EX NO. 15 **DBMS MINI PROJECT**

CROP PRODUCTION MANAGEMENT SYSTEM

Abstract:

The Crop Production Management System is a comprehensive database solution designed to revolutionize agricultural management. By centralizing data related to crop production, inventory, and sales, the system aims to streamline processes and enhance efficiency for farmers and agricultural businesses. Leveraging cutting-edge technology, it automates data entry, provides real-time monitoring of inventory levels, and offers actionable insights through robust reporting and analysis functionalities. This transformative tool not only addresses the challenges of manual paperwork and inefficient reporting but also empowers stakeholders with the information needed for informed decision-making and strategic planning. With its user-friendly interface, scalability, and integration capabilities with existing systems such as weather forecasting, the Crop Production Management System stands as a beacon of progress in the agricultural sector, poised to redefine the landscape of crop production and management for generations to come.

Introduction:

In the dynamic and ever-evolving landscape of agriculture, efficient management of crop production and sales activities stands as a cornerstone for the sustenance and growth of farmers and agricultural businesses alike. However, traditional methods of managing these crucial processes have long been plagued by inherent challenges, impeding productivity and hindering progress. The introduction of the Crop Production Management System heralds a transformative era in agricultural management, offering a sophisticated solution tailored to address the multifaceted challenges faced by stakeholders in the industry.

Traditionally, agriculture has relied heavily on manual paperwork as the primary method of data recording and management. This approach, while deeply ingrained, is fraught with inefficiencies, inaccuracies, and laborious processes. Farmers and agricultural businesses grapple with the arduous task of manually documenting crop production activities, maintaining inventory records, and tracking sales transactions, often leading to errors and delays that can have significant

repercussions on productivity and profitability.

The Crop Production Management System represents a concerted effort to confront these obstacles head-on. By leveraging cutting-edge database technology, the system aims to automate key processes, ushering in a new era of efficiency and precision. Gone are the days of labor-intensive paperwork; instead, stakeholders can now rely on a centralized platform to streamline operations, optimize resource allocation, and empower decision-making with real-time insights.

At its core, the system is designed to offer enhanced visibility, transparency, and control over agricultural operations. By centralizing data pertaining to crop production, inventory management, and sales transactions, the system mitigates the risks associated with disparate data sources and provides stakeholders with a unified platform for managing their operations. This centralized repository not only facilitates informed decision-making but also enables proactive adjustments in response to changing market dynamics and environmental factors.

Furthermore, the system's emphasis on automation extends beyond data entry to encompass inventory management, sales tracking, and reporting functionalities. By automating routine tasks, the system minimizes human error, accelerates processes, and liberates valuable resources that can be redirected towards strategic endeavors. This automation not only enhances operational efficiency but also empowers stakeholders to focus their energies on value-added activities, driving productivity and profitability in the agricultural sector.

Problem Statement:

Traditional methods of managing crop production and sales are plagued by manual data entry processes, lack of real-time monitoring, limited inventory management capabilities, and inefficient reporting. These challenges hinder productivity and profitability, necessitating the development of a Crop Production Management System. By leveraging a centralized database, this system aims to automate data entry, streamline inventory management, track sales transactions, and provide actionable insights for farmers and agricultural businesses. Addressing these issues will empower stakeholders to make informed decisions, optimize resource allocation, and enhance overall efficiency in crop production and sales management.

Objectives:

The objectives of the Crop Production and Sales Management System project are as follows:

1. **Centralized Database Management:** Develop a centralized database to record crop production data, manage inventory, and track sales transactions in real-time.
2. **Automation of Data Entry**: Implement automated data entry processes to reduce manual paperwork and minimize errors in recording crop production activities.
3. **Real-time Monitoring of Inventory**: Provide real-time monitoring of inventory levels to ensure timely replenishment and optimize resource utilization.
4. **Sales Transaction Tracking**: Enable tracking of sales transactions to monitor revenue, analyze sales trends, and identify opportunities for growth.
5. **Reporting and Analysis**: Generate reports and insights for informed decision-making, resource planning, and strategic management of crop production and sales activities.
6. **User-Friendly Interface**: Design a user-friendly interface that is intuitive and easy to navigate for farmers and agricultural businesses.
7. **Scalability and Flexibility**: Design the system to be scalable and flexible to accommodate the changing needs and growth of the agricultural sector.
8. **Integration with Existing Systems**: Integrate the Crop Production and Sales Management System with other relevant systems, such as weather forecasting and market analysis tools, to enhance functionality and efficiency.
9. **Training and Support**: Provide comprehensive training and ongoing support to users to ensure effective utilization of the system and address any queries or issues that may arise.

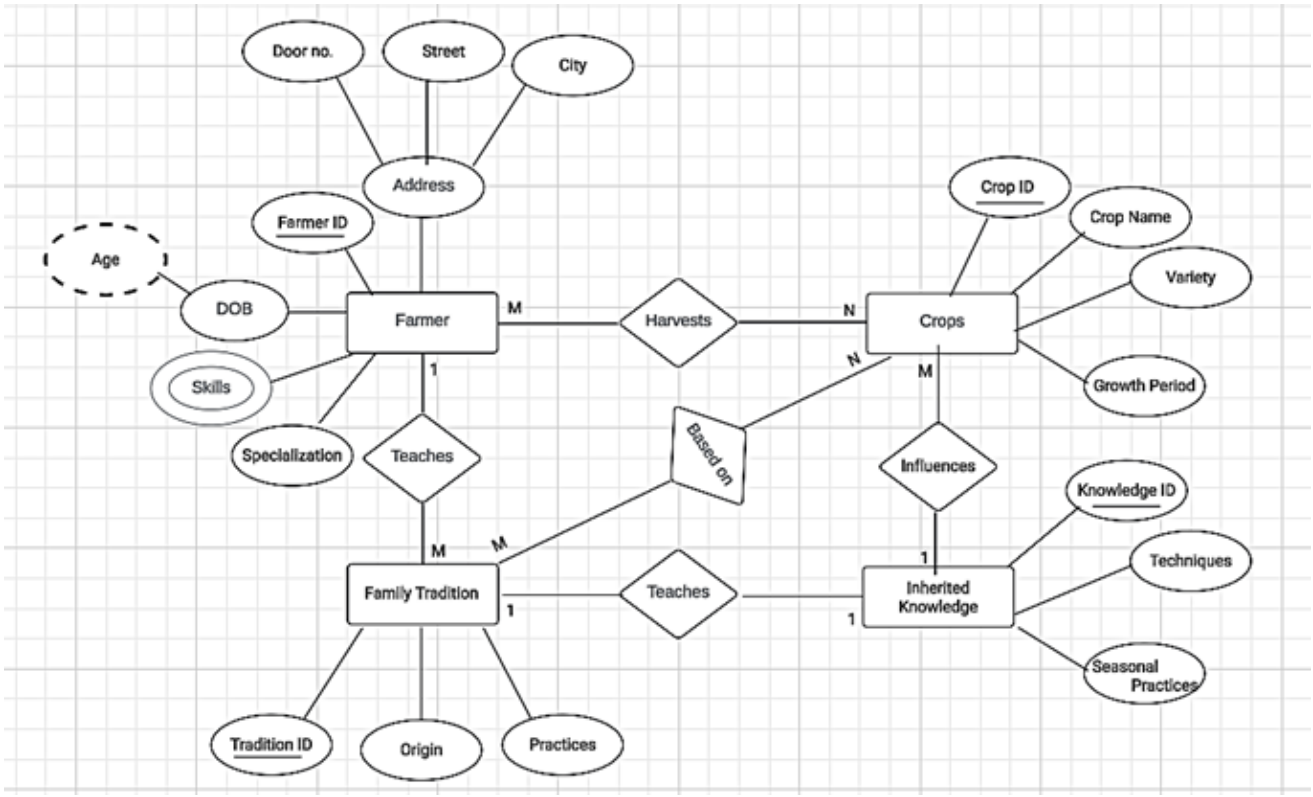
By achieving these objectives, the Crop Production Management System aims to revolutionize crop management practices, enhance productivity, and drive growth in the agricultural sector.

E-R Diagram:

In the Crop Production and Sales Management System's Entity-Relationship (ER) Diagram, the vital connection between farmers and crops underscores the essence of agricultural management. Farmers, represented within the system, embody a wealth of tradition, inherited knowledge, and expertise passed down through generations. Their attributes reflect not just names and locations but also the deeply ingrained agricultural practices and preferences that shape their approach to cultivation.

At the heart of this relationship lies the "harvests" entity, serving as a conduit between farmers and crops. Each instance of harvest recorded within this entity signifies not just a yield of produce but a culmination of the farmer's dedication, expertise, and adherence to tradition. From crop preferences to specialized techniques, the harvests entity encapsulates the unique agricultural journey of each farmer, reflecting their deep-rooted connection to the land and its bounty.

Through the ER Diagram, this intricate relationship is visually depicted, emphasizing the symbiotic bond between farmers and crops. As farmers sow the seeds of tradition and inherited knowledge, their labor culminates in bountiful harvests, each a testament to their commitment to the land and its cultivation. In essence, the ER Diagram serves as a testament to the rich tapestry of agricultural heritage woven by farmers, highlighting their indispensable role in the cultivation and management of crops within the Crop Production and Sales Management System.



Code:

```
CREATE TABLE agri_tips (
  id int(11) NOT NULL,
  description varchar(200) NOT NULL,
  region varchar(200) NOT NULL,
```

```
  type varchar(200) NOT NULL,
  date_t varchar(30) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

--
-- Dumping data for table agri_tips
--

INSERT INTO agri_tips (id, description, region, type, date_t) VALUES
(2, 'insecticide Thiamethoxam 30% SC, 21% SC, good control effect on rice planthopper
     Usage method 1. To control rice planthopper, 25% thiamethoxazine ', 'Harare',
     'Agricultural Insecticides', '2020-01-12');

-- --------------------------------------------------------

--
-- Table structure for table farmers
--

CREATE TABLE farmers (
  id int(11) NOT NULL,
  name varchar(20) NOT NULL,
  surname varchar(20) NOT NULL,
  phone varchar(20) NOT NULL,
  region varchar(20) NOT NULL,
  joined_date varchar(30) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

--
-- Dumping data for table farmers
--
```

```
INSERT INTO farmers (id, name, surname, phone, region, joined_date) VALUES
(3, 'tapiwa', 'mhishi', '0775011617', 'Harare', '2020-01-12'),
(5, 'Gideon', 'Machuve', '0775509424', 'Harare', '2020-01-12');

-- --------------------------------------------------------

--
-- Table structure for table forecasting
--

CREATE TABLE forecasting (
  id int(11) NOT NULL,
  tempa varchar(20) NOT NULL,
  region varchar(90) NOT NULL,
  daily varchar(90) NOT NULL,
  date_t varchar(30) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=utf8mb4;

--
-- Dumping data for table forecasting
--

INSERT INTO forecasting (id, tempa, region, daily, date_t) VALUES
(1, '24', 'Harare', 'partly Clouds', '12 Jan 2020');

-- --------------------------------------------------------

--
-- Table structure for table users
--

CREATE TABLE users (
```

```
  id int(11) NOT NULL,
  name varchar(20) NOT NULL,
  surname varchar(20) NOT NULL,
  username varchar(20) NOT NULL,
  password varchar(64) NOT NULL,
  type varchar(10) NOT NULL
) ENGINE=InnoDB DEFAULT CHARSET=latin1;

--
-- Dumping data for table users
--

INSERT INTO users (id, name, surname, username, password, type) VALUES
(1, 'john', 'admin', 'admin', '827ccb0eea8a706c4c34a16891f84e7b', 'user'),
(4, 'sam', 'strover', 'samstrover', '827ccb0eea8a706c4c34a16891f84e7b', 'user'),
(5, 'chido', 'makura', '', 'd41d8cd98f00b204e9800998ecf8427e', 'user');

--
-- Indexes for dumped tables
--

--
-- Indexes for table agri_tips
--
ALTER TABLE agri_tips
  ADD PRIMARY KEY (id);

--
-- Indexes for table farmers
--
ALTER TABLE farmers
  ADD PRIMARY KEY (id);
```

```
--
-- Indexes for table forecasting
--
ALTER TABLE forecasting
  ADD PRIMARY KEY (id);

--
-- Indexes for table users
--
ALTER TABLE users
  ADD PRIMARY KEY (id);

--
-- AUTO_INCREMENT for dumped tables
--

--
-- AUTO_INCREMENT for table agri_tips
--
ALTER TABLE agri_tips
  MODIFY id int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;

--
-- AUTO_INCREMENT for table farmers
--
ALTER TABLE farmers
  MODIFY id int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=6;

--
-- AUTO_INCREMENT for table forecasting
--
```

```
ALTER TABLE forecasting
  MODIFY id int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;


--
-- AUTO_INCREMENT for table users
--
ALTER TABLE users
  MODIFY id int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=6;
COMMIT;
```

Demo:

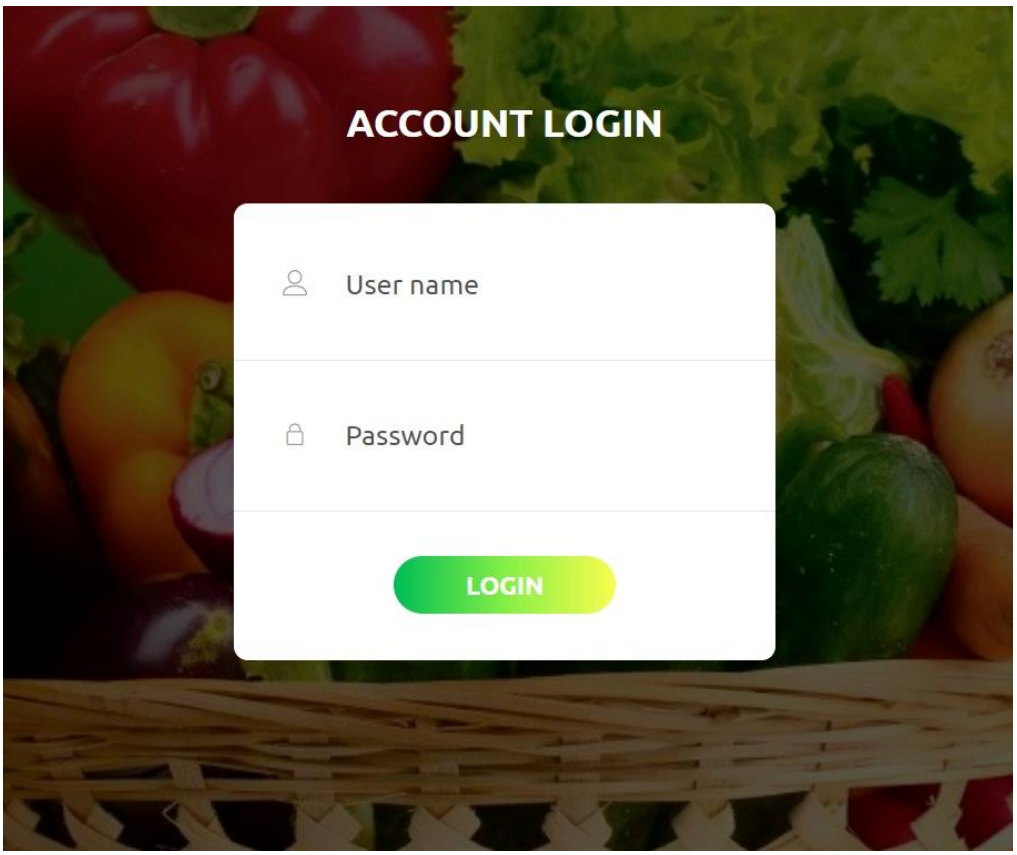


Fig 1: Login page

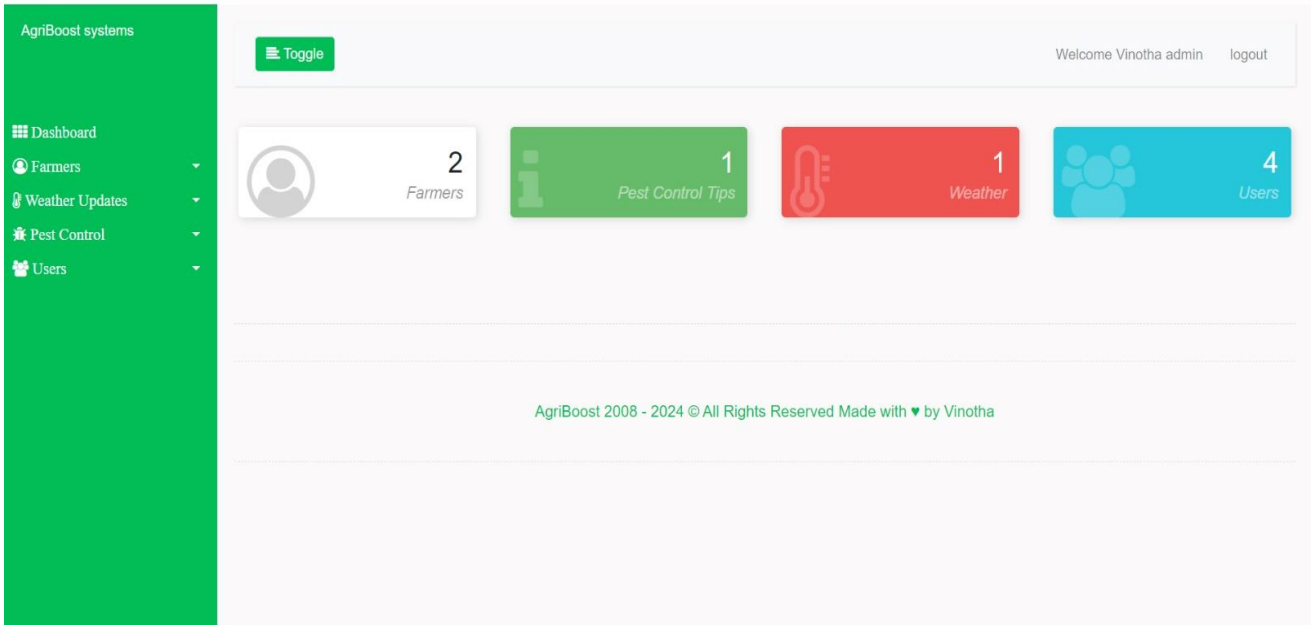


Fig 2: Home Page

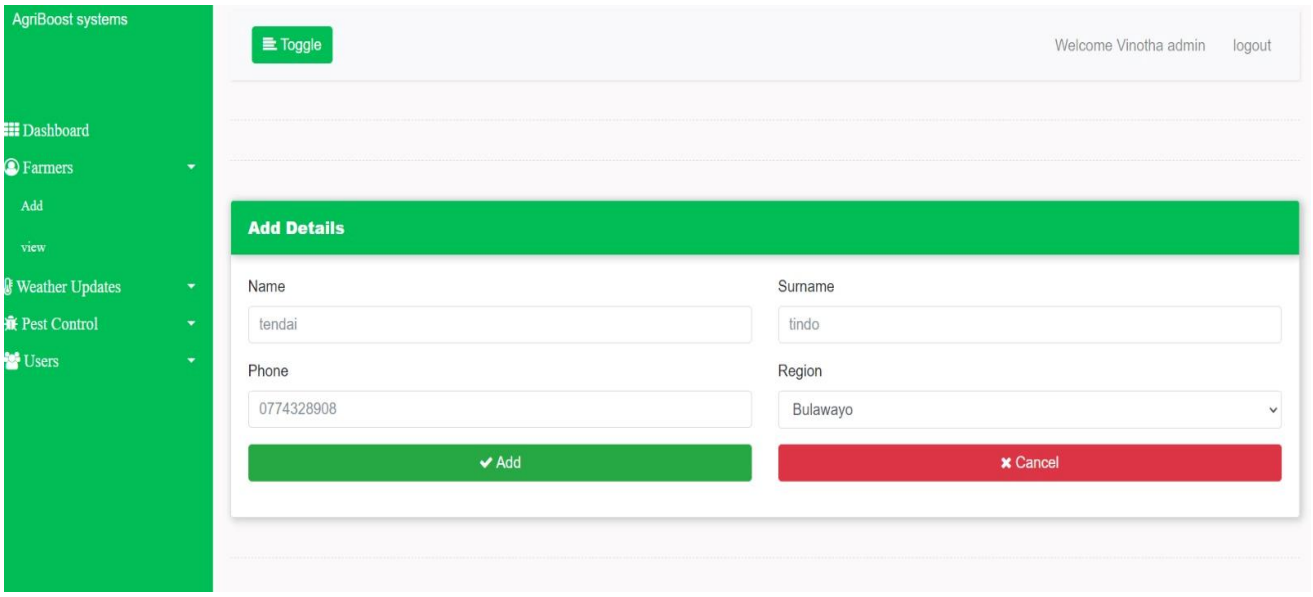


Fig 3: Farmer's Page

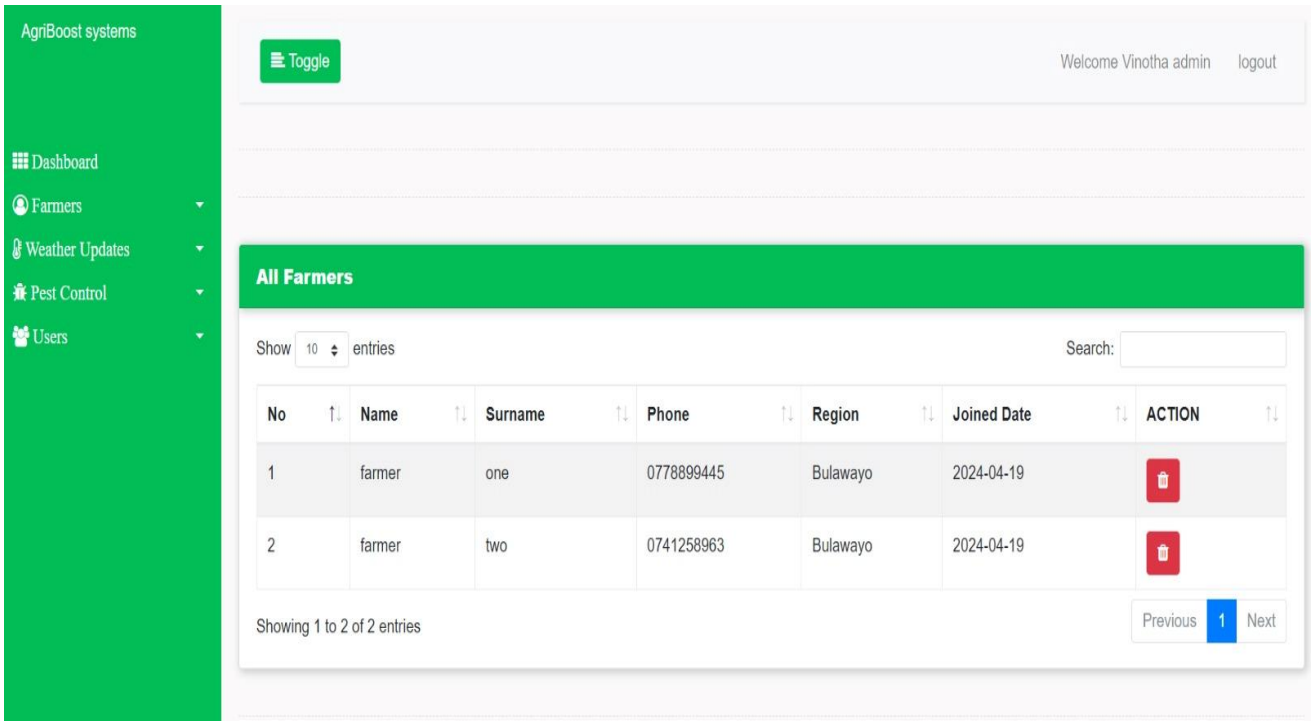


Fig 4: Farmer's Page

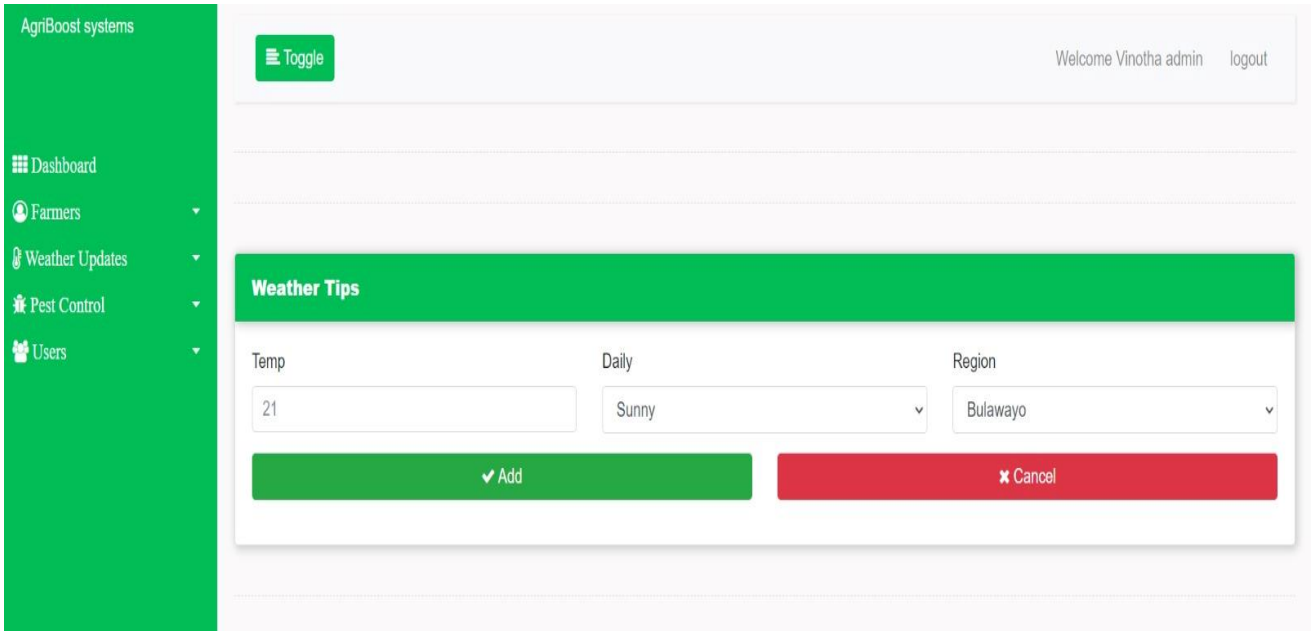


Fig 5: Weather page

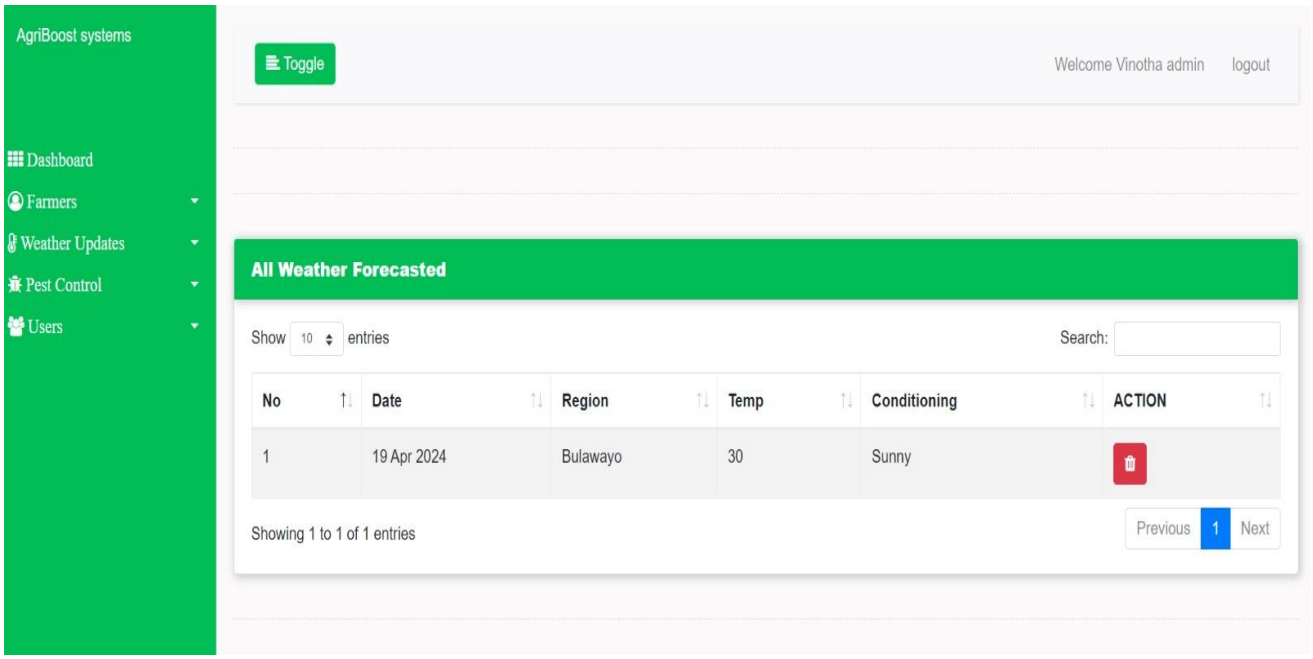


Fig 6: Weather page

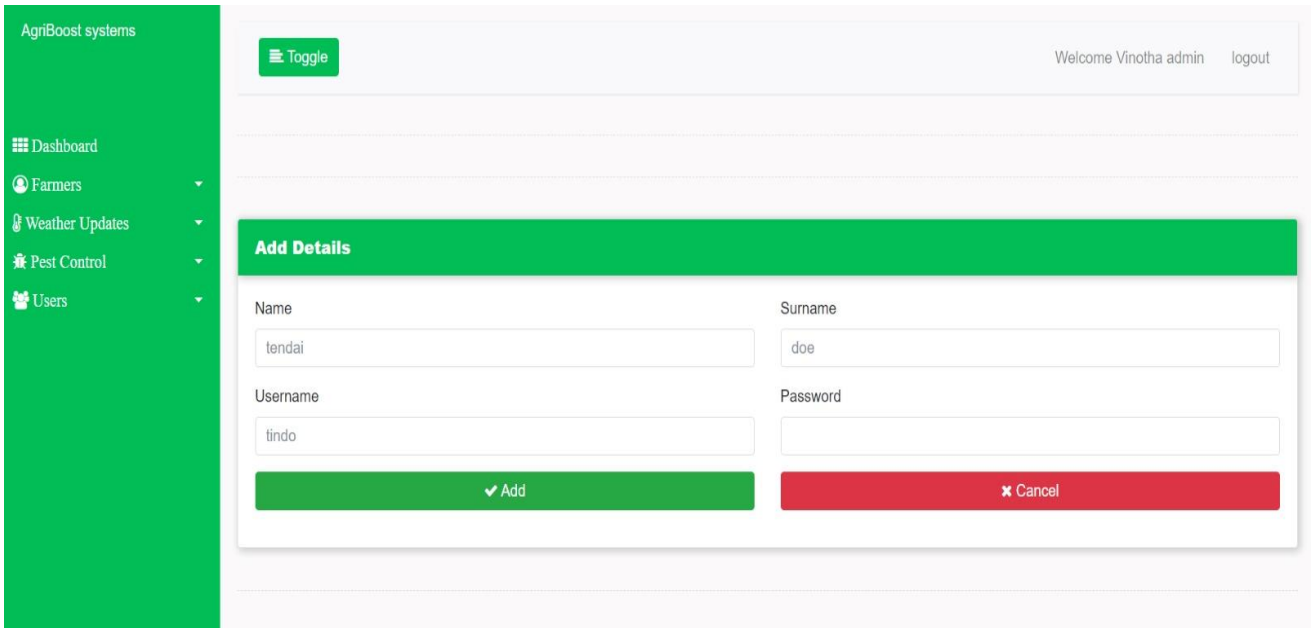


Fig 7: User's page

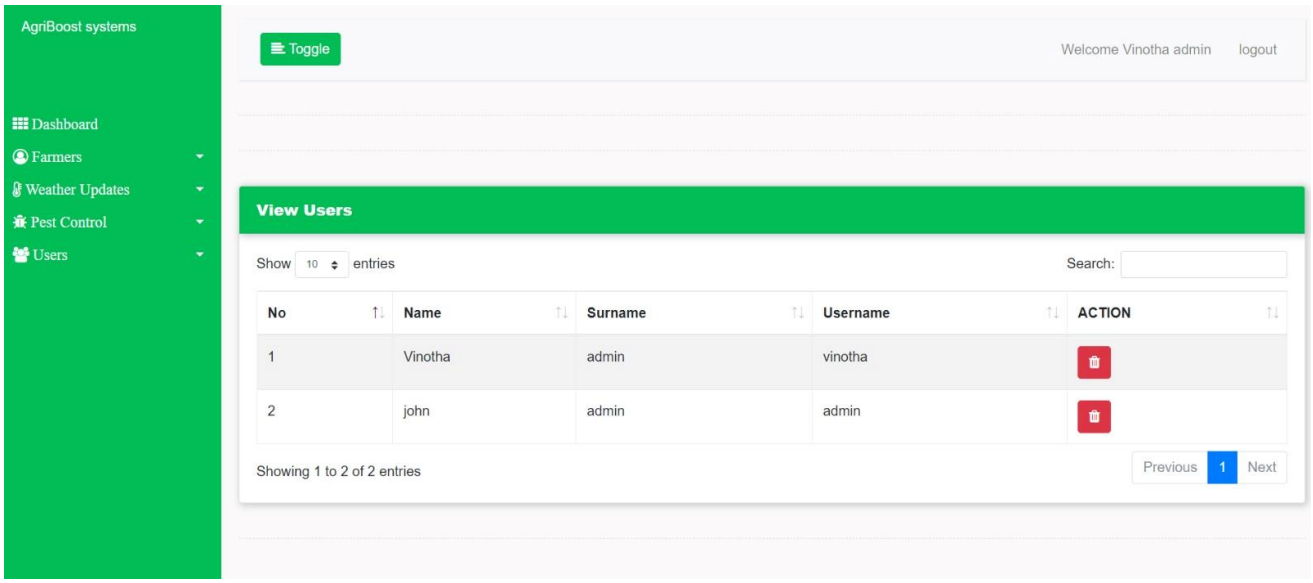
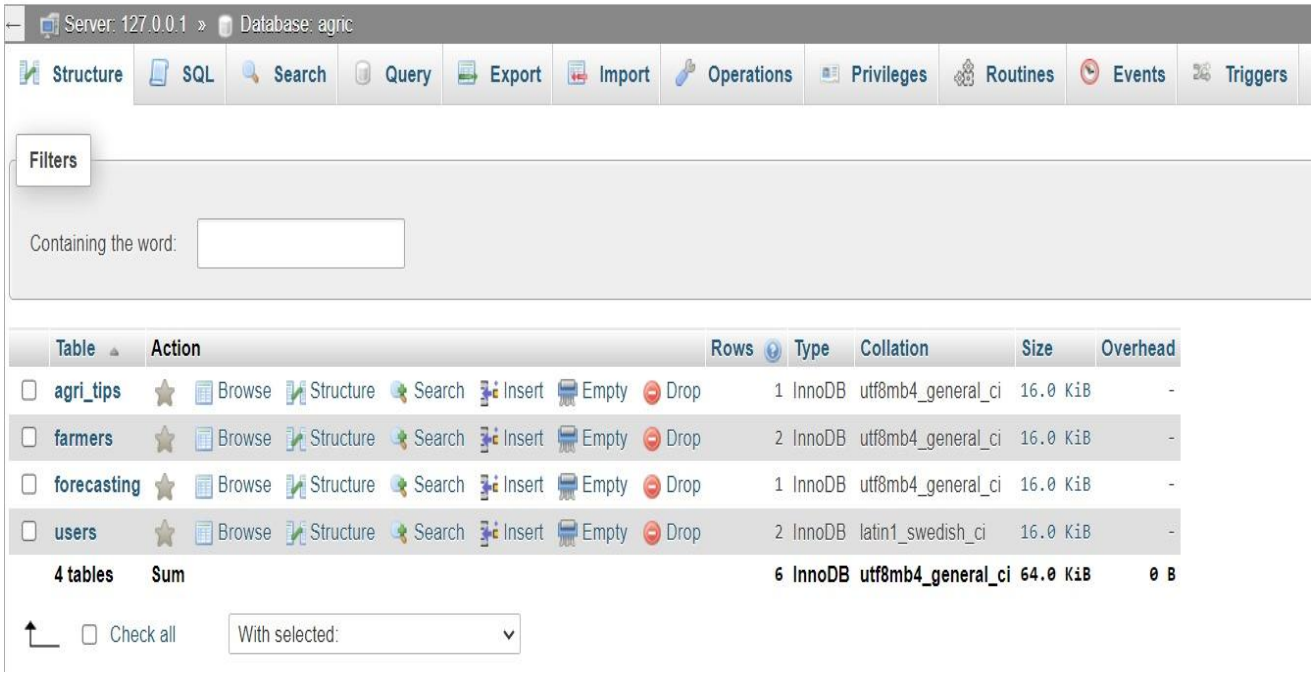
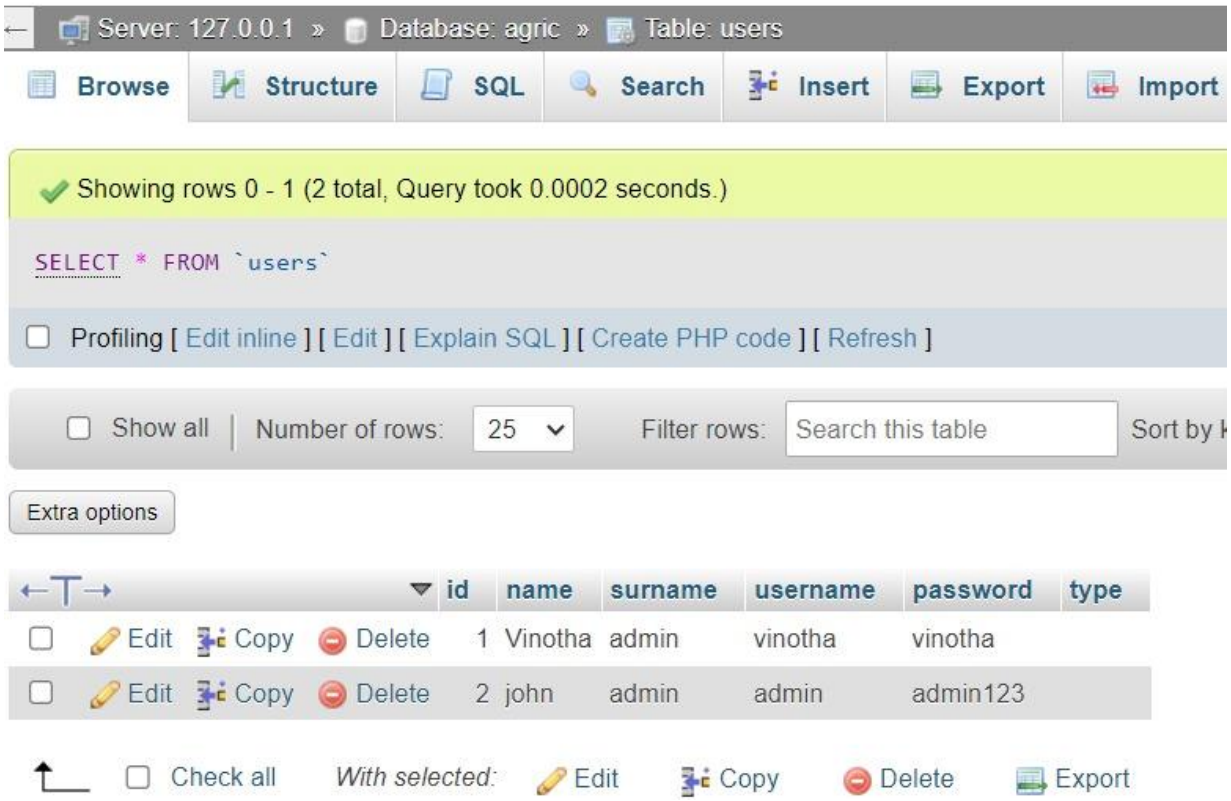
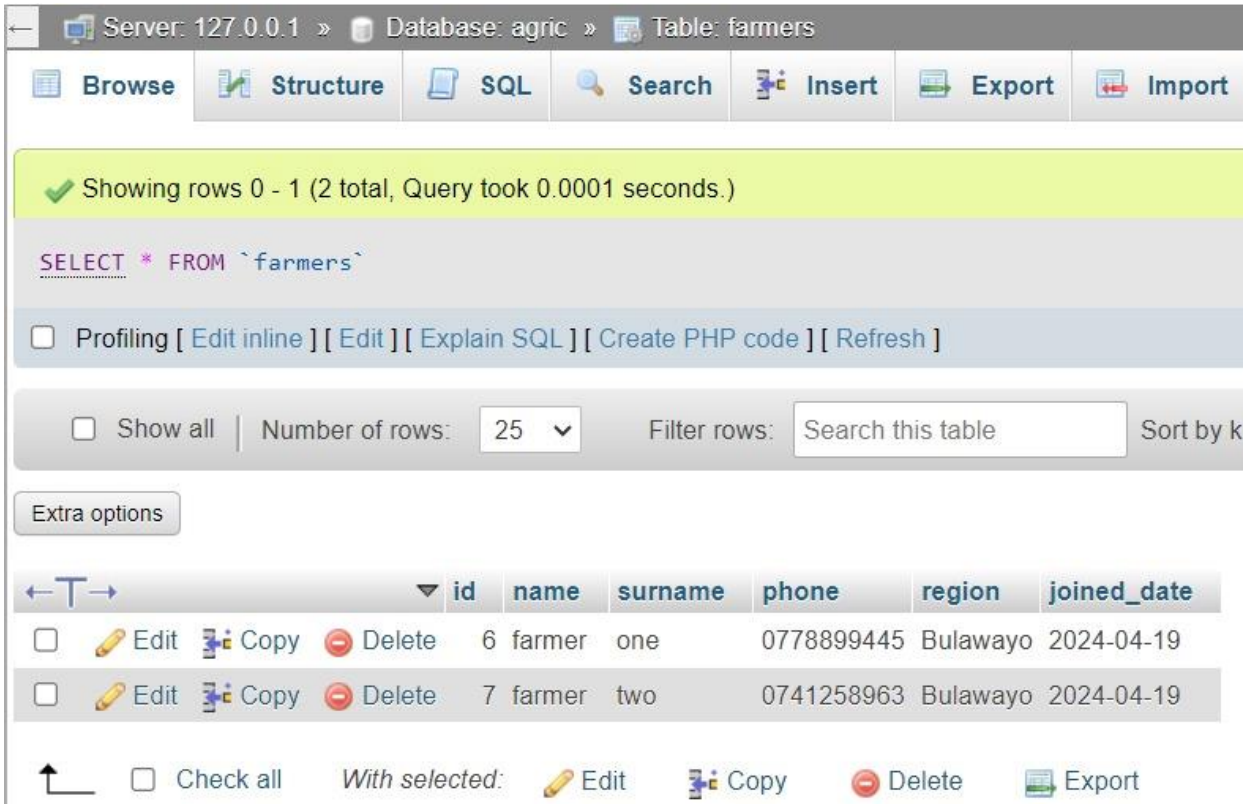


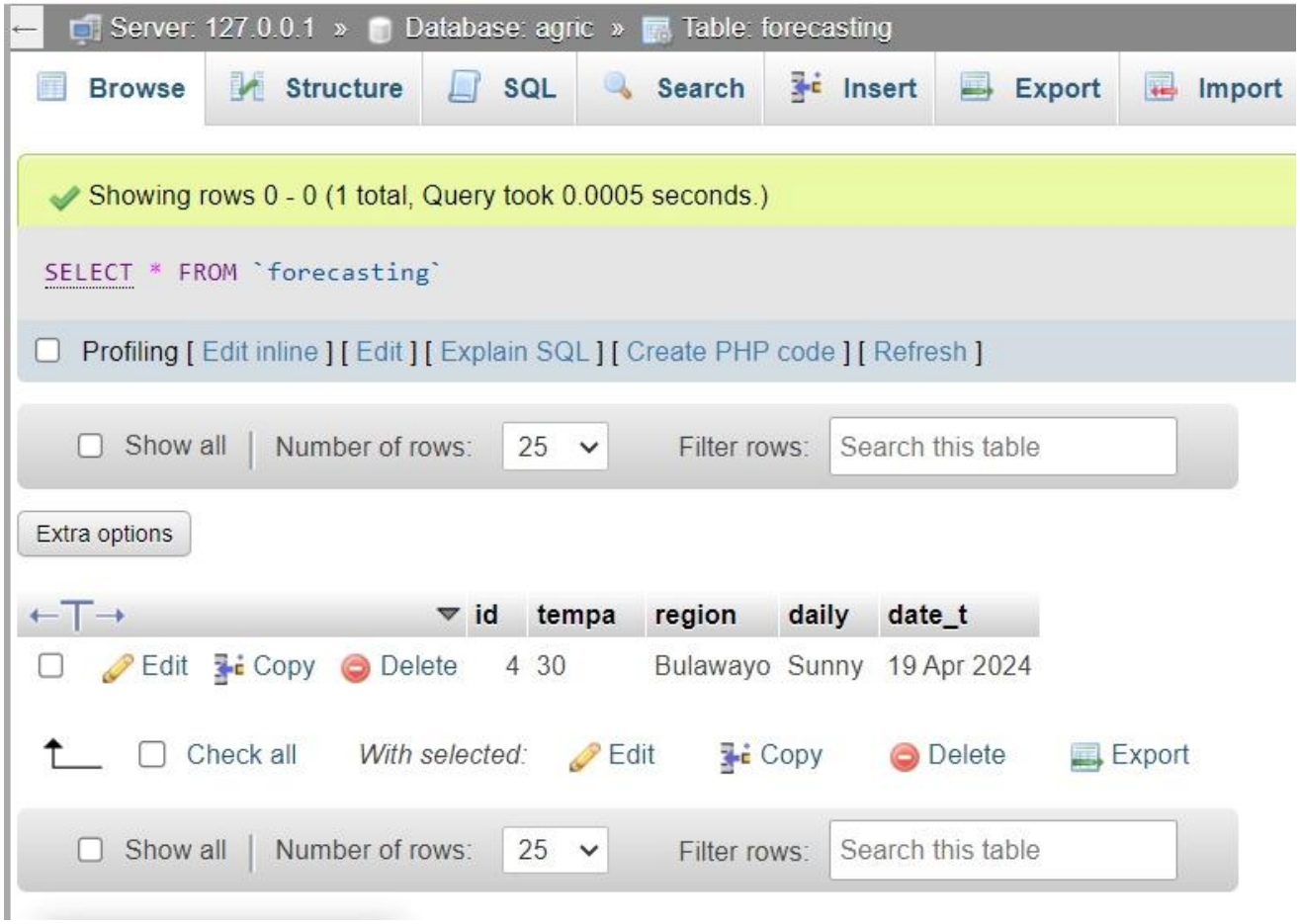
Fig 8: User's page

DATABASE:




Server: 127.0.0.1 » Database: agric » Table: users
Browse
Structure
SQL
Search
Insert
Export
Import
Showing rows 0 - 1 (2 total, Query took 0.0002 seconds.)
SELECT * FROM `users`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all
Number of rows: 25
Filter rows: Search this table
Sort by
Extra options
id name surname username password type
Edit Copy Delete 1 Vinotha admin vinotha vinotha
Edit Copy Delete 2 john admin admin admin123
Check all
With selected:
Edit
Copy
Delete
Export


Server: 127.0.0.1 » Database: agric » Table: farmers
Browse
Structure
SQL
Search
Insert
Export
Import
Showing rows 0 - 1 (2 total, Query took 0.0001 seconds.)
SELECT * FROM `farmers`
Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]
Show all
Number of rows: 25
Filter rows: Search this table
Sort by k
Extra options
id name surname phone region joined_date
Edit Copy Delete 6 farmer one 0778899445 Bulawayo 2024-04-19
Edit Copy Delete 7 farmer two 0741258963 Bulawayo 2024-04-19
Check all
With selected:
Edit
Copy
Delete
Export



Conclusion:

In summary, the Crop Production Management System represents a transformative solution for the agricultural sector, offering a holistic approach to addressing the myriad challenges faced by farmers and agricultural businesses. By consolidating data related to crop production, inventory management, and sales transactions into a centralized database, the system streamlines operations and enhances efficiency. This centralized repository not only mitigates the risks associated with disparate data sources but also facilitates real-time access to critical information, empowering stakeholders with actionable insights for informed decision-making.

One of the system's primary strengths lies in its ability to automate data entry processes, significantly reducing the reliance on manual paperwork and minimizing the likelihood of errors. This automation not only saves time but also enhances accuracy, allowing stakeholders to focus their efforts on strategic initiatives rather than administrative tasks. Additionally, the system's real-time monitoring capabilities enable stakeholders to track inventory levels and sales transactions,

facilitating proactive resource management and optimization.

Moreover, the reporting and analysis functionalities of the system provide stakeholders with comprehensive insights into crop production trends, sales performance, and market demand. Armed with this actionable information, farmers and agricultural businesses can make informed decisions, identify growth opportunities, and mitigate risks effectively. The system's scalability and flexibility ensure its adaptability to evolving needs and growth in the agricultural sector, while robust security measures safeguard sensitive data and ensure compliance with data privacy regulations.

In essence, the Crop Production Management System represents a paradigm shift in agricultural management, aligning technological innovation with the imperatives of sustainable agriculture. By harnessing the power of data-driven insights and automation, the system empowers stakeholders to optimize their operations, maximize productivity, and thrive in a competitive market environment. As the agricultural sector continues to confront unprecedented challenges and opportunities, the Crop Production Management System emerges as a catalyst for progress, poised to redefine the contours of agricultural management for generations to come.