AGILE PROCESS MODEL FOR SWASTHSETU

PROJECT OVERVIEW

Project Name: SwasthSetu

Project Type: Healthcare Technology Platform

Development Methodology: Agile (Scrum Framework)

Project Duration: 6 Months (26 Weeks)

Team Size: 6-8 members

AGILE FRAMEWORK STRUCTURE

1. SPRINT DURATION

- Sprint Length: 2 weeks (10 business days)
- Total Sprints: 13 sprints
- Sprint Cycle: Monday to Friday (5 days per sprint week, 2-week sprint = 10 days)

2. TEAM ROLES & RESPONSIBILITIES

A. Product Owner:
- Manages product backlog and prioritizes features
- Defines acceptance criteria for user stories
- Makes business decisions on features
- Acts as primary stakeholder representative
- Conducts sprint reviews with stakeholders

B. Scrum Master:
- Facilitates daily stand-ups and sprint ceremonies
- Removes impediments blocking team progress
- Coaches team on Agile practices
- Manages sprint board and tracking
- Ensures team follows Scrum principles

C. Development Team (6-8 members):

- Backend Developers (2-4): Node.js/Python APIs, database design
- Frontend Developers (1-3): React Native mobile apps
- QA Engineers (1-2): Testing and quality assurance
- DevOps Engineer (1): Infrastructure and deployment
- UI/UX Designer (1): Interface and user experience

D. Stakeholders:
- Civil Hospital representatives
- Health Department officials
- Technical architects
- End-users (patients, doctors, pharmacists)

3. AGILE CEREMONIES & MEETINGS

A. Daily Stand-up (15 minutes)

Time: 9:30 AM every morning
Duration: 15 minutes maximum
Attendees: Development team, Scrum Master
Topics: What was done yesterday, what will be done today, blockers
Format: Round-robin, each person answers three questions

B. Sprint Planning (4 hours)

Occurs: First day of each sprint (Monday)
Duration: 4 hours
- Attendees: Entire team, Product Owner
  Activities:
  - Review product backlog
  - Discuss user stories and acceptance criteria
  - Define sprint goal and select items for sprint
  - Break down stories into tasks

C. Sprint Review (2 hours)

- Occurs: Last Friday of each sprint
- Duration: 2 hours
- Attendees: Team, Product Owner, stakeholders
- Activities:
  - Demonstrate completed work

        - Gather feedback from stakeholders
        - Discuss what was accomplished vs planned
        - Update product backlog based on feedback

D. Sprint Retrospective (1.5 hours)
    - Occurs: Last Friday of each sprint (after sprint review)
    - Duration: 1.5 hours
    - Attendees: Development team, Scrum Master
    - Activities:
        - Discuss what went well
        - Identify areas for improvement
        - Propose action items for next sprint
        - Celebrate achievements

E. Backlog Refinement (2 hours)
    - Occurs: Mid-sprint (Wednesday)
    - Duration: 2 hours
    - Attendees: Team, Product Owner
    - Activities:
        - Review upcoming backlog items
        - Break down complex stories
        - Add acceptance criteria
        - Prepare stories for next sprint planning

4. RISK MANAGEMENT

Identified Risks:

1. Network connectivity issues in rural areas
    - Mitigation: Design offline-first architecture early
    - Owner: Lead Architect

2. Third-party service integration delays
    - Mitigation: Reserve buffer time, use mock services
    - Owner: Integration Lead

3. Scope creep from stakeholders
    - Mitigation: Strict change control, prioritization framework
    - Owner: Product Owner

4. Resource unavailability
    - Mitigation: Cross-train team members, documentation
    - Owner: Scrum Master

5. Performance issues on low-bandwidth networks
    - Mitigation: Early performance testing, optimization sprints
    - Owner: DevOps Engineer

Risk Review: Conducted in each retrospective

DETAILED SPRINT BREAKDOWN & MILESTONES

PHASE 1: FOUNDATION & SETUP (Sprints 1-2)

SPRINT 1: Project Setup and Architecture
Sprint Goal: Establish development environment, team alignment, and architectural foundation

User Stories:

- Set up development environment and tools
- Create project repository and CI/CD pipeline
- Design system architecture diagram
- Set up cloud infrastructure (AWS/Google Cloud)
- Create API specification documents
- Establish coding standards and best practices

Deliverables:

- Development environment ready for all team members
- GitHub repository with initial project structure
- CI/CD pipeline for automated testing
- Cloud infrastructure provisioned
- Architectural documentation completed
- Code style guide and templates

MILESTONE 1: Development Environment Ready

- All developers can run project locally
- Repository structure established
- Basic CI/CD pipeline operational
- Cloud accounts configured

SPRINT 2: Database Design and Authentication Framework
Sprint Goal: Design database schema and implement authentication system

User Stories:

- Design database schema (users, patients, doctors, consultations, health records)
- Set up PostgreSQL/MongoDB database
- Implement user authentication (OTP, phone verification)
- Implement JWT token-based authentication
- Create password reset functionality
- Implement role-based access control (RBAC)

Deliverables:

- Database schema with ER diagrams
- Authentication module with API endpoints
- User registration and login API
- Token generation and validation
- Database migration scripts
- Security documentation

MILESTONE 2: Authentication System Functional

- Users can register via phone number
- OTP verification working
- JWT tokens generated and validated
- Role-based access implemented

PHASE 2: CORE FEATURES - PART 1 (Sprints 3-6)

SPRINT 3: User Profiles and Patient Registration
Sprint Goal: Implement user profile management and patient onboarding

User Stories:

- Create patient profile management API
- Implement doctor profile management
- Create profile editing and deletion endpoints
- Add profile picture upload functionality
- Implement address and location tracking
- Create profile view for different user types

Deliverables:

- Patient and doctor profile APIs
- Profile management dashboard
- Location services integration
- User data validation

MILESTONE 3: User Profiles System Complete

- All user types can create and manage profiles
- Location tracking enabled

SPRINT 4: Consultation Booking System
Sprint Goal: Implement consultation scheduling and booking

User Stories:

- Create consultation booking API
- Implement doctor availability calendar
- Create time slot management system
- Build notification system for bookings
- Implement consultation status tracking
- Create consultation list view for patients and doctors

Deliverables:

- Consultation booking APIs
- Calendar integration
- Notification system (SMS/Push)
- Booking management interface

MILESTONE 4: Consultation Booking Live

- Patients can book appointments
- Doctors can manage availability
- Notifications sent for bookings

SPRINT 5: Digital Health Records
Sprint Goal: Implement basic health records storage and retrieval

User Stories:

- Design health records data structure
- Implement health records API (create, read, update)
- Add medical history storage
- Implement prescription management
- Create document upload functionality (PDFs, images)
- Build health records viewing interface

Deliverables:

- Document storage system
- Medical history management
- File upload/download functionality

MILESTONE 5: Health Records System Operational

- Patients can view their medical history
- Doctors can update records
- Documents can be uploaded and stored

SPRINT 6: Video Consultation Infrastructure
Sprint Goal: Set up WebRTC infrastructure for video consultations

User Stories:

- Integrate WebRTC library (Jitsi/Twilio)
- Implement video call initiation API
- Create video call quality adjustment mechanism
- Implement audio-only fallback
- Add call recording capability
- Create video interface UI design

Deliverables:

- WebRTC integration complete
- Video call APIs
- Quality adaptation mechanism
- Call recording system

MILESTONE 6: Video Consultation Foundation Ready

- Test calls successfully placed
- Quality adjustment working
- Recording functional

PHASE 3: CORE FEATURES - PART 2 (Sprints 7-9)

SPRINT 7: AI Symptom Checker
Sprint Goal: Implement AI-powered symptom assessment

User Stories:

- Integrate symptom checker AI model
- Create symptom assessment questionnaire
- Implement recommendation engine
- Add offline symptom database
- Create risk assessment display
- Implement symptom history tracking

Deliverables:

- Symptom checker API
- AI model integration
- Assessment logic
- Offline database

MILESTONE 7: AI Symptom Checker Live

- Symptom assessment working
- Recommendations provided
- Offline functionality tested

SPRINT 8: Medicine Availability Tracking
Sprint Goal: Implement pharmacy medicine inventory system

User Stories:

- Create pharmacy inventory management API
- Implement medicine database
- Create medicine search functionality
- Add pharmacy location mapping
- Implement real-time availability updates

- Create availability notification system

Deliverables:

- Pharmacy inventory APIs
- Medicine database
- Search and location services
- Real-time updates

MILESTONE 8: Medicine Tracking System Operational

- Pharmacies can update inventory
- Patients can search medicines
- Real-time availability visible

SPRINT 9: Multilingual Support Implementation
Sprint Goal: Add Hindi and Punjabi language support

User Stories:

- Implement i18n (internationalization) framework
- Translate all UI text to Hindi and Punjabi
- Implement language switching functionality
- Add text-to-speech for non-literate users
- Translate API error messages
- Create language preference storage

Deliverables:

- Multilingual UI
- Language switching mechanism
- Text-to-speech implementation
- Translation management system

MILESTONE 9: Multilingual Platform Ready

- All three languages fully functional
- Text-to-speech working

PHASE 4: OFFLINE FUNCTIONALITY & OPTIMIZATION (Sprints 10-11)

SPRINT 10: Offline Data Sync
Sprint Goal: Implement offline-first architecture and data synchronization

User Stories:

- Implement local database (SQLite/Realm)
- Create offline data caching mechanism
- Implement background sync service
- Add conflict resolution logic
- Create data encryption for local storage
- Implement cache invalidation strategy

Deliverables:

- Local data storage system
- Sync mechanism
- Conflict resolution
- Cache management

MILESTONE 10: Offline Mode Fully Functional

- App works without internet
- Data syncs when reconnected
- No data loss

SPRINT 11: Performance Optimization & Security Hardening
Sprint Goal: Optimize performance and strengthen security

User Stories:

- Optimize API response times (target: <2 seconds)
- Implement image compression for low bandwidth
- Add database query optimization
- Conduct security penetration testing
- Implement rate limiting and DDoS protection

Deliverables:

- Performance benchmarks met
- Security vulnerabilities patched
- Optimized app bundle
- Performance monitoring set up

MILESTONE 11: Performance & Security Optimized

- Response times <2 seconds on 3G networks
- All security tests passed
- App optimized for low-bandwidth

PHASE 5: TESTING, REFINEMENT & DEPLOYMENT PREP (Sprint 12)

SPRINT 12: Final Testing, Bug Fixes, and Documentation
Sprint Goal: Finalize system, conduct comprehensive testing, prepare for deployment

User Stories:

- Conduct end-to-end system testing
- Fix critical and high-priority bugs
- Create user documentation and training materials
- Prepare deployment runbooks
- Conduct usability testing with real users
- Create API documentation

Deliverables:

- Final bug list cleared (critical/high priority)
- User and training documentation
- API documentation
- Deployment procedures documented
- User feedback incorporated
- System ready for pilot deployment

MILESTONE 12: System Ready for Pilot Deployment

All critical bugs fixed
Documentation complete
Team trained on deployment
Pilot site identified and ready

STAKEHOLDER COMMUNICATION PLAN

1. Daily: Stand-up with internal team
2. Weekly:

    - Status email to stakeholders
    - Any blocking issues escalated immediately

3. Bi-weekly (End of each sprint):

    - Sprint review with stakeholders
    - Demo of working features
    - Feedback collection
    - Roadmap discussion

4. Monthly:

    - Executive summary to hospital and health department
    - High-level progress report
    - Budget and timeline review

POST-PROJECT PHASE (After Sprint 12)

13-26: Pilot Deployment & Scaling

- Train hospital and pharmacy staff
- Provide on-site support
- Monitor system performance
- Analyze pilot results
- Plan expansion to other regions
- Incorporate feedback into product roadmap
- Plan for ongoing maintenance and feature releases
- Define long-term support strategy

GANTT CHART FOR THE AGILE PROCESS MODEL