Requirement Analysis Document for Farmer's Assistant App AI Core

1. Introduction

1.1 Purpose

This document outlines the detailed requirements for the AI core of the Farmer's Assistant App, aimed at providing personalized gardening advice and assistance to users in the United States.

1.2 Scope

The AI core will integrate various functionalities including user profile analysis, data integration, recommendation systems, alert systems, and adaptive learning to offer real-time, personalized gardening advice.

2. Overall Description

2.1 User Needs

- Personalized gardening advice based on location, land size, and flower preferences.
- Real-time weather updates and alerts.
- Recommendations for seed sowing, planting, and harvesting.
- Educational content on gardening best practices.

2.2 Assumptions and Dependencies

- Availability of reliable data sources for weather, gardening advice, and seed suppliers.
- Users have access to internet-enabled devices.

3. Specific Requirements

3.1 User Profile Analysis and Personalization

- **Functionality**: Analyze user input to create a personalized gardening profile.
- **Inputs**: User's ZIP code, land size, flower preferences.
- **Outputs**: Personalized gardening advice and avatar.

3.2 Data Integration and Analysis

- **Functionality**: Fetch and process data from external sources.
- **Sources**: Weather services, farming websites, Farmer's Almanacs.
- **Outputs**: Tailored recommendations based on real-time data.

3.3 Seed and Planting Recommendations

- **Functionality**: Provide planting advice based on user location and preferences.
- **Inputs**: User's ZIP code, preferred flowers.
- **Outputs**: Sowing, planting, and harvesting recommendations; online seed source suggestions.

3.4 Notifications and Alerts System

- **Functionality**: Send alerts about weather conditions and gardening activities.
- **Inputs**: Weather data, user's gardening schedule.
- **Outputs**: Weather alerts, planting and harvesting reminders.

3.5 Adaptive Learning for User Training

- **Functionality**: Adapt recommendations based on user interactions.
- **Inputs**: User feedback, interaction history.
- **Outputs**: Updated advice and recommendations.

3.6 Mobile Compatibility

- **Requirement**: Ensure all AI functionalities are compatible with mobile devices.

3.7 User Story Implementation (Case: Sarah)

- **Functionality**: Address specific needs as outlined in the user story.
- **Outputs**: Visual bouquet planning, succession planting advice, garden space utilization.

3.8 Seasonal Planning Assistance

- **Functionality**: Assist in planning gardening activities for the upcoming season.
- **Outputs**: Seasonal gardening plan, seed sowing reminders.

4. Performance Requirements

- The AI core must process data and provide recommendations in real-time.
- The system should be capable of handling multiple users simultaneously without significant lag.

5. Security Requirements

- User data must be stored securely and handled in compliance with privacy laws.
- Ensure secure data transmission between the app and external APIs.

6. Quality Attributes

- **Usability**: The AI features should be user-friendly and intuitive.
- **Reliability**: The system should provide accurate and timely information.
- **Scalability**: The AI core should be scalable to accommodate a growing user base.