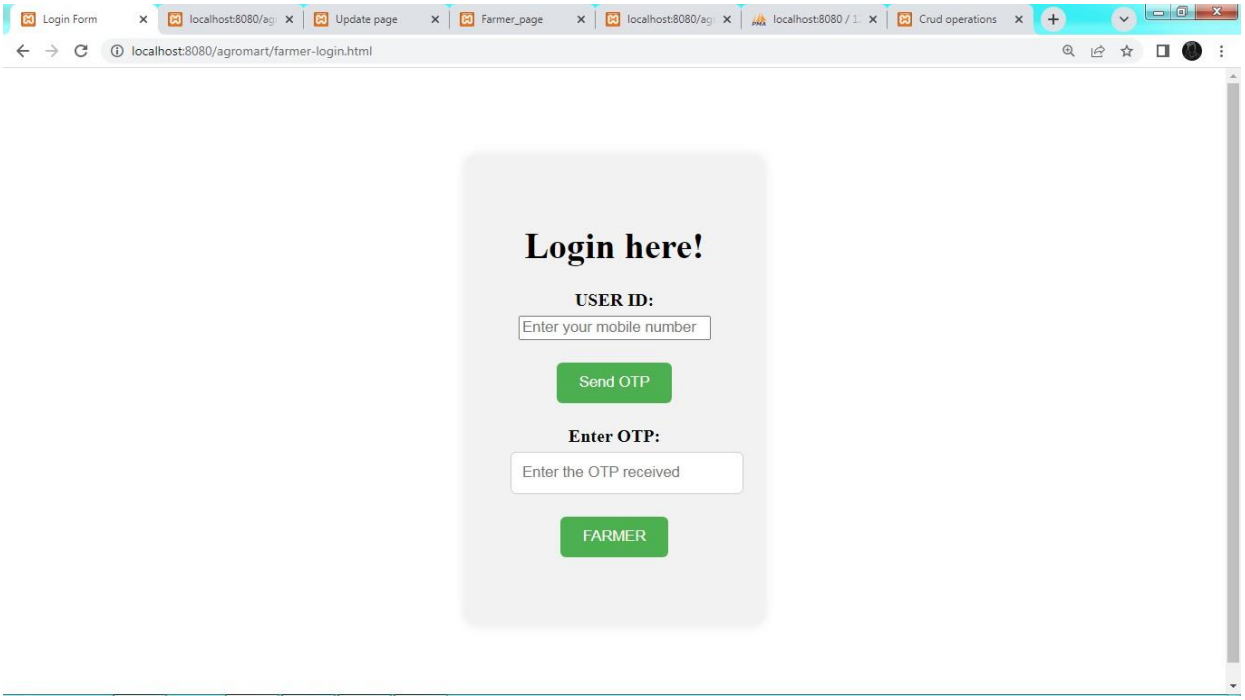
SAMPLE CODE

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta http-equiv="X-UA-Compatible" content="IE=edge">
    <meta name="viewport" content="width=device-width, initial-
scale=1.0">
    <link rel="stylesheet" href="C:\xampp\htdocs\mn\style.css">
    <title>Login Form</title>

</head>

<body>
    <div class="photo">
        <div class="box">
            <div class="butn">
                <div id="btn"></div>
                <button type="button" class="toggle"
onclick="login()">Log In</button>
                <button type="button" class="toggle"
onclick="register()">Register</button>
            </div>

            <form id="login" class="input" action=" connect.php "
method="post">
                <input type="text" class="inputtext"
placeholder="Username" required>
                <input type="password" class="inputtext"
placeholder="Password" required>
                <button type="submit" class="submit">Log In</button>
            </form>
            <form id="register" class="input" method="post">
                <input type="text" class="inputtext" placeholder="Name"
required>
                <input type="password" class="inputtext"
placeholder="Password" required>
                <select>
```

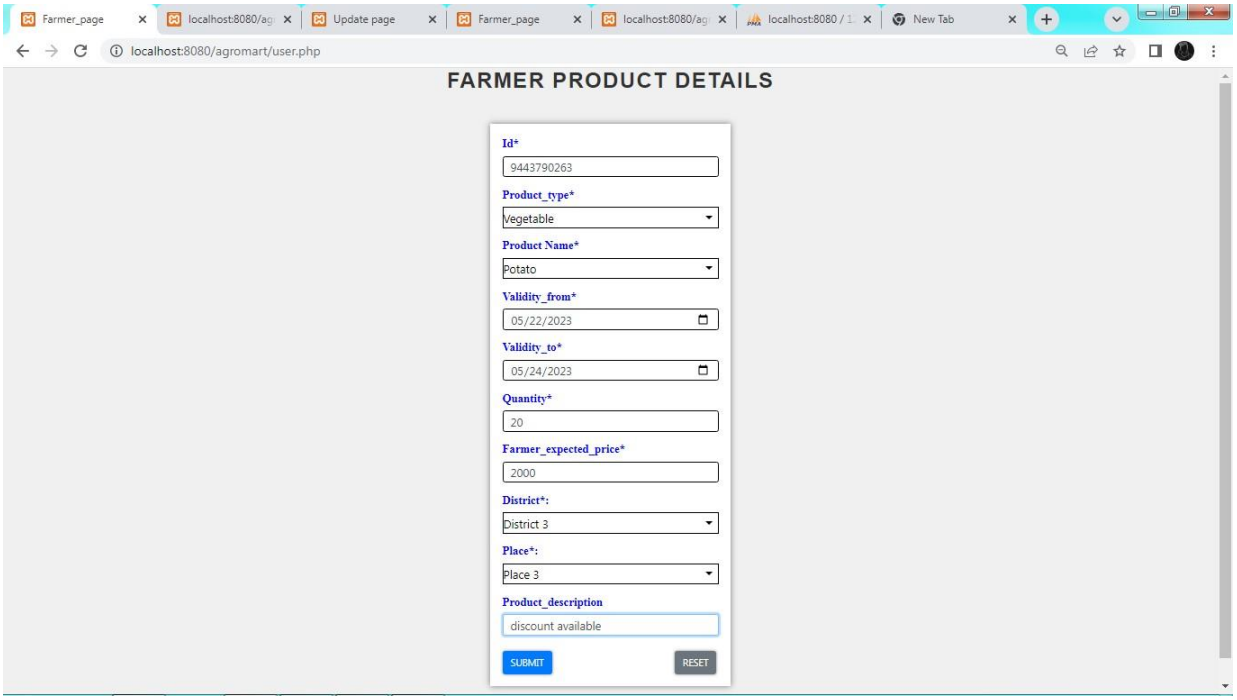
```
                    <option value="farmers">Farmers</option>
                    <option value="vendors">Vendor</option>
                </select>

                <input type="checkbox" class="checkbox"> <span>I agree
with the terms and conditions</span>
                <button type="submit" id="submit">Register</button>
            </form>
        </div>
    </div>


    <script>

        var x = document.getElementById("login");
        var y = document.getElementById("register");
        var z = document.getElementById("btn");
        var vals  =  document.getElementById("vals");
        var submit = document.getElementById("submit");

        submit.addEventListener('click', () => {
            if (vals.value == "farmers") {

            }
            else if (vals.value == "vendors") {

            }
        });
        console.log(vals.value);
        function register() {
            x.style.left = "-400px";
            y.style.left = "50px";
            z.style.left = "110px";
        }

        function login() {
            x.style.left = "50px";
            y.style.left = "450px";
            z.style.left = "0px";
        }

    </script>
</body>
```

```
</html>
<html>

<head>
  <center>
    <tittle><b>Farmer Page</b></tittle>
  </center>
  <link rel="stylesheet" href="C:\xampp\htdocs\mn\m.css">
</head>
<frameset cols="25%" ,"75%">

  <body class="image">
    <a href="C:\xampp\htdocs\mn\farmer.html" class="padding"
title="Home" style="width:77px">
    </a>
    <div class="n">
      <header>UZHAVAN</header>
      <ul>
        <li>
          <a href="C:\xampp\htdocs\mn\index.html"
target="farmer.html">Login</a>
        </li>
        <li><a href="C:\xampp\htdocs\mn\fo.html"
target="farmer.html">Add Products</a></li>
        <li><a href="#section2">Remove Products</a></li>
        <li><a href="#section3">Report</a></li>
      </ul>
    </div>
    <div class="section"></div>

  </body>
</frameset>

</html>
```

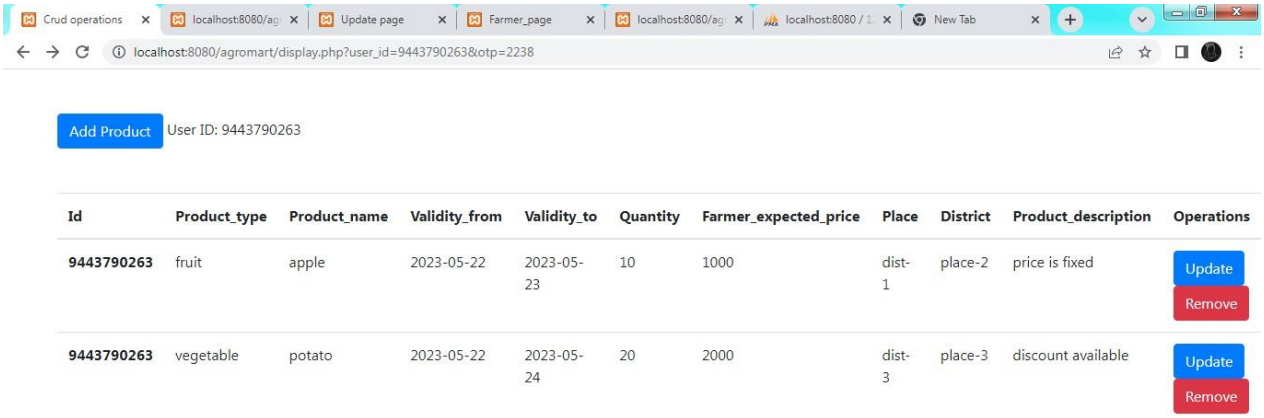
APPENDIX – II

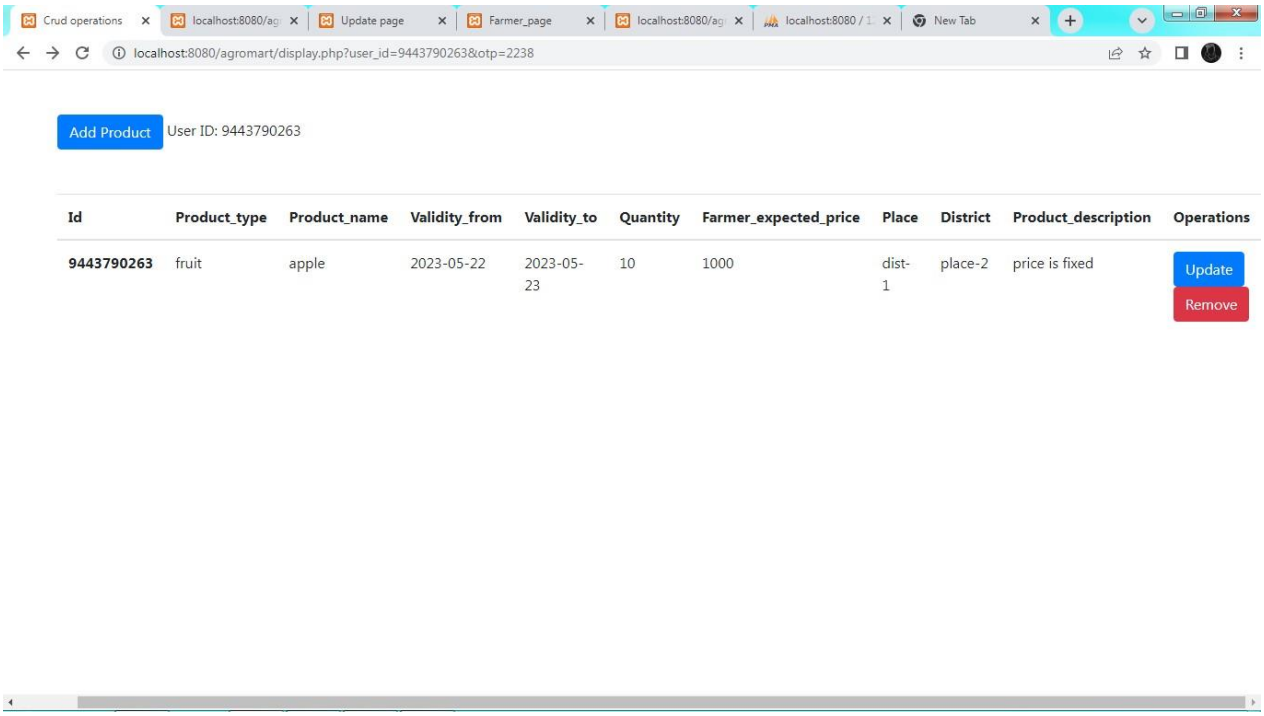


UPLOADING VALUES IN DATABASE

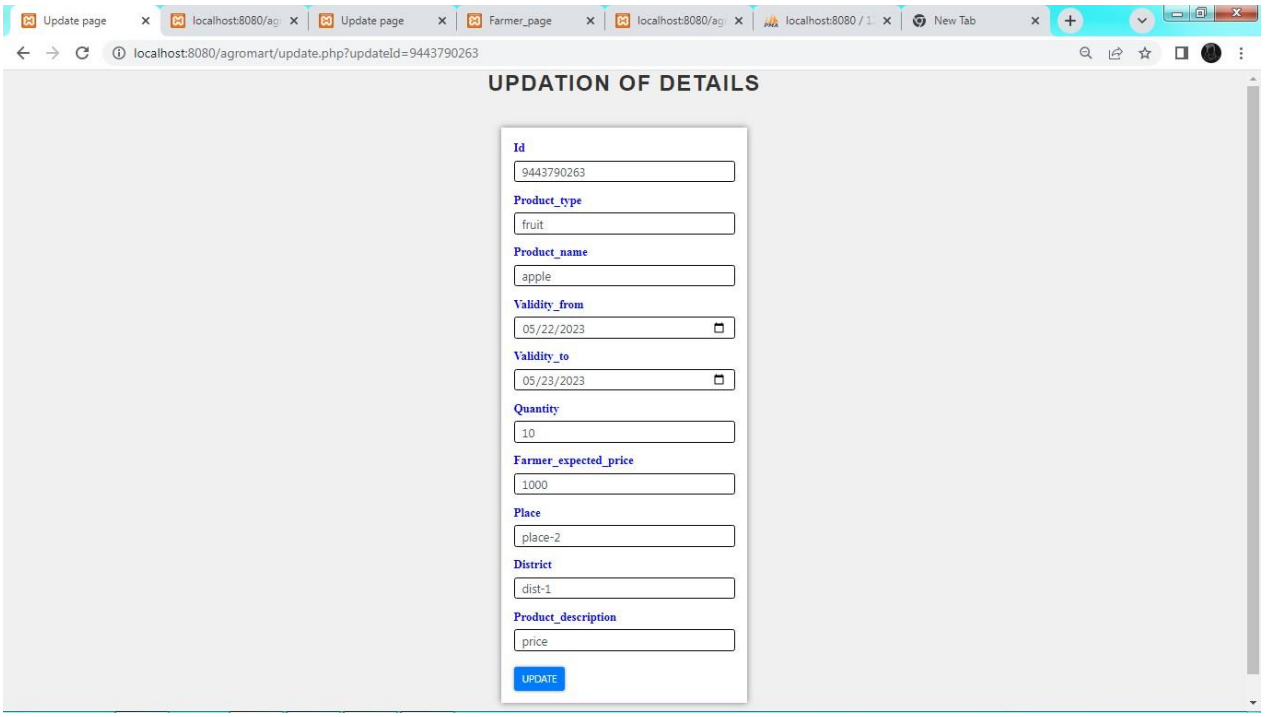


VALUES STORED IN DATABASE

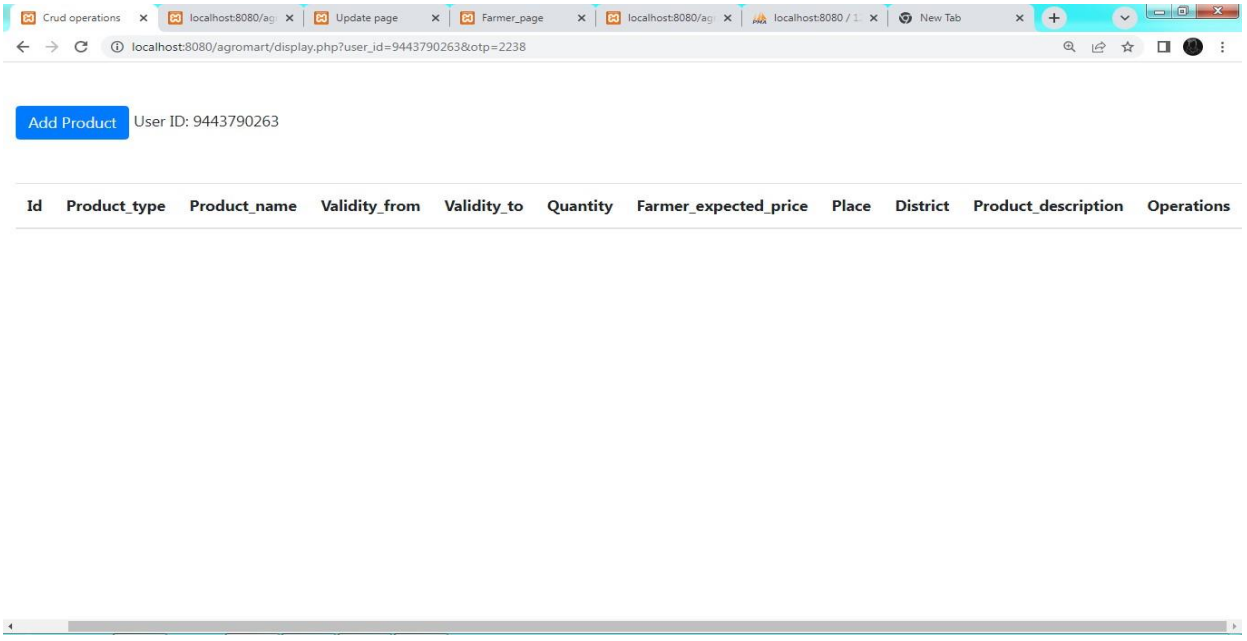




UPDATION OF VALUES



DELETION OF VALUES



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