Software Requirements Specification (SRS)

1. Title Page

Project Title: A Web-Based AgriTech Community Platform for Farmers

TEAM AROSA:-

- Sarthak Patil
- Aditya Kondekar
- Aditya Pundlik
- Omkar Patole

2. Abstract

The proposed platform is a web-based community hub designed for farmers. It aims to connect farmers with peers, agricultural experts, and modern resources. The system provides real-time advice via an AI chatbot, enables discussion forums, and hosts a learning hub with tutorials and best practices. The project will foster collaboration, knowledge-sharing, and promote sustainable farming practices within the community.

3. Table of Contents

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4. Introduction

4.1 Purpose

The platform is designed to connect farmers with experts, peers, and agricultural resources. Its objective is to provide real-time assistance, foster collaboration, and promote sustainable agricultural practices. The system addresses the challenges faced by farmers such as lack of timely information and limited access to expert advice.

4.2 Scope

- **System Features:**
    - ○ Community forum for discussions
    - ○ AI chatbot for instant agricultural advice
    - ○ Learning hub with tutorials and guides
    - ○ User profiles for personalization
- **Stakeholders:** Farmers, agricultural experts, students, and faculty.
- **Community Benefits:** Improved access to knowledge, faster decision-making, and promotion of sustainable practices.

4.3 Definitions, Acronyms, and Abbreviations

- **AI** – Artificial Intelligence
- **CEP** – Community Engagement Project
- **OTP** – One-Time Password
- **API** – Application Programming Interface

4.4 References

- Agricultural Technology Adoption Research Papers
- Government agricultural scheme websites
- Google Gemini API documentation
- IEEE 830 SRS standard

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5. Overall Description

5.1 Product Perspective

A standalone web application accessible on mobile and desktop, integrating chatbot API, database, and discussion forum.

(Block Diagram to be added)

5.2 Product Functions

- Farmer registration via mobile number
- Forum for posting and replying to questions
- AI chatbot for instant farming advice
- Uploading and viewing tutorials
- Search function for posts and guides

5.3 User Classes and Characteristics

- **Farmers:** Basic digital literacy, need simple navigation
- **Experts/Moderators:** Provide solutions, monitor content
- **Administrators:** Manage platform and users

5.4 Operating Environment

- Frontend: HTML, CSS, JavaScript
- Backend: Django
- Database: SQL/MongoDB
- AI: Google Gemini API
- Browsers: Chrome, Firefox, mobile browsers

5.5 Design and Implementation Constraints

- Must work with low-bandwidth internet
- User-friendly for rural communities
- Limited budget – preference for open-source tools

5.6 Assumptions and Dependencies

- Farmers own smartphones
- Internet connectivity in target regions
- Government APIs remain available

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6. Specific Requirements

6.1 Functional Requirements

- **FR1:** User registration
- **FR2:** Forum – post and reply to questions
- **FR3:** AI chatbot for instant agricultural support
- **FR4:** Upload and access tutorials (guides, videos)
- **FR5:** Search function for posts and guides

6.2 Non-Functional Requirements

- **Performance:** Page loads within 3 seconds on 3G; chatbot responds within 5 seconds
- **Security:** OTP login, encrypted data
- **Usability:** Simple UI, accessible in rural contexts
- **Reliability:** 99% uptime, regular backups
- **Scalability:** Support for increasing users

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7. External Interface Requirements

7.1 User Interfaces

- Mobile and desktop responsive UI
- Simple navigation: Forum, Chatbot, Learning Hub

7.2 Hardware Interfaces

- Android/iOS smartphones
- Laptops/Desktops

7.3 Software Interfaces

- Django backend
- Google Gemini API
- SQL/MongoDB

7.4 Communication Interfaces

- HTTPS for secure communication
- REST API for chatbot integration

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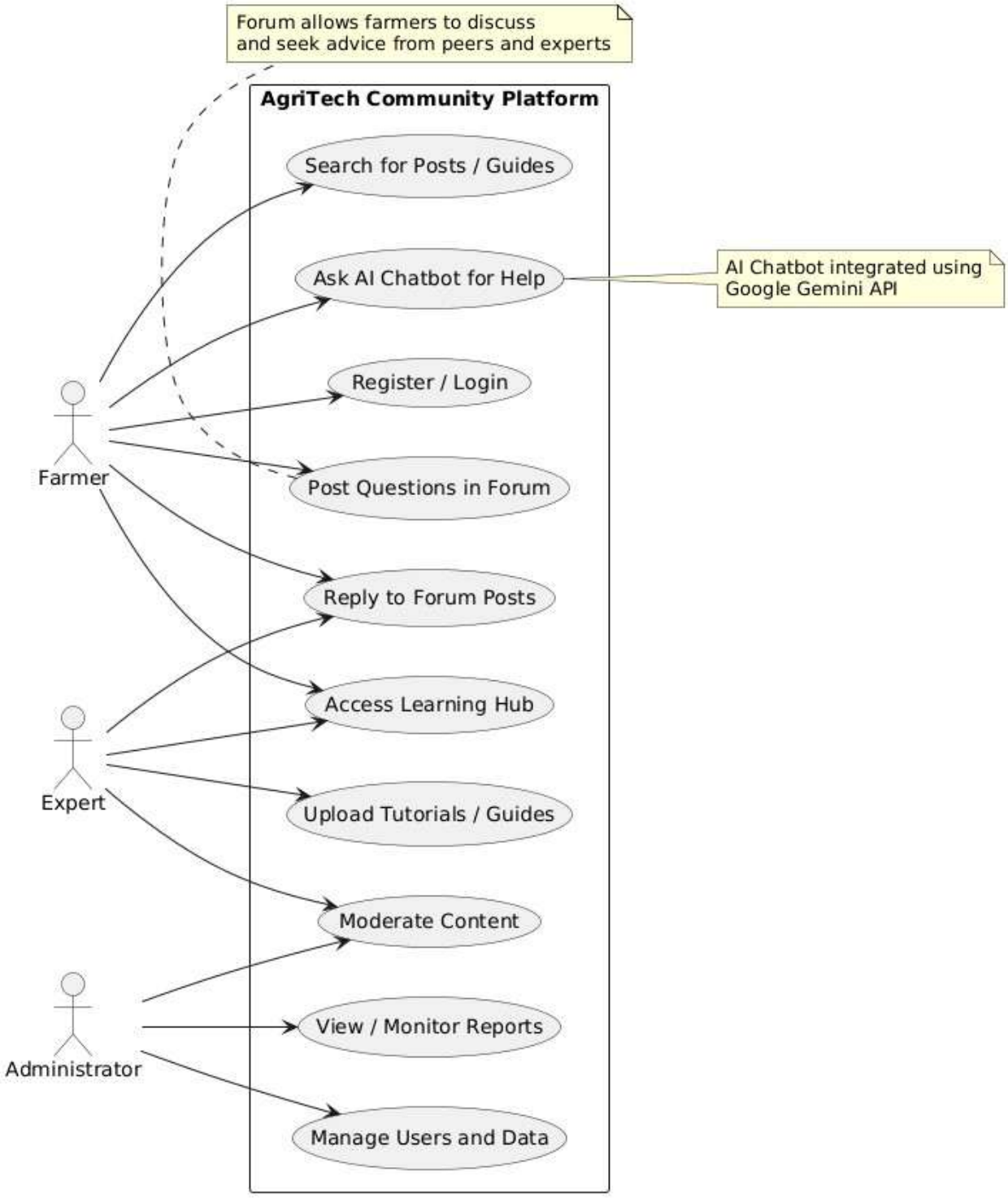
8. Use Case Diagram & Description

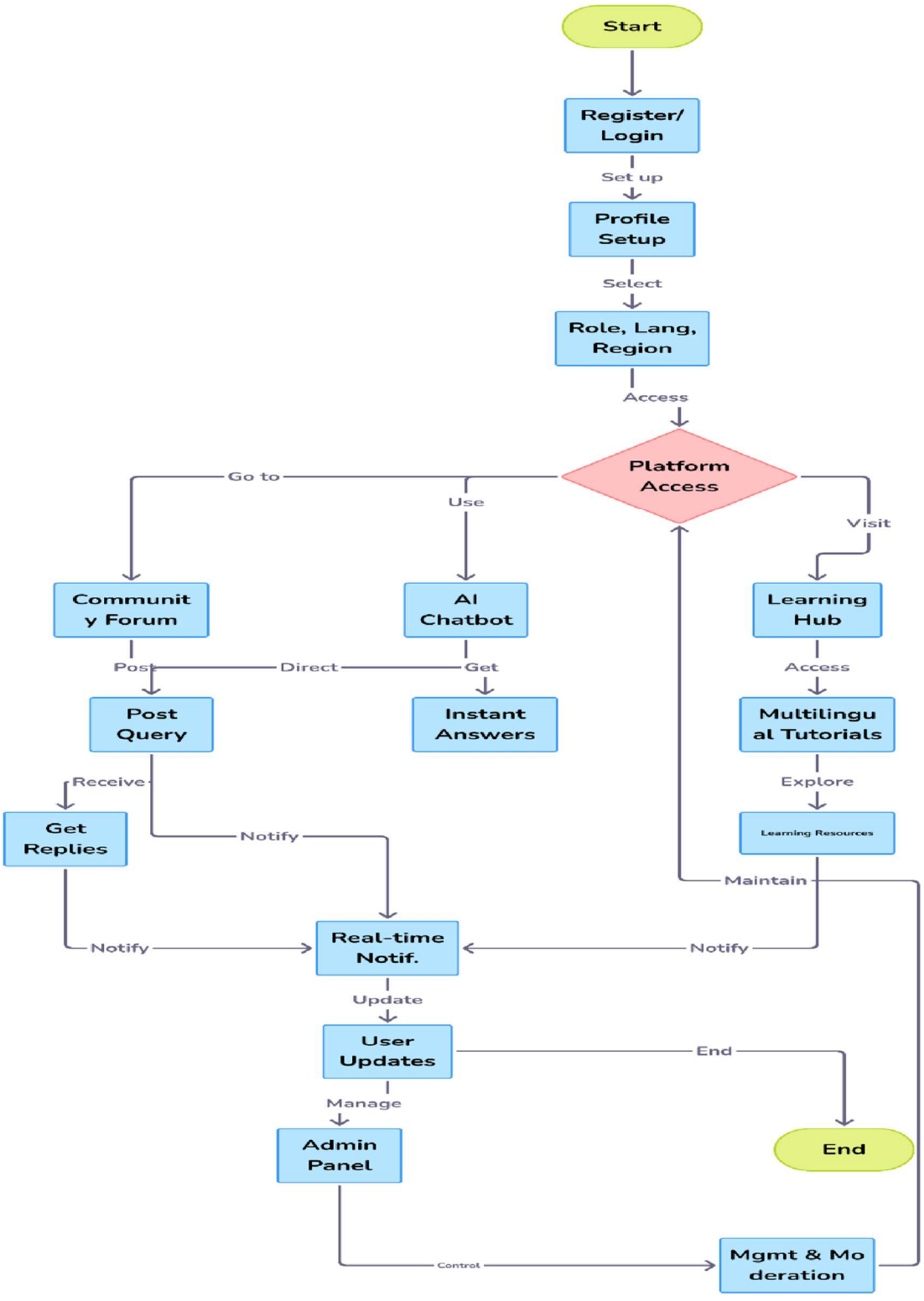
(To be drawn – showing actors: Farmer, Expert, Admin interacting with Forum, Chatbot, Learning Hub, etc.) **Use Cases:**

- Register/Login
- Post/Reply in Forum
- Ask AI Chatbot
- Upload Tutorials
- Search content
  Use Case Diagram:

A Web-Based AgriTech Community Platform for Farmers



9. Activity Diagram / Flow Chart



10. References

- Survey results and community visit reports
- Agricultural scheme portals
- Feedback from farmers during requirement collection
- Photos from community visits *(if available)*