

FarmCare miniproject

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Introduction



- ▶ Project: FarmCare
- ▶ Animal Vaccination Tracking Management System
- ▶ Modernizing farm management health tracking practices for animals
- ▶ Tracking animal vaccination health records

Problem Background

► Context:

Traditional farm management systems rely on manual record-keeping methods, such as paper-based or spreadsheet systems, to manage animal vaccination health records.

► Challenges Farmers Face:

1. Time-consuming
2. Human errors
3. Lack of security

Problem Background

► Research Problem:

Addressing the inefficiencies and vulnerabilities of traditional farm management systems to improve the accuracy, efficiency, and security of storing animal vaccination health record for farmers.

► Existing or similar solutions:

1. **FarmLogs**: A popular digital farm management app that offers features for tracking crop data.
2. **Herdwatch**: An app specifically designed for livestock farmers.
3. **CattleMax**: Software tailored for cattle ranchers, providing tools for tracking individual animal records, performance metrics, and health history.

Solution

Farmcare aims to address the problem of manual farm vaccination tracking management systems by creating a digitalized system where farmers can register, logging and track all their animals' vaccination records to a blockchain. Farmers can add their records too into the blockchain.

The system and the blockchain technology will provide farmers a :

1. Secure and immutable
2. Efficient
3. User-friendly solution



Overall, while existing solutions offer some digitalization of farm management, they often lack the comprehensive features, integration, and security provided by a blockchain-based solution like FarmCare.

Key Solutions Logic and Complexity

► Logic:

1. One to many registered clients establishing a connection to the server , to add and retrieving user and animal data, then populating various charts, tables and fields based on the received data. Each user will have a session based on their user ID.

► Utilizing blockchain : The farmer will be able store the following transaction records for each animal for each user:

1. Animals Name
2. Type of animal
3. Animals breed
4. Animal date of birth
5. Vaccinated?

Justification for transactions :

Ensures tamper-proof and transparent recording of critical animal transaction data such as name, type, breed, date of birth, and vaccination status. This guarantees data integrity, enhances traceability, and facilitates compliance with regulatory standards, thereby improving overall farm management efficiency and animal welfare.

Key Solutions Logic and Complexity

► Interfaces:

1. Java FXML Pages

► Data structures

1. Maps (HashMap), Regex (Regular Expression), Lists, ArrayLists and Arrays

► Algorithms:

1. Hashing: to hash the users data such as their passwords (SHA-256) and to hash blocks

► External libraries:

1. JavaFX Charts, Java FXML (FXMLLoader), blockain.jar

Novelty

- ▶ Blockchain brings new innovation in agriculture
- ▶ Data security assurance
- ▶ Farmer-friendly interface

GUI: Signup/Register

FarmCare

Track your farm animals vaccinations

SignUp

Name

Surname

Email

FarmName

Password

Confirm Password

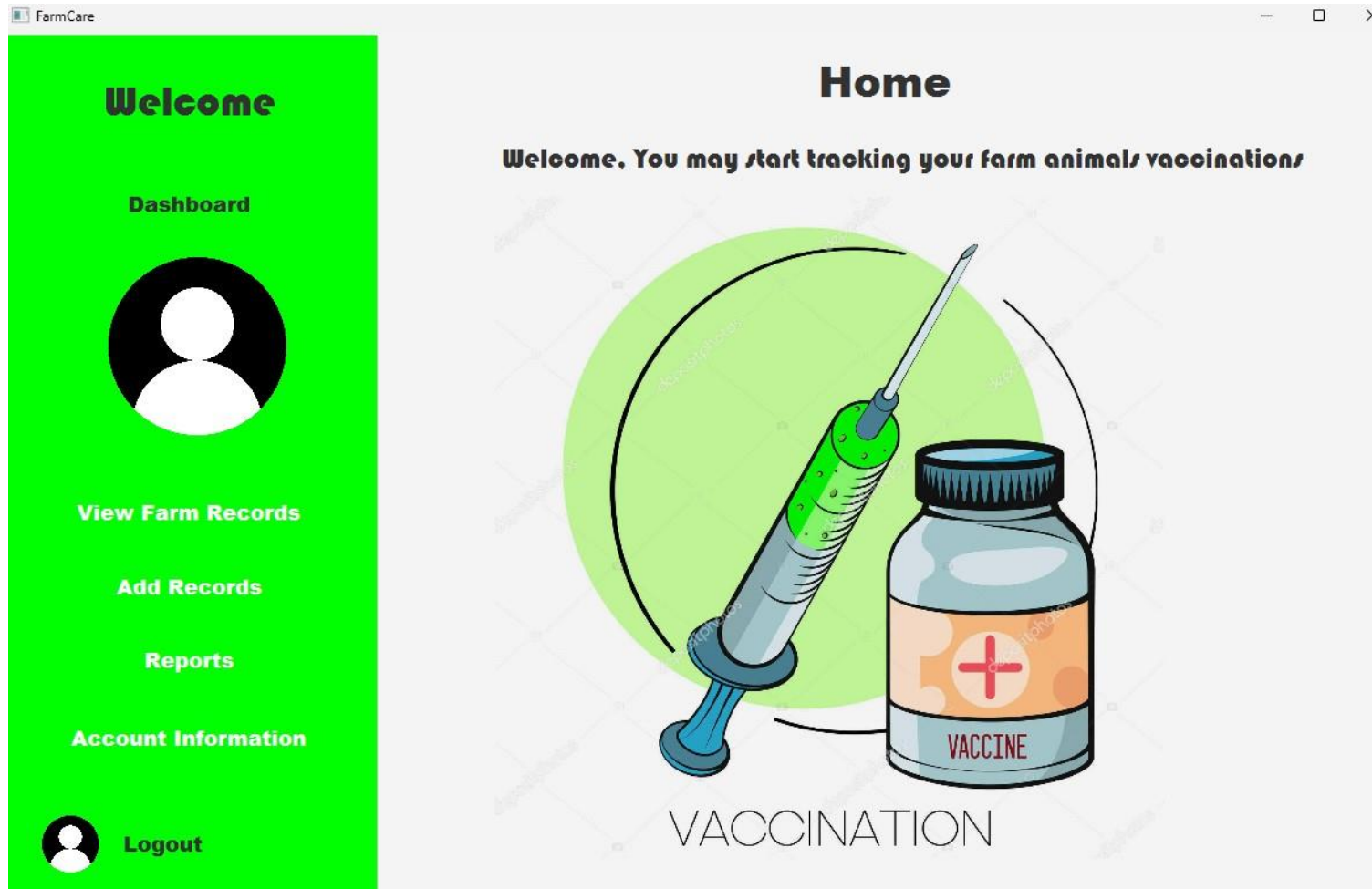
Already have an account? [Sign Up](#)

SignUp

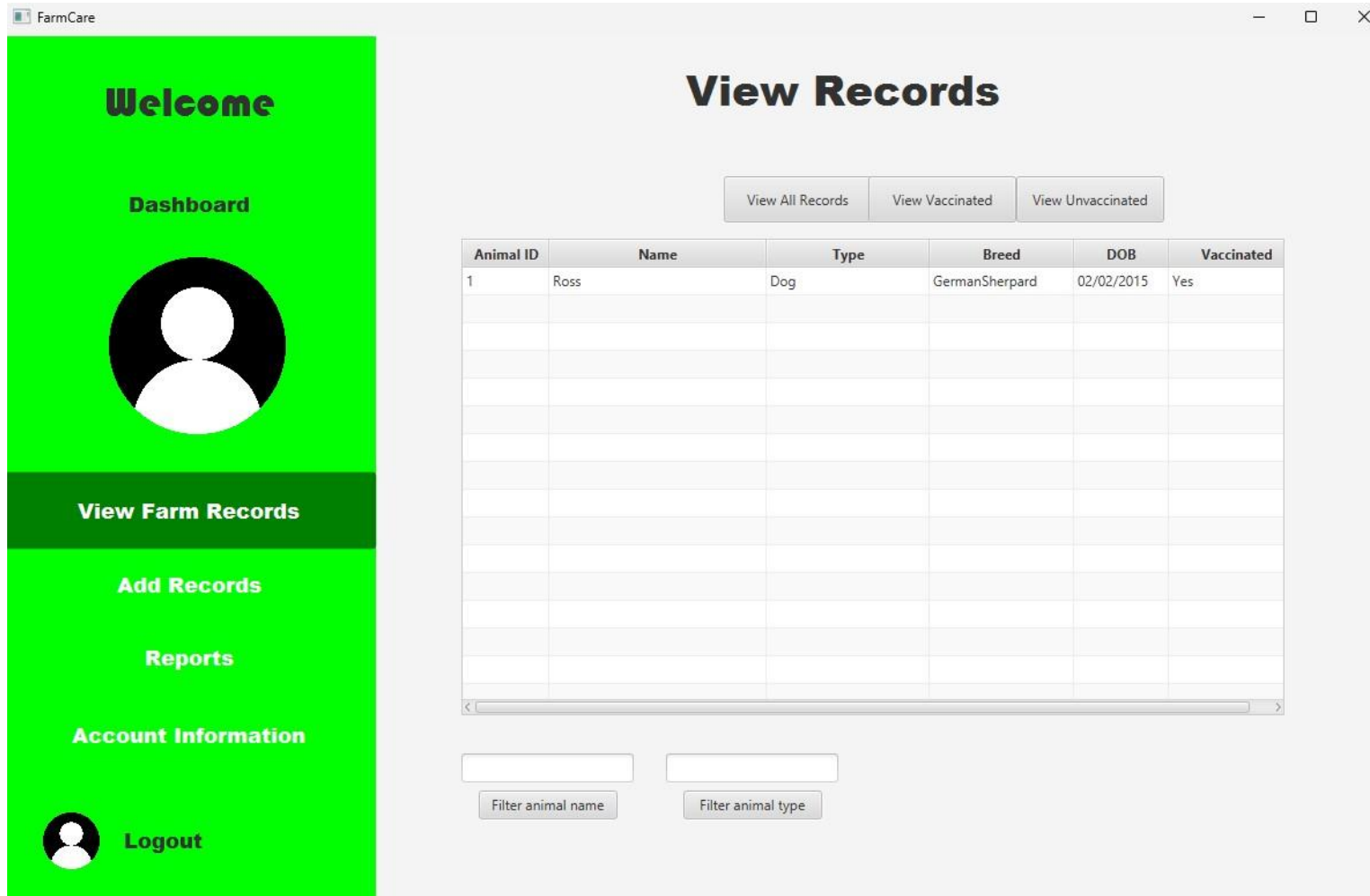
GUI: Login



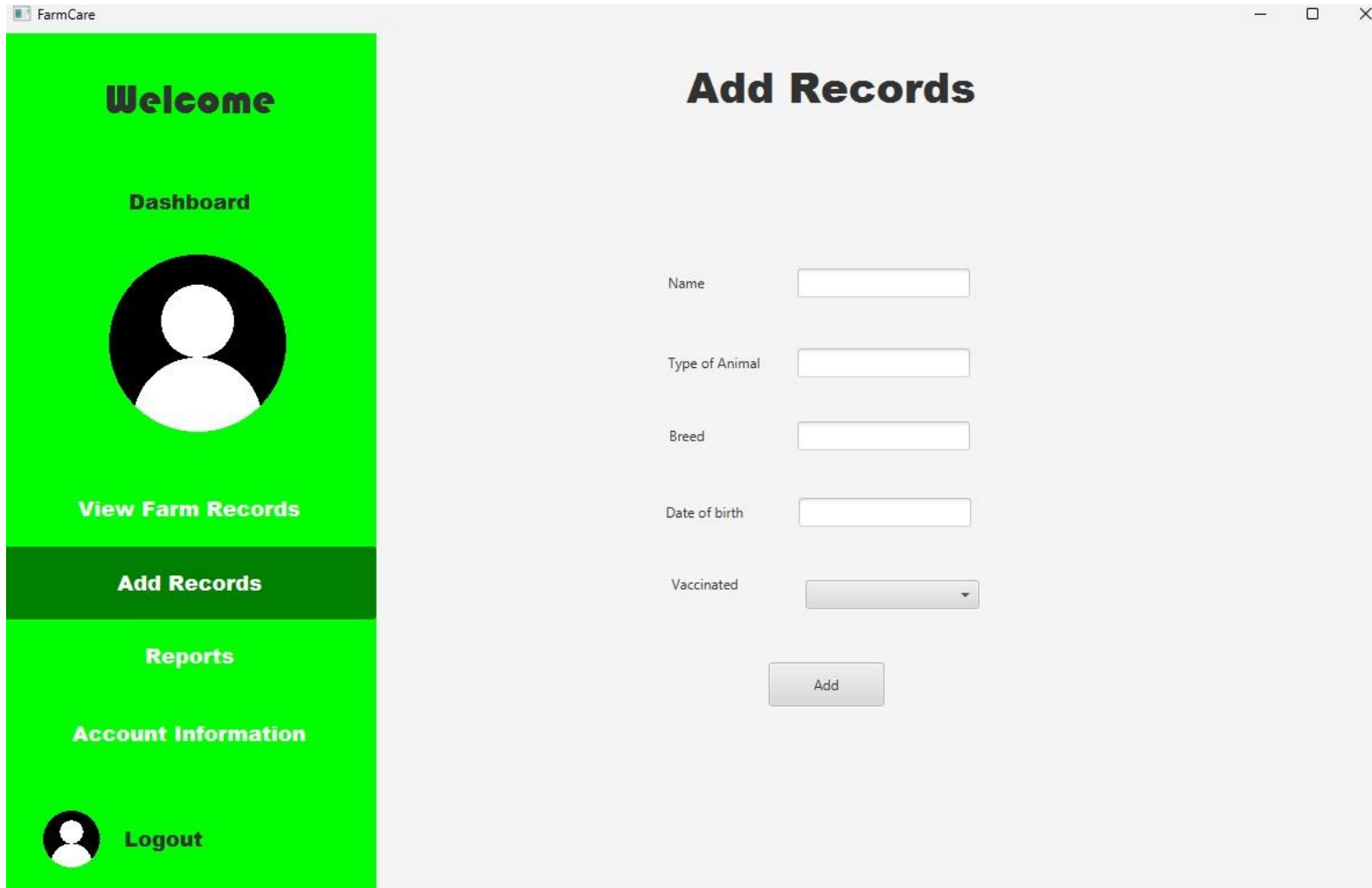
GUI: Home Dashboard



GUI: View Farm Records



GUI: Add Farm Records



The screenshot displays a web application window titled "FarmCare". The interface is divided into a left sidebar and a main content area. The sidebar, which has a green background, contains a "Welcome" header, a "Dashboard" section with a user profile icon, and four menu items: "View Farm Records", "Add Records" (highlighted in a darker green), "Reports", and "Account Information". At the bottom of the sidebar is a "Logout" button with a user icon. The main content area, which has a light gray background, is titled "Add Records" and contains a form with five input fields: "Name", "Type of Animal", "Breed", "Date of birth", and "Vaccinated". The "Vaccinated" field is a dropdown menu. Below these fields is an "Add" button.

Welcome

Dashboard

View Farm Records

Add Records

Reports

Account Information

Logout

Add Records

Name

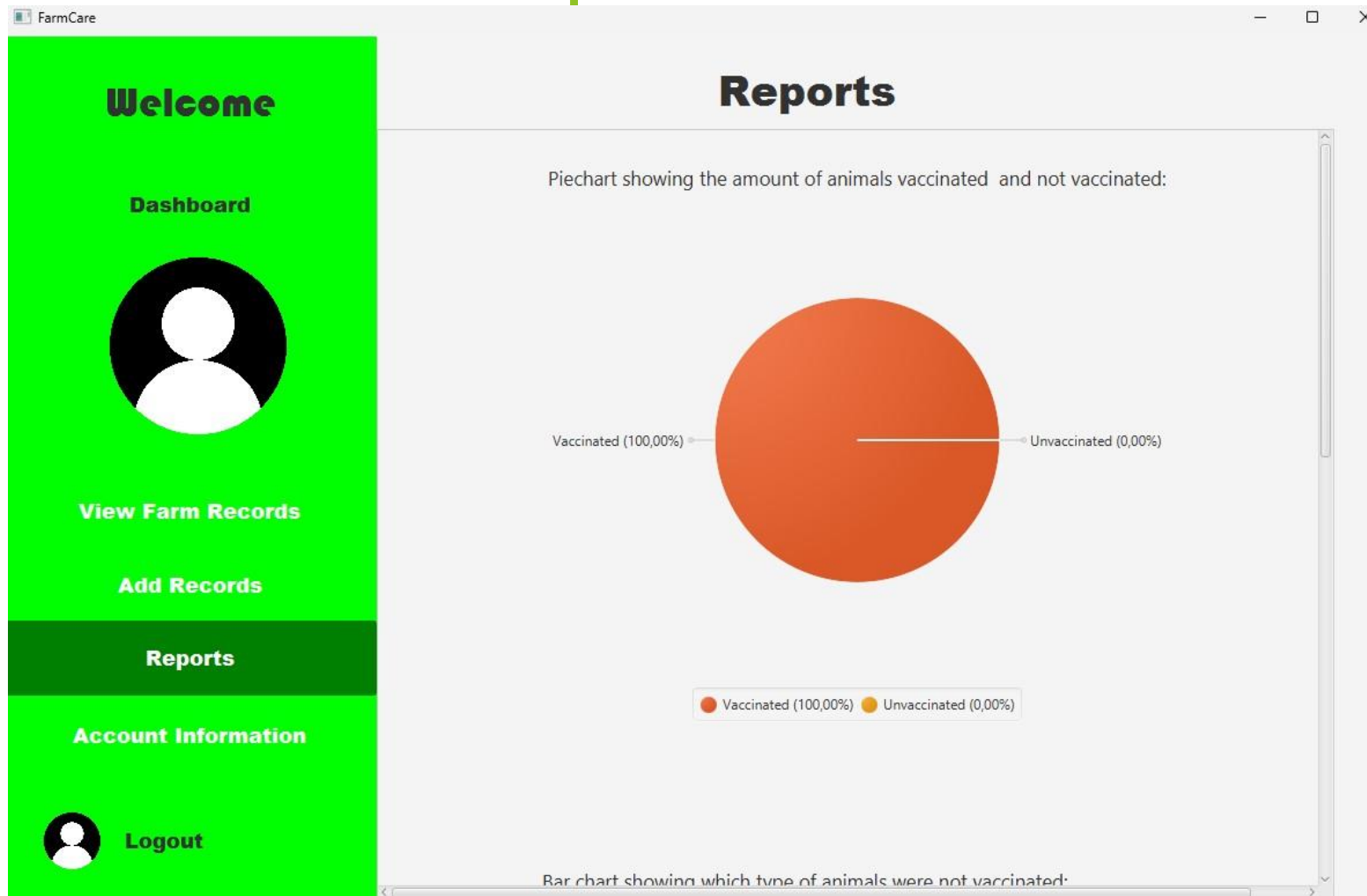
Type of Animal

Breed

Date of birth

Vaccinated



GUI: Farm Reports



GUI: User Account Information

The screenshot displays a web application window titled "FarmCare". The interface is divided into a green sidebar on the left and a main content area on the right.

Sidebar (Left):

- Welcome**
- Dashboard**
- 
- View Farm Records**
- Add Records**
- Reports**
- Account Information** (highlighted)
-  **Logout**

Main Content Area (Right):

Account Information

Name

Surname

Email

FarmName