



Software Requirements Specification (SRS) Document

1. Introduction

1.1 Purpose

This document specifies the Software Requirements Specification (SRS) for a modern, mobile-friendly maternal and child healthcare web application. The system facilitates communication, appointment scheduling, health tracking, education, care coordination, and vaccination management for midwives, patients, and families in Sri Lanka.

1.2 Intended Audience

- Product Managers
- Development Team (Frontend and Backend)
- QA and Testing Team
- UX/UI Designers
- Stakeholders and Healthcare Providers

1.3 Scope

The system supports secure communication between midwives and families, automated appointment scheduling with reminder workflows, real-time essential health tracking, educational resource distribution, care coordination dashboard for midwives, and vaccine scheduling/reminders based on Sri Lanka's EPI.

1.4 Definitions and Acronyms

- **EPI:** Expanded Programme on Immunization
- **MVP:** Minimum Viable Product
- **SRS:** Software Requirements Specification
- **JWT:** JSON Web Token
- **API:** Application Programming Interface
- **UI/UX:** User Interface/User Experience
- **n8n:** Workflow automation platform

2. Overall Description

2.1 Product Perspective

A web-based healthcare platform supporting multiple roles (Patient, Provider, Family). It integrates core functionalities like messaging, scheduling, real-time data monitoring, content management, and dashboard visualizations extending via APIs and services.

2.2 User Needs

- Patients require easy secure communication and health monitoring.
- Providers need efficient care management tools and automated workflows.
- Families seek involvement via access to education and timely notifications.

2.3 Assumptions and Dependencies

- Stable internet connectivity for real-time features.
- Availability of third-party services for notifications (SMS, Email, Push).
- Compliance with Sri Lankan healthcare data laws and regulations.

3. System Features and Requirements

3.1 Functional Requirements

3.1.1 Secure Communication Platform

- User authentication and role-based secure messaging
- Encrypted messages with priority tagging and read receipts
- File attachments and threaded conversations

3.1.2 Automated Appointment Scheduling

- Real-time appointment booking and calendar integration
- Automated multi-channel reminder workflows
- Rescheduling, cancellation, and waitlist management

3.1.3 Essential Health Tracking

- Continuous monitoring of vital sign data and manual input
- Real-time data visualization and alert system
- Support for wearable device data ingestion

3.1.4 Educational Resource Library

- Multimedia content support with categorization and search
- Resource assignment per pregnancy stage and user role
- Progress tracking and feedback collection

3.1.5 Care Coordination Dashboard

- Unified view of patients with filtering and tagging
- Alerts, tasks, care plans, and communication integration
- Customizable UI with analytics

3.1.6 Vaccine Schedule & Reminders

- Automatic vaccine due date calculation per Sri Lanka EPI
- Multi-channel reminders and rescheduling support
- Compliance dashboard for providers

3.2 Non-Functional Requirements

3.2.1 Performance

- 95% of requests respond within 2 seconds
- Real-time updates delivered within 500ms

3.2.2 Security

- Encryption of sensitive data at rest and in transit
- Role-based access control and secure JWT authentication
- Audit logging for compliance

3.2.3 Usability

- Mobile-first responsive design with accessibility best practices
- Intuitive navigation with clear feedback and error messages

3.2.4 Reliability

- Offline operation with sync for health tracking and messaging
- Robust error handling and retry mechanisms for messaging and reminders

4. External Interface Requirements

4.1 User Interfaces

- Responsive web UI with accessible navigation
- Dashboard widgets and visualizations for providers
- Multimedia viewers for educational content

4.2 Hardware Interfaces

- Support for wearable health sensors and mobile device inputs

4.3 Software Interfaces

- Integration with third-party notification APIs (Twilio, SendGrid, Firebase)
- External calendar APIs (Google Calendar, Outlook)
- n8n workflow integration for automation

5. System Features Detailed Description (Example)

5.1 Secure Communication Platform

Description: Enables encrypted messaging between users with priority handling and attachments.

Acceptance Criteria:

- Messages encrypted and securely stored
- Priority messages trigger instant notifications
- Read receipts and threaded views

APIs: CRUD messaging endpoints with role verification

Frontend: Messaging UI with conversation and file upload

Security: End-to-end encryption and authorization policies

6. Other Requirements

6.1 Legal and Regulatory

- Compliance with Sri Lankan healthcare data privacy laws
- HIPAA-like healthcare data security standards

6.2 Internationalization

- Support Sinhala, Tamil, and English languages

6.3 Risk Management

- Risk mitigation for data breaches and system downtime
- Backup and disaster recovery strategies

7. Appendices

7.1 Glossary

- See Definitions and Acronyms

7.2 Use Cases and Diagrams

- Detailed use cases for each key feature
- Sequence and flow diagrams

This SRS document comprehensively details all requirements using the previously provided features and design directions for the maternal health platform. It serves as a blueprint to guide development ensuring alignment with functional and non-functional needs.

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