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 were farmers can register , logging and track all their animals vaccinations 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

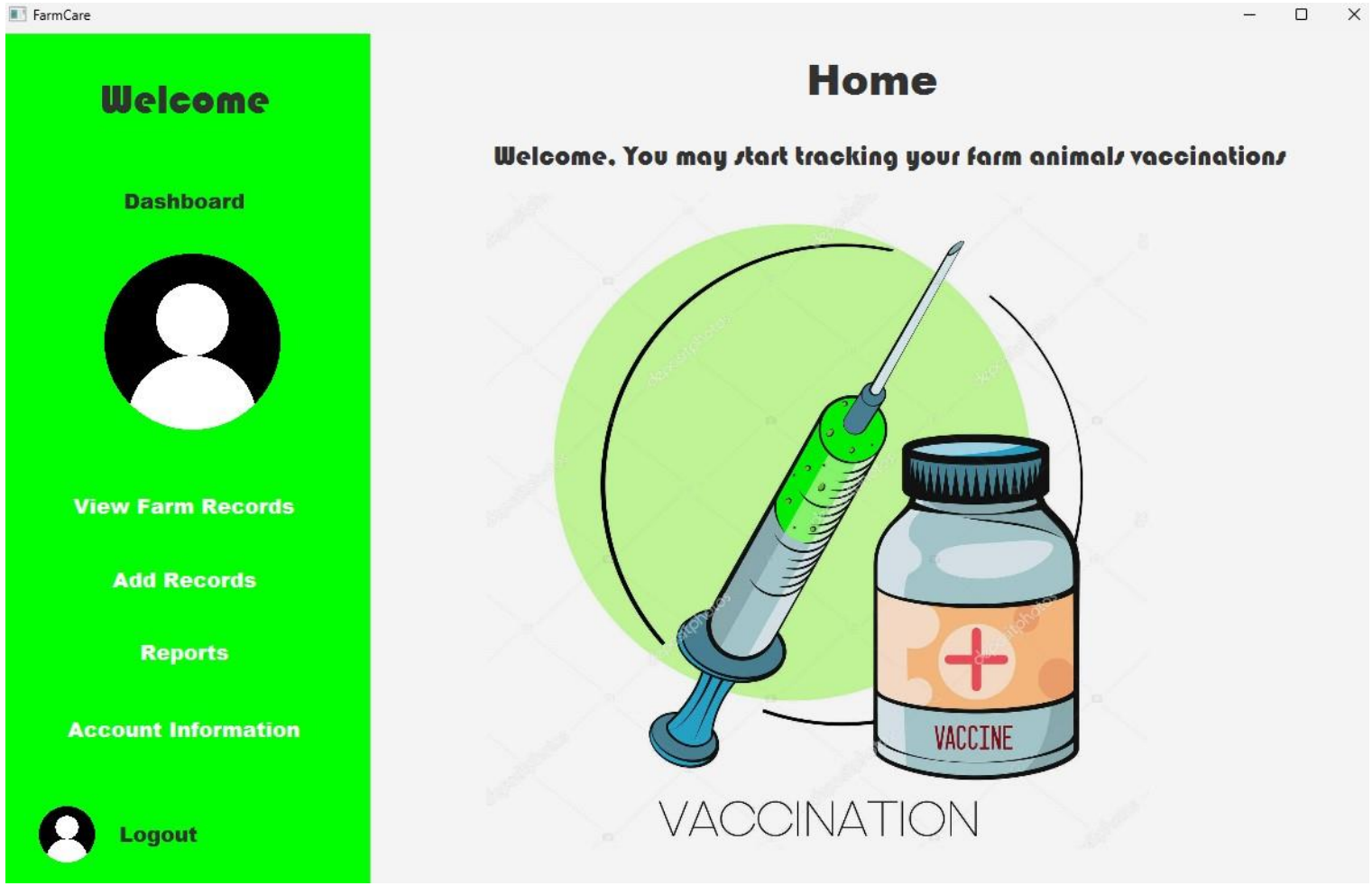
- Blockchain brings new innovation in agriculture
- Data security assurance
- Farmer-friendly interface

GUI: Signup/Register

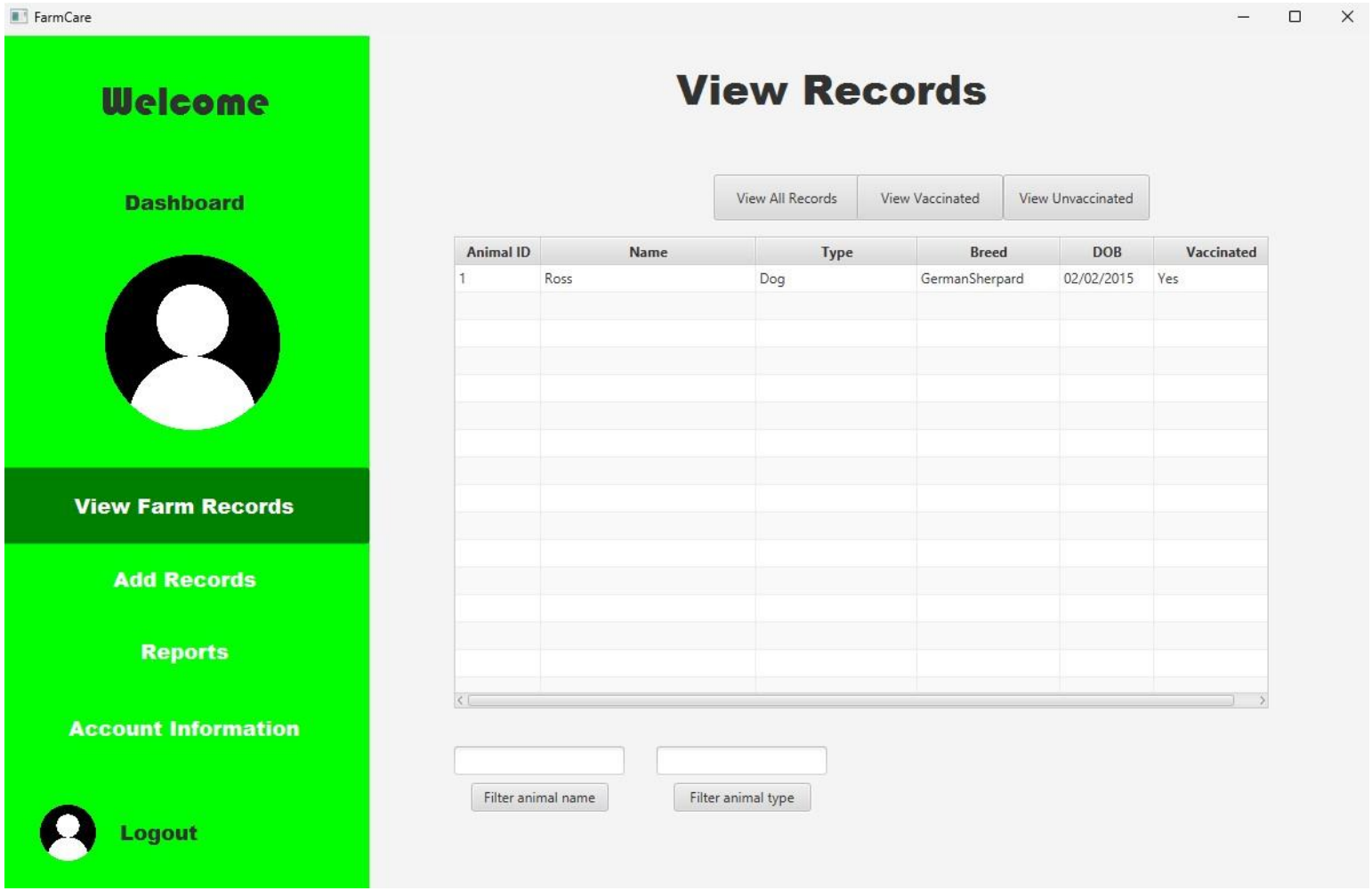
GUI: Login


FarmCare
FarmCare
Track your farm animals vaccinations
Login
Email
Password
Don't have an account? SignUp
Login

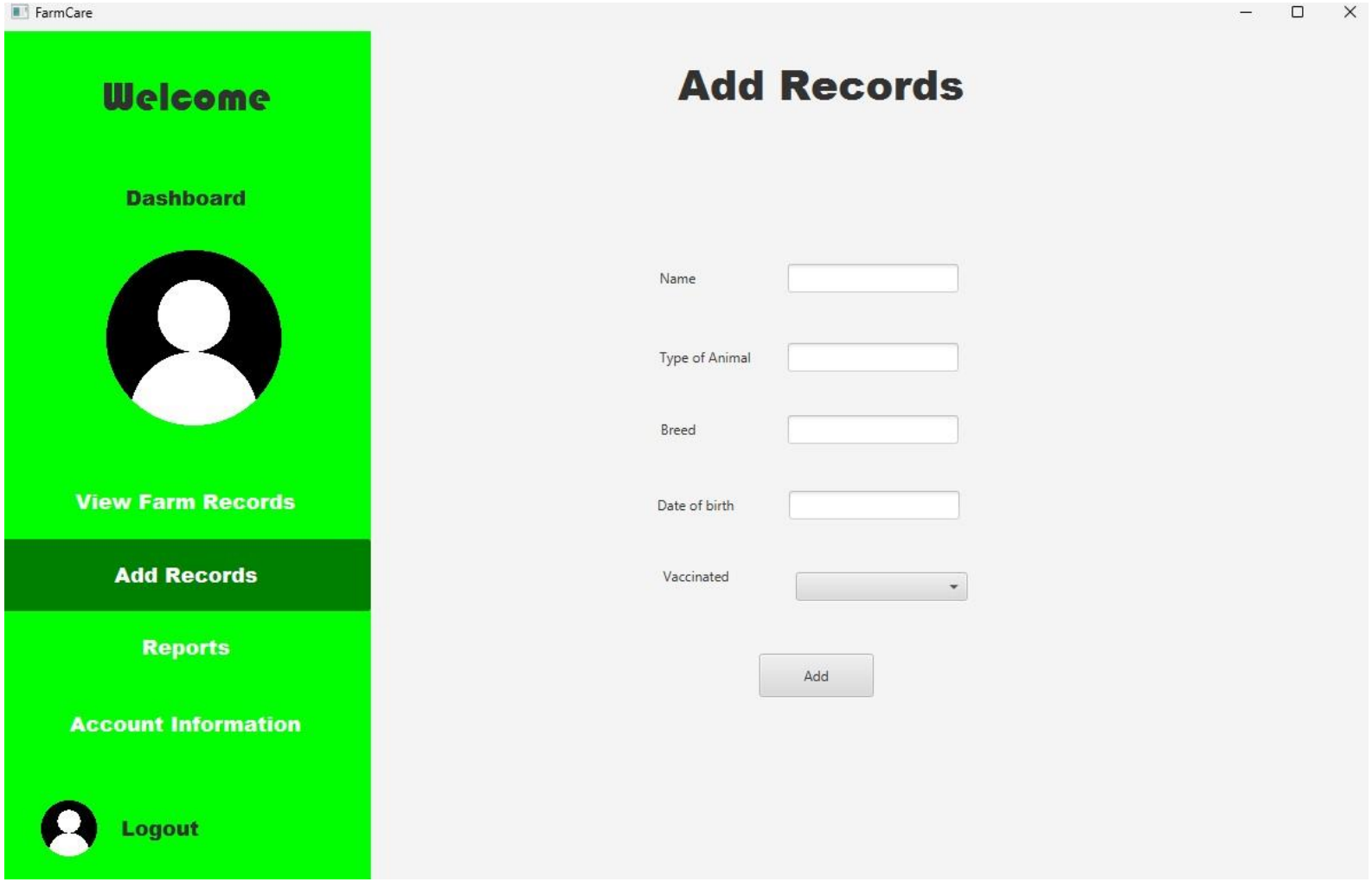
GUI: Home Dashboard



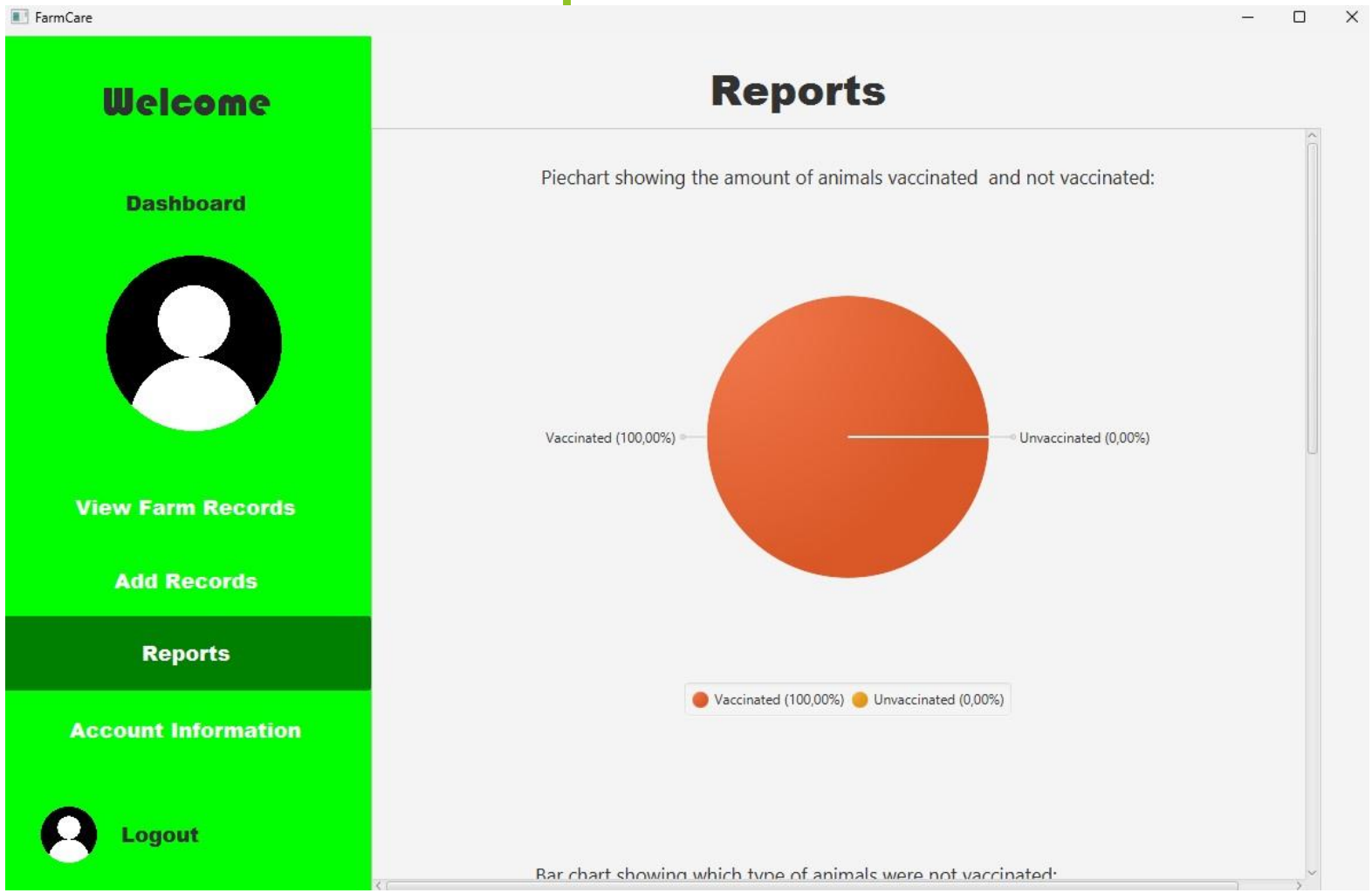
GUI: View Farm Records



GUI: Add Farm Records



GUI: Farm Reports



GUI: User Account Information