1. Title of the Project: Farm Management System

2. Introduction / Background / Problem Statement: Agriculture plays a vital role in the economy of Bangladesh, but many farmers still rely on traditional methods for managing their crops and livestock. These manual approaches often lead to poor record keeping, forgotten schedules, and financial losses.
To address these challenges, the **Farm Management System** has been developed — a web-based platform designed to help farmers manage their agricultural activities more efficiently. The system automates crop, livestock, inventory, and financial management, helping farmers make informed and data-driven decisions. By transforming traditional farming into digital smart farming, this system aims to increase productivity, reduce wastage, and ensure better planning for every agricultural season.

3. Related Works / Projects: Several farm management applications exist globally, such as **AgriApp**, **FarmLogs**, and **Agrivi**, which assist farmers in monitoring crop health and resources. However, most of these platforms are designed for developed countries and are not tailored to local conditions in Bangladesh. Our project fills this gap by offering a **simplified, bilingual, and locally adaptable** solution that focuses on the practical needs of Bangladeshi farmers — such as fertilizer scheduling, livestock vaccination reminders, and financial summaries in one integrated dashboard.

4. Idea Description: The **Farm Management System** is designed to function as an all-in-one digital assistant for farmers.
It allows users to:

- Register and log into their own farm account.
- Record daily activities related to crops, livestock, and inventory.
- Track growth, yields, feeding, and vaccination data.
- Analyze financial transactions to measure profit or loss.
- View graphical reports for better understanding of farm performance.

Through automation and reminders, the system helps farmers stay organised, reduce manual errors, and improve overall productivity.

5. Workflow of the Project
Crop Management

- **Input:** Crop Name, Activity, Date
- **System:** Records activities and schedules next tasks
- **Output:** Table of crop activities and graphical progress

Livestock Management

- **Input:** Animal Type, Health Status, Daate
- **System:** Tracks feeding, vaccination, and health updates
- **Output:** Health/activity report with graphical visualisation

Inventory Management

- **Input:** Item Name, Quantity
- **System:** Tracks stock levels and usage

- **Output:** Real-time inventory table and availability chart

Financial Summary
- **Input:** Description, Type (Income/Expense), Amount, Date
- **System:** Calculates total profit/loss
- **Output:** Transaction table and income-expense graph

User Dashboard
Displays combined insights from all modules — giving the farmer a complete overview of the farm's condition and performance.

6. Platform / Technology Used

Component	Technology
Frontend	HTML, CSS, JavaScript
Backend	Node.js, Express.js
Database	MongoDB
Hosting (Frontend)	Netlify
Hosting (Backend)	Render

The chosen technologies ensure that the system is lightweight, scalable, and accessible through any web browser.

7. Project Timeline

Week	Task
Week 1–2	Problem analysis, idea selection, and requirement collection
Week 3–4	System design and database structure
Week 5–6	Frontend interface development
Week 7–8	Backend development and API integration
Week 9	Testing and debugging
Week 10	Final presentation and documentation preparation

8. Target Population
This system is primarily targeted at **small to medium-scale farmers** in Bangladesh who want to digitize their farm operations. It is also suitable for agricultural officers, farm owners, and cooperative organizations who need to manage multiple farms and records efficiently.

9. Social and Economical Values
- **Social Impact:** Improves digital literacy among farmers and promotes sustainable agricultural practices.
- **Economic Impact:** Reduces wastage, increases productivity, and maximizes profits.

- **Environmental Impact:** Encourages timely fertilization and proper livestock management, which contribute to better resource use and reduced pollution.

10. Project Screenshot / Design / Architecture

System Architecture Overview:

User → Frontend (HTML, CSS, JS)

↓

Backend Server (Node.js, Express)

↓

Database (MongoDB)

Each module (Crop, Livestock, Inventory, Finance) interacts with the backend through REST APIs, and data is visualized in tables and graphs for better understanding.

11. Source Code (Summary)

The system consists of four main modules:

- **Crop Module:** Handles crop data, activity logs, and scheduling.
- **Livestock Module:** Manages feeding, health, and vaccination schedules.
- **Inventory Module:** Monitors available stock and usage rate.
- **Finance Module:** Records income, expenses, and calculates total profit.

Each module connects to MongoDB collections using Express routes, and the frontend interacts with these APIs for CRUD (Create, Read, Update, Delete) operations.

12. Conclusion (Limitations, Future Works, Summary)

Limitations:

- The system currently supports only English interface.
- Requires internet connection for use.
- No mobile app version yet.

Future Works:

- Introducing a **mobile app version** for offline use.
- Adding **AI-based crop prediction** and weather forecast integration.
- Including **Bangla language support** for easier access.

Summary:

The Farm Management System is a comprehensive digital solution that simplifies the complex tasks of managing farms. It helps farmers record, analyze, and plan their operations effectively. With future improvements, it can become a powerful tool for digital transformation in agriculture across Bangladesh.