

Farming and Loan Management System - Data Models Documentation

1. Overview

This document provides a structured overview of the Mongoose data models used in the Farming and Loan Management System. These models represent core entities such as users, farms, loans, transactions, issues, and documents.

2. Models

2.1 User Model

The **User** model stores information about individuals registered on the platform, including farmers, investors, and administrators.

- **Key Fields:**
 - Personal details (name, email, password)
 - Role-based access control (farmer, investor, admin)
 - Account verification status
- **Relationships:**
 - Users can own farms
 - Users can invest in loans
 - Users can report issues
 - Users can own documents

2.2 Farm Model

The **Farm** model represents agricultural lands managed by farmers. Each farm is associated with a user and can be linked to loans and investments.

- **Key Fields:**
 - Farm details (name, description, location, size, type)
 - Operational data (production capacity, images, status)
 - Created by a registered farmer

- **Relationships:**
 - Linked to a **User (Farmer)**
 - Can have multiple loans

2.3 Loan Model

The **Loan** model manages the financial assistance provided to farms. Loans have investors contributing funds and a structured repayment schedule.

- **Key Fields:**
 - Loan details (amount, interest rate, duration, status)
 - Repayment tracking (schedule, due dates, payment status)
 - Investor contributions
- **Relationships:**
 - Linked to a **Farm**
 - Investors participate in funding the loan
 - Transactions are recorded for repayments

2.4 Transaction Model

The **Transaction** model logs all financial activities within the system, including investments, repayments, and withdrawals.

- **Key Fields:**
 - Transaction type (investment, repayment, withdrawal)
 - Amount and status (pending, completed, failed)
 - References to users and loans involved
- **Relationships:**
 - Linked to a **Loan**
 - Tracks funds between users

2.5 Issue Model

The **Issue** model captures concerns or problems reported by users regarding the system, loans, or farms.

- **Key Fields:**
 - Issue details (title, description, user reference)

- Creation timestamp
- **Relationships:**
 - Linked to a **User**

2.6 Document Model

The **Document** model stores file records associated with users, loans, or farms, such as agreements and certifications.

- **Key Fields:**
 - Document metadata (title, type, file path)
 - Reference to owner and related entities
- **Relationships:**
 - Linked to a **User** (owner)
 - Can be associated with a **Farm, Loan, or User**

3. Usage Scenarios

1. A farmer registers and adds a farm to the system.
2. The farmer applies for a loan linked to their farm.
3. Investors fund the loan, and transactions are recorded.
4. Loan repayments are scheduled, and funds are tracked.
5. Users upload documents such as loan agreements.
6. Any issues encountered are logged and managed.

4. Summary

The system integrates multiple entities to facilitate farm management, investment tracking, and loan processing. Each model is interconnected to ensure smooth data flow and maintain financial transparency.