KrishiSagar Project - 12 Week Development Logbook

Weekly Logbooks

Week 1: Project Planning & Architecture Design

Akshar Miyani

- **Tasks Completed**:
  - Created initial project structure and repository setup
  - Defined project architecture and tech stack selection
  - Set up Next.js framework with TypeScript configuration
  - Established project coding standards and documentation procedures
  - Led initial team planning sessions and task distribution
- **Challenges**:
  - Finalizing technology choices to ensure mobile and web compatibility
  - Determining the best approach for handling multilingual support
- **Plans for Next Week**:
  - Begin implementing core authentication infrastructure
  - Create database schema designs

Hardik Nakum

- **Tasks Completed**:
  - Created initial wireframes for core user interfaces
  - Established design system fundamentals and color palettes
  - Researched UI components for agricultural-focused applications
  - Conducted competitive analysis of existing farm management apps
  - Created user flow diagrams for primary user journeys
- **Challenges**:
  - Balancing modern UI design with accessibility for rural users
  - Creating interfaces that work well in low-connectivity environments
- **Plans for Next Week**:
  - Develop component prototypes for farmer dashboard

    - Create design specifications for multilingual support

Jenish Sanghavi

- **Tasks Completed**:
    - Researched database options and selected Supabase
    - Created initial ER diagrams for core entities
    - Set up development environment and tools
    - Drafted data migration strategy and backup procedures
    - Researched authentication options with role-based access
- **Challenges**:
    - Designing schemas that support complex user role relationships
    - Planning for data security in agricultural context
- **Plans for Next Week**:
    - Configure Supabase project and initial tables
    - Implement base authentication models

Week 2: Core Infrastructure & Authentication

Akshar Miyani

- **Tasks Completed**:
    - Implemented core authentication flow using Supabase Auth
    - Created middleware for protected routes and role-based access
    - Set up project directory structure for scalability
    - Implemented internationalization (i18n) infrastructure
    - Created CI/CD pipeline for automated testing and deployment
- **Challenges**:
    - Ensuring authentication works reliably in poor network conditions
    - Configuring proper security for authentication tokens
- **Plans for Next Week**:
    - Begin implementing farmer profile management features
    - Support database schema implementation

Hardik Nakum

- **Tasks Completed**:
    - Created component library for common UI elements

    - Implemented responsive dashboard layouts
    - Designed authentication screens (login, signup, password reset)
    - Created language switcher component and styling
    - Implemented dark/light mode support
- **Challenges**:
    - Ensuring responsive design works on various device sizes
    - Creating intuitive forms for rural users with varying digital literacy
- **Plans for Next Week**:
    - Implement farmer profile UI components
    - Design KrishiGram social feed interface

Jenish Sanghavi

- **Tasks Completed**:
    - Created initial database tables in Supabase (users, user_roles)
    - Implemented RLS (Row Level Security) policies
    - Set up database triggers for synchronizing user data
    - Created API endpoints for user management
    - Implemented profile type mapping for different user roles
- **Challenges**:
    - Designing efficient queries for complex role relationships
    - Ensuring proper data security through RLS policies
- **Plans for Next Week**:
    - Implement database schemas for farmer-specific features
    - Create API endpoints for profile management

Week 3: User Profile Management

Akshar Miyani

- **Tasks Completed**:
    - Integrated user profile management across different user types
    - Implemented profile creation and update flows
    - Created shared context providers for user state management
    - Implemented role-based routing and navigation
    - Added error handling and form validation across profile features
- **Challenges**:

    - Managing complex state across different user types
    - Handling edge cases in profile completion flows
- **Plans for Next Week**:
    - Begin implementation of soil health monitoring feature
    - Support integration of Edge Functions for API routes

Hardik Nakum

- **Tasks Completed**:
    - Designed and implemented profile dashboards for all user types
    - Created profile edit interfaces with image upload support
    - Implemented form components with validation feedback
    - Added multilingual support for profile-related content
    - Created user type selection interface for new registrations
- **Challenges**:
    - Creating intuitive profile setup flows for different user types
    - Designing appropriate visualizations for each user dashboard
- **Plans for Next Week**:
    - Design soil health monitoring interfaces
    - Create crop analysis visualization components

Jenish Sanghavi

- **Tasks Completed**:
    - Implemented full database schema for all user profile types:
        - farmer_profiles
        - store_owner_profiles
        - broker_profiles
        - expert_profiles
        - student_profiles
        - consumer_profiles
    - Created migrations for schema changes
    - Implemented API endpoints for profile CRUD operations
    - Added validation for profile-specific data
    - Set up database triggers for profile synchronization
- **Challenges**:
    - Ensuring data integrity across related profile tables
    - Optimizing queries for profile data retrieval
- **Plans for Next Week**:

    - Implement soil health database models
    - Create data access layer for crop analysis features

Week 4: Soil Health Monitoring Feature

Akshar Miyani

- **Tasks Completed**:
    - Developed core Soil Health Monitoring feature
    - Implemented farm location management system
    - Created soil test data visualization components
    - Added recommendation engine integration
    - Implemented export and sharing functionality
- **Challenges**:
    - Creating accurate visualization of soil health metrics
    - Implementing complex data filtering for historical view
- **Plans for Next Week**:
    - Begin crop analysis and disease detection feature
    - Support integration of AI services for analysis

Hardik Nakum

- **Tasks Completed**:
    - Designed and implemented soil health dashboard
    - Created input forms for soil test data entry
    - Designed historical view with visual health indicators
    - Implemented comparison charts for soil metrics
    - Created mobile-optimized interfaces for field use
- **Challenges**:
    - Creating intuitive data visualization for complex soil metrics
    - Designing interfaces that work well on small screens
- **Plans for Next Week**:
    - Design crop analysis upload and results interfaces
    - Create visualization components for crop health data

Jenish Sanghavi

- **Tasks Completed**:

    - Implemented database schema for soil health tracking:
        - soil_tests
        - farm_locations
        - soil_recommendations
    - Created API endpoints for soil test management
    - Implemented data aggregation for soil health reports
    - Added recommendation matching algorithm
    - Set up data export functionality
- **Challenges**:
    - Optimizing queries for historical soil data
    - Implementing proper data validation for soil metrics
- **Plans for Next Week**:
    - Implement database models for crop analysis
    - Create machine learning integration endpoints

Week 5: Crop Analysis & Disease Detection

Akshar Miyani

- **Tasks Completed**:
    - Implemented crop analysis upload and processing workflow
    - Created image processing utilities for AI integration
    - Implemented disease detection result display
    - Added recommendation system for crop treatments
    - Integrated with notification system for analysis results
- **Challenges**:
    - Handling image uploads in low-bandwidth environments
    - Optimizing analysis process for mobile devices
- **Plans for Next Week**:
    - Begin implementation of KrishiGram social platform
    - Support video upload functionality

Hardik Nakum

- **Tasks Completed**:
    - Designed and implemented crop upload interface with camera integration
    - Created analysis results dashboard with visual indicators

    - Implemented treatment recommendation display
    - Designed historical analysis view with timeline
    - Created comparison tools for crop growth tracking
- **Challenges**:
    - Creating intuitive camera capture interface
    - Designing clear visualization of analysis results
- **Plans for Next Week**:
    - Design KrishiGram social feed and interaction components
    - Create story and reels interface designs

Jenish Sanghavi

- **Tasks Completed**:
    - Implemented database models for crop analysis:
        - crop_analyses
        - crop_analysis_history
    - Created storage infrastructure for image uploads
    - Implemented API for analysis results and history
    - Added machine learning service integration
    - Created data aggregation for regional disease tracking
- **Challenges**:
    - Optimizing storage for large numbers of images
    - Creating efficient queries for analysis history
- **Plans for Next Week**:
    - Implement database models for KrishiGram social features
    - Create content storage and retrieval infrastructure

Week 6: KrishiGram Social Platform - Part 1

Akshar Miyani

- **Tasks Completed**:
    - Implemented core KrishiGram social feed functionality
    - Created post creation and interaction workflows
    - Implemented following/followers system
    - Added content filtering and discovery features
    - Created initial group functionality

- **Challenges**:
  - Creating efficient content loading for feed
  - Implementing proper caching for social content
- **Plans for Next Week**:
  - Complete KrishiGram video features
  - Begin implementation of marketplace features

Hardik Nakum

- **Tasks Completed**:
  - Designed and implemented social feed interface with infinite scroll
  - Created post composition screen with media upload
  - Implemented user profile and following interfaces
  - Designed interaction components (likes, comments)
  - Created discovery page with trending content
- **Challenges**:
  - Creating intuitive interfaces for social interactions
  - Designing efficient content browsing experience
- **Plans for Next Week**:
  - Complete KrishiGram story and reel interfaces
  - Design marketplace listing and browsing interfaces

Jenish Sanghavi

- **Tasks Completed**:
  - Implemented database schema for social platform:
    - krishigram_posts
    - krishigram_comments
    - krishigram_likes
    - krishigram_followers
  - Created content indexing and search functionality
  - Implemented API endpoints for social interactions
  - Added recommendation algorithms for content discovery
  - Set up notification infrastructure for social activities
- **Challenges**:
  - Designing efficient queries for personalized feeds
  - Implementing proper content moderation tools
- **Plans for Next Week**:
  - Complete social media database models

- Begin marketplace database implementation

Week 7: KrishiGram Social Platform - Part 2

Akshar Miyani

- **Tasks Completed**:
  - Implemented video upload and playback functionality
  - Created stories feature with 24-hour visibility
  - Implemented group management and posting
  - Added chat functionality for direct messaging
  - Created content sharing features across platform
- **Challenges**:
  - Implementing efficient video processing
  - Creating reliable real-time chat functionality
- **Plans for Next Week**:
  - Begin implementation of marketplace features
  - Support integration of payment services

Hardik Nakum

- **Tasks Completed**:
  - Designed and implemented story creation and viewing interface
  - Created video recording and editing tools
  - Implemented group interfaces and member management
  - Designed messaging interface with media support
  - Created content tagging and categorization UI
- **Challenges**:
  - Creating intuitive video creation tools
  - Designing accessible messaging interfaces
- **Plans for Next Week**:
  - Design marketplace product listing interfaces
  - Create shopping and order management UIs

Jenish Sanghavi

- **Tasks Completed**:
  - Implemented remaining social database models:

        - krishigram_groups
        - krishigram_group_members
        - krishigram_group_posts
    - Created video processing and storage infrastructure
    - Implemented real-time messaging backend
    - Added content distribution system for stories
    - Created analytics tracking for content engagement
- **Challenges**:
    - Optimizing video storage and delivery
    - Implementing efficient real-time data synchronization
- **Plans for Next Week**:
    - Begin implementation of marketplace database models
    - Create transaction processing infrastructure

Week 8: Marketplace Development - Part 1

Akshar Miyani

- **Tasks Completed**:
    - Implemented product listing and management features
    - Created product search and discovery functionality
    - Implemented order creation workflow
    - Added buyer-seller messaging system
    - Created product recommendations based on user profiles
- **Challenges**:
    - Creating efficient product search functionality
    - Implementing secure transaction processing
- **Plans for Next Week**:
    - Complete marketplace order management features
    - Begin implementation of financial tracking system

Hardik Nakum

- **Tasks Completed**:
    - Designed and implemented product listing interface
    - Created product detail view with image gallery
    - Implemented shopping cart and checkout flow

    - Designed order tracking and history interfaces
    - Created seller dashboard for product management
- **Challenges**:
    - Creating intuitive product listing interface for farmers
    - Designing accessible checkout process
- **Plans for Next Week**:
    - Complete order management interfaces
    - Design financial tracking dashboards

Jenish Sanghavi

- **Tasks Completed**:
    - Implemented initial marketplace database models:
        - products
        - product_categories
        - product_images
    - Created search indexing for marketplace products
    - Implemented API endpoints for product management
    - Added inventory tracking functionality
    - Created recommendation engine for related products
- **Challenges**:
    - Designing efficient product search and filtering
    - Implementing proper inventory management
- **Plans for Next Week**:
    - Complete marketplace transaction models
    - Begin implementation of financial tracking database

Week 9: Marketplace Development - Part 2 & Financial Tracking

Akshar Miyani

- **Tasks Completed**:
    - Completed order management and fulfillment features
    - Implemented payment integration with multiple options
    - Created financial transaction tracking system
    - Added review and rating functionality
    - Implemented financial reporting tools

- **Challenges**:
  - Integrating multiple payment methods
  - Creating reliable transaction recording
- **Plans for Next Week**:
  - Begin implementation of broker sales recording
  - Support weather API integration

Hardik Nakum

- **Tasks Completed**:
  - Designed and implemented order fulfillment interfaces
  - Created payment flow with multiple options
  - Implemented financial dashboard with visualizations
  - Designed transaction history and reporting interfaces
  - Created review submission and display components
- **Challenges**:
  - Creating clear financial visualization
  - Designing intuitive payment interfaces
- **Plans for Next Week**:
  - Design broker sales recording interfaces
  - Create weather dashboard components

Jenish Sanghavi

- **Tasks Completed**:
  - Completed marketplace database implementation:
    - orders
    - order_items
    - reviews
    - transactions
  - Created financial tracking database models
  - Implemented payment processing infrastructure
  - Added transaction recording and reconciliation
  - Created reporting and analytics queries
- **Challenges**:
  - Ensuring data integrity for financial transactions
  - Implementing secure payment processing
- **Plans for Next Week**:
  - Implement broker sales recording database models

    - Create weather data integration infrastructure

Week 10: Broker Sales Recording & Weather Integration

Akshar Miyani

- **Tasks Completed**:
    - Implemented market sale recording for brokers
    - Created sales receipt generation functionality
    - Implemented farmer financial tracking integration
    - Added weather monitoring and alert system
    - Created crop planning tools with weather integration
- **Challenges**:
    - Creating reliable sales recording in offline environments
    - Implementing accurate weather-based recommendations
- **Plans for Next Week**:
    - Begin implementation of crop rotation planning
    - Support community features development

Hardik Nakum

- **Tasks Completed**:
    - Designed and implemented broker sales interface
    - Created digital receipt generation and sharing
    - Implemented sales history and reporting dashboards
    - Designed weather dashboard with forecast visualization
    - Created weather alert notification interfaces
- **Challenges**:
    - Creating intuitive sales recording interface
    - Designing clear weather visualization components
- **Plans for Next Week**:
    - Design crop rotation planning interfaces
    - Create community support features

Jenish Sanghavi

- **Tasks Completed**:
    - Implemented market sales database models:

        - market_sales
        - sale_items
        - farmer_sales
    - Created receipt generation and storage infrastructure
    - Implemented weather data integration API
    - Added alert generation for weather conditions
    - Created data synchronization for offline recording
- **Challenges**:
    - Implementing reliable data synchronization
    - Creating efficient weather data storage and processing
- **Plans for Next Week**:
    - Implement crop rotation planning database models
    - Create community features database schema

Week 11: Crop Planning & Community Features

Akshar Miyani

- **Tasks Completed**:
    - Implemented crop rotation planning system
    - Created season-based crop recommendation engine
    - Implemented community support features
    - Added expert consultation request system
    - Created knowledge sharing platform
- **Challenges**:
    - Creating accurate crop rotation recommendations
    - Implementing efficient knowledge discovery
- **Plans for Next Week**:
    - Perform comprehensive testing and bug fixing
    - Begin preparation for production deployment

Hardik Nakum

- **Tasks Completed**:
    - Designed and implemented crop planning interface
    - Created crop rotation visualization tools
    - Implemented community forum interfaces

    - Designed expert consultation request flow
    - Created knowledge library browsing interface
- **Challenges**:
    - Creating intuitive crop planning tools
    - Designing accessible knowledge sharing interfaces
- **Plans for Next Week**:
    - Conduct UI/UX testing and refinement
    - Create onboarding tutorials and help content

Jenish Sanghavi

- **Tasks Completed**:
    - Implemented crop planning database models:
        - crop_rotation_plans
        - crop_cycles
    - Created community features database schema
    - Implemented expert matching algorithm
    - Added knowledge content indexing and search
    - Created data aggregation for crop planning insights
- **Challenges**:
    - Implementing efficient crop planning algorithms
    - Creating scalable knowledge content storage
- **Plans for Next Week**:
    - Perform database optimization and indexing
    - Prepare database for production deployment

Week 12: Testing, Optimization & Deployment

Akshar Miyani

- **Tasks Completed**:
    - Conducted comprehensive system testing
    - Fixed critical bugs and performance issues
    - Implemented final security enhancements
    - Prepared deployment pipeline for production
    - Created administrative tools for platform management
- **Challenges**:

    - Addressing performance issues in complex features
    - Ensuring security across all platform functions
- **Next Steps**:
    - Monitor initial user feedback and behavior
    - Begin planning for phase 2 feature development

Hardik Nakum

- **Tasks Completed**:
    - Conducted usability testing with target users
    - Refined UI/UX based on feedback
    - Created onboarding tutorials and help content
    - Optimized interfaces for performance
    - Prepared final design documentation
- **Challenges**:
    - Addressing usability issues for different user types
    - Creating effective onboarding for complex features
- **Next Steps**:
    - Collect user feedback on interface design
    - Plan UI/UX improvements for phase 2

Jenish Sanghavi

- **Tasks Completed**:
    - Optimized database queries and indexes
    - Conducted load testing and performance tuning
    - Implemented automated backup procedures
    - Created data monitoring and alerting system
    - Prepared database for production deployment
- **Challenges**:
    - Optimizing performance for large data volumes
    - Ensuring data integrity and security
- **Next Steps**:
    - Monitor database performance in production
    - Plan for scaling infrastructure as user base grows

Project Highlights & Achievements

- Successfully implemented a comprehensive agricultural ecosystem with support for 7 different user types
- Created an intuitive, multilingual platform accessible to users with varying levels of digital literacy
- Developed innovative features including AI-powered crop analysis, soil health monitoring, and social networking
- Built a scalable infrastructure capable of supporting thousands of concurrent users
- Implemented offline functionality for critical features to work in low-connectivity environments
- Created a secure financial tracking system for agricultural transactions
- Developed a knowledge sharing platform to promote sustainable farming practices