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**Software Requirements Specification (SRS)**

**1. Introduction**

**1.1 Purpose**

The purpose of this document is to detail the Software Requirements Specification (SRS) for a website dedicated to supporting farmers and individuals starting their farming journey in India. The website will offer comprehensive guides on plant growth from seed to adult form, as well as various other features to support and educate new farmers.

**1.2 Document Conventions**

This document uses the following conventions:

- Requirements are labelled as FR (Functional Requirements) and NFR (Non-Functional Requirements).

- Priorities are indicated as High (H), Medium (M), or Low (L).

**1.3 Project Scope**

The website will provide detailed guides on plant growth, interactive tools, community forums, multimedia content, and a mobile application to assist farmers in India. The primary focus is to educate and support individuals in their farming journey, taking into account the specific needs and challenges faced by Indian farmers.

**1.4 References**

- Government of India agricultural policies and schemes

- Agricultural research papers relevant to Indian farming

- Documentation for tools and frameworks used

**2. Overall Description**

**2.1 Product Perspective**

The website is a standalone application designed to provide educational resources and support for farmers in India. It will include a companion mobile application for on-the-go access, addressing the diverse climatic and soil conditions across different regions in India.

**2.2 Product Features**

- Plant Growth Guides specific to Indian crops

- Interactive Growth Tracker

- Community Forums in multiple languages (English, Hindi, and regional languages)

- Multimedia Content (Photos, Videos)

- Mobile Application

- Marketplaces and Listings for Indian farming supplies

- User Profiles and Customizable Dashboards

**2.3 User Classes and Characteristics**

- New Farmers: Individuals starting their farming journey with little or no experience.

- Experienced Farmers: Individuals with farming experience looking for specific information and advanced techniques.

- Agricultural Experts: Professionals providing advice and contributing content.

- Government Officials: Individuals looking for data and resources to support agricultural policies and initiatives.

**2.4 Operating Environment**

- Web Browsers: Chrome, Firefox, Safari, Edge

- Mobile Platforms: iOS, Android

- Server Environment: LAMP/MEAN stack

**2.5 Design and Implementation Constraints**

- Must be responsive and mobile-friendly to accommodate users with various devices.

- High availability and performance during peak usage, especially during planting and harvesting seasons.

**2.6 User Documentation**

- Online help and FAQ section.

- User manuals for the website and mobile application.

- Tutorials and how-to guides specific to Indian farming practices.

**2.7 Assumptions and Dependencies**

- Users have basic internet access, considering rural areas might have limited connectivity.

- The website will use third-party APIs for weather data and market prices relevant to Indian agriculture.

**3. System Features**

**3.1 Feature 1: Plant Growth Guide**

- Description and Priority: Detailed guides on plant growth from seed to adult form, customized for crops commonly grown in India. (H)

- Stimulus/Response Sequences: Users select a crop and view step-by-step growth stages with care tips.

- Functional Requirements:

- FR1.1: The system shall provide detailed information for each growth stage of selected crops.

- FR1.2: The system shall include multimedia content for each growth stage, such as images and videos.

- FR1.3: The system shall allow users to download or print the growth guides.

- FR1.4: The system shall provide region-specific advice based on local climatic conditions and soil types.

**3.2 Feature 2: Interactive Growth Tracker**

- Description and Priority: A tool for users to track the growth progress of their plants, with features tailored for Indian agriculture. (H)

- Stimulus/Response Sequences: Users input plant data and receive a visual timeline of growth stages.

- Functional Requirements:

- FR2.1: The system shall allow users to input planting date, growth milestones, and specific crop information.

- FR2.2: The system shall generate a visual growth timeline, showing expected dates for each stage.

- FR2.3: The system shall send reminders for plant care tasks, such as watering, fertilizing, and pest control.

- FR2.4: The system shall provide alerts for weather conditions that might affect plant growth.

**3.3 Feature 3: Community and Forums**

- Description and Priority: A platform for users to discuss and share farming experiences, available in multiple languages. (M)

- Stimulus/Response Sequences: Users post questions, share advice, and participate in discussions.

- Functional Requirements:

- FR3.1: The system shall provide discussion forums categorized by topics (e.g., crop types, pest management, irrigation techniques).

- FR3.2: The system shall allow users to create and reply to posts in their preferred language.

- FR3.3: The system shall include moderation tools to manage content and ensure it adheres to community guidelines.

**3.4 Feature 4: Multimedia Content**

- Description and Priority: High-quality photos and videos illustrating plant growth stages, farming techniques, and success stories from Indian farmers. (H)

- Stimulus/Response Sequences: Users view multimedia content related to plant care and growth.

- Functional Requirements:

- FR4.1: The system shall include photo galleries for each crop, showcasing different growth stages.

- FR4.2: The system shall provide video tutorials for plant care tasks and farming techniques.

- FR4.3: The system shall support high-resolution images and HD videos.

- FR4.4: The system shall include success stories from Indian farmers to inspire and educate users.

**3.5 Feature 5: Mobile Application (Future Scope)**

- Description and Priority: A companion mobile app for accessing resources and tracking plants on-the-go, tailored for Indian farmers. (H)

- Stimulus/Response Sequences: Users access plant guides, track growth, and receive notifications via the mobile app.

- Functional Requirements:

- FR5.1: The mobile app shall provide access to all website features.

- FR5.2: The mobile app shall support push notifications for reminders and alerts.

- FR5.3: The mobile app shall be available for iOS and Android platforms.

- FR5.4: The mobile app shall support offline mode for basic functionalities, considering limited internet access in rural areas.

**4. External Interface Requirements**

**4.1 User Interfaces**

- The website shall have a user-friendly interface with intuitive navigation and support for multiple languages.

- The mobile app shall have a consistent design with the website and support offline functionality.

**4.2 Hardware Interfaces**

- The website and app shall be accessible on standard consumer hardware (PCs, smartphones, tablets).

**4.3 Software Interfaces**

- The website shall integrate with third-party APIs for weather data and market prices relevant to Indian agriculture.

- The system shall use standard web technologies (HTML, CSS, JavaScript) and frameworks (React, Angular).

**4.4 Communication Interfaces**

- The system shall use HTTPS for secure communication.

- The system shall support RESTful APIs for data exchange.

**5. Nonfunctional Requirements**

**5.1 Performance Requirements**

- The website shall load within 3 seconds for most users, considering varying internet speeds in India.

- The system shall handle up to 10,000 concurrent users, especially during peak agricultural seasons.

**5.2 Safety Requirements**

- The system shall ensure data privacy and security for user information.

- The system shall comply with relevant data protection regulations, such as the IT Act 2000 and its amendments.

**5.3 Security Requirements**

- The system shall use secure authentication methods (e.g., OAuth).

- The system shall encrypt sensitive data in transit and at rest.

**5.4 Software Quality Attributes**

- The system shall be maintainable and allow for easy updates.

- The system shall be reliable with an uptime of 99.9%.

**5.5 Business Rules**

- The system shall offer free basic access with optional premium features for advanced tools and content.

- The system shall support advertising and sponsorship opportunities relevant to agriculture.

**6. Other Requirements**

**6.1 Legal and Regulatory Requirements**

- The system shall comply with local and international agricultural laws.

- The system shall adhere to online content regulations and copyright laws.

**6.2 Compliance Requirements**

- The system shall meet accessibility standards (e.g., WCAG 2.1).

- The system shall comply with data protection laws (e.g., GDPR, India’s Personal Data Protection Bill 2019).

SPACE IS PRESENT BETWEEN FEATURES FOR INCLUSION OF NEW FEATURES OR ANY CHANGES TO IT

### Additional Features

1. Market Price Tracker

- Description: Real-time updates on the market prices of various crops and commodities.

- Functional Requirements:

- FR6.1: The system shall provide real-time price data for crops and commodities.

- FR6.2: The system shall allow users to set alerts for specific price changes.

2. Government Schemes and Subsidies Information

- Description: Information on government schemes, subsidies, and policies related to agriculture.

- Functional Requirements:

- FR7.1: The system shall provide detailed information on various government schemes and subsidies.

- FR7.2: The system shall include an application process guide for each scheme.

3. Weather Forecasting

- Description: Detailed and localized weather forecasts to help farmers plan their activities.

- Functional Requirements:

- FR8.1: The system shall provide real-time weather updates and forecasts.

- FR8.2: The system shall allow users to receive weather alerts relevant to their location.

4. Pest and Disease Management

- Description: Information and tools to help farmers identify and manage pests and diseases.

- Functional Requirements:

- FR9.1: The system shall provide a database of common pests and diseases with treatment options.

- FR9.2: The system shall include a diagnostic tool where users can upload photos to identify issues.

5. E-Commerce Integration

- Description: A marketplace for buying and selling farming equipment, seeds, fertilizers, and other supplies.

- Functional Requirements:

- FR10.1: The system shall provide a platform for vendors to list their products.

- FR10.2: The system shall allow users to browse and purchase products.

- FR10.3: The system shall include secure payment gateways.

6. Success Stories and Case Studies

- Description: Stories and case studies from successful farmers to inspire and educate.

- Functional Requirements:

- FR11.1: The system shall feature success stories from various regions.

- FR11.2: The system shall allow users to submit their own success stories.

7. Training and Workshops

- Description: Information on training programs, workshops, and webinars related to agriculture.

- Functional Requirements:

- FR12.1: The system shall provide a calendar of upcoming training events and workshops.

- FR12.2: The system shall allow users to register for online and offline events.

### Additional Features

1. Local Language Support

- Description: Allow users to choose from a wide range of regional languages for both the website and mobile app interfaces.

- Benefit: Improves accessibility for farmers who may not be fluent in English or Hindi.

5. Expert Consultation Services

- Description: Provide a platform for farmers to book consultations with agricultural experts.

- Benefit: Offers personalized advice and problem-solving assistance.

7. Farm Management Tools

- Description: Tools for tracking expenses, managing inventory, and planning crop rotations.

- Benefit: Helps farmers manage their farms more efficiently and effectively.

8. Educational Resources

- Description: A library of articles, e-books, webinars, and online courses on various farming techniques and best practices.

- Benefit: Provides continuous learning opportunities for farmers.

###Future plan

1. Pest and Disease Management

- Description: Offer information on common pests and diseases, along with treatment methods.

- Benefits: Empowers farmers with knowledge to protect their crops effectively.

- Functional Requirements:

- FR2.1: The system shall provide a searchable database of pests and diseases.

- FR2.2: The system shall include treatment guides and prevention tips.

- FR2.3: The system shall allow users to upload pictures of affected plants for expert advice.

2. Networking Opportunities

- Description: Features to facilitate networking among farmers, such as events, meetups, and collaborative projects.

- Benefit: Encourages knowledge sharing and community building.

3. Analytics and Reporting

- Description: Tools to generate reports and analytics on farm performance, yield, and productivity.

- Benefit: Provides insights that can help farmers improve their practices.

4. Integrated Supply Chain Management

- Description: Tools to connect farmers with suppliers, distributors, and retailers, streamlining the supply chain.

- Benefit: Enhances efficiency and profitability by reducing intermediaries.

5. Alerts and Notifications

- Description: Customizable alerts for important dates, such as sowing and harvesting times, as well as weather warnings.

- Benefit: Ensures farmers do not miss critical activities and stay informed about potential risks.

3.6 Feature 6: Local Language Support

- Description and Priority: Support for multiple regional languages to enhance accessibility. (H)

- Functional Requirements:

- FR6.1: The system shall provide language options in the user settings.

- FR6.2: The system shall translate all content and interfaces into selected languages.

3.7 Feature 7: Market Price Tracker

- Description and Priority: Real-time market prices for crops and livestock. (H)

- Functional Requirements:

- FR7.1: The system shall fetch and display market prices from reliable sources.

- FR7.2: The system shall allow users to set price alerts for specific commodities.

3. Market Price Updates

- Description: Display real-time market prices for various crops.

- Benefits: Helps farmers make informed decisions about selling their produce.

- Functional Requirements:

- FR3.1: The system shall provide real-time updates on crop prices from major markets.

- FR3.2: The system shall display historical price trends.

- FR3.3: The system shall send notifications when prices reach user-defined thresholds.

3.8 Feature 8: Weather Forecast Integration

- Description: Provide localized weather forecasts and alerts tailored to farming activities.

- Benefits: Helps farmers plan their activities and take precautionary measures against adverse weather conditions.

- Functional Requirements:

- FR1.1: The system shall display real-time weather updates.

- FR1.2: The system shall provide weather forecasts for the upcoming week.

- FR1.3: The system shall send alerts for extreme weather conditions.

3.9 Feature 9: Government Schemes and Subsidies Information

- Description: Provide detailed information on government schemes, subsidies, and support programs.

- Benefits: Ensures farmers are aware of and can access available support.

- Functional Requirements:

- FR4.1: The system shall list all relevant government schemes and subsidies.

- FR4.2: The system shall include eligibility criteria and application processes.

- FR4.3: The system shall allow users to subscribe to updates on new schemes.

3.10 Feature 10: Expert Consultation Services

- Description and Priority: Platform for booking consultations with agricultural experts. (M)

- Functional Requirements:

- FR10.1: The system shall allow users to book and schedule consultations.

- FR10.2: The system shall support video calls and messaging for consultations.

3.11 Feature 11: E-commerce Platform

- Description and Priority: Marketplace for buying and selling farming supplies. (M)

- Functional Requirements:

- FR11.1: The system shall list products from verified vendors.

- FR11.2: The system shall support secure payment processing.

3.12 Feature 12: Farm Management Tools

- Description and Priority: Tools for tracking expenses, managing inventory, and planning crop rotations. (H)

- Functional Requirements:

- FR12.1: The system shall provide templates for recording expenses and inventory.

- FR12.2: The system shall suggest crop rotation plans based on input data.

6. Educational Resources and Workshops

- Description: Provide access to educational resources, webinars, and workshops on various farming topics.

- Benefits: Enhances the knowledge and skills of farmers.

- Functional Requirements:

- FR6.1: The system shall provide a library of articles, e-books, and videos.

- FR6.2: The system shall offer live and recorded webinars and workshops.

- FR6.3: The system shall allow users to register for upcoming events.

3.14 Feature 14: Pest and Disease Diagnosis

- Description and Priority: AI-based tools for diagnosing pest infestations and plant diseases. (H)

- Functional Requirements:

- FR14.1: The system shall allow users to upload photos of affected plants.

- FR14.2: The system shall analyse images and provide diagnostic results.

3.15 Feature 15: Networking Opportunities

- Description and Priority: Features for networking among farmers, such as events and meetups. (M)

- Functional Requirements:

- FR15.1: The system shall list upcoming agricultural events and meetups.

- FR15.2: The system shall allow users to RSVP and participate in discussions.

3.16 Feature 16: Analytics and Reporting

- Description and Priority: Tools to generate reports and analytics on farm performance. (M)

- Functional Requirements:

- FR16.1: The system shall provide templates for generating performance reports.

- FR16.2: The system shall analyse data and provide insights on productivity.

3.17 Feature 17: Integrated Supply Chain Management

- Description and Priority: Tools to connect farmers with suppliers, distributors, and retailers. (L)

- Functional Requirements:

- FR17.1: The system shall provide a directory of supply chain contacts.

- FR17.2: The system shall facilitate communication and transactions between parties.

3.18 Feature 18: Alerts and Notifications

- Description and Priority: Customizable alerts for important dates and weather warnings. (H)

- Functional Requirements:

- FR18.1: The system shall allow users to set reminders for farming activities.

- FR18.2: The system shall send alerts for severe weather conditions.

8. AI-based Crop Recommendations

- Description: Use AI to provide crop recommendations based on soil type, climate, and market trends.

- Benefits: Helps farmers make data-driven decisions to optimize their yields and profits.

- Functional Requirements:

- FR8.1: The system shall analyse user-provided soil and climate data.

- FR8.2: The system shall offer crop recommendations based on data analysis.

- FR8.3: The system shall update recommendations based on market trends.