Software Requirements Specification (SRS)

# Telemedicine Web Application

## 1. Introduction

This Software Requirements Specification (SRS) describes the Telemedicine Web Application, a role-based platform enabling remote healthcare services. The system supports four user types: Patients, Doctors, Admins, and a Super Admin. Patients can self-register, while Admins and Doctors are added by the Super Admin. The system allows booking appointments, secure communication via chat or video, and integration with M-Pesa and Airtel Money for payments.

## 2. System Overview

The application ensures secure and structured interactions between patients and healthcare professionals. Each user role is granted specific access rights. Doctors complete their profiles with medical information and availability. Patients can view doctor profiles, book consultations, view their medical records, and make secure payments.

## 3. Functional Requirements

- Patient self-registration and profile management

- Doctor and Admin registration by Super Admin

- Doctor profile completion (specialty, license, availability)

- Browse and filter doctors by specialty

- Book, cancel, and reschedule appointments

- Real-time chat and video consultation (WebRTC)

- M-Pesa and Airtel Money integration for payments

- Treatment record creation by doctors

- Doctor access to patient history based on past appointments

## 4. Non-Functional Requirements

- Role-based access control

- End-to-end encrypted communication

- Highly available and scalable infrastructure

- Mobile-friendly and responsive user interface

- Secure data handling and compliance with health data laws

## 5. Database Design Overview

Key Tables: users, patients, doctors, appointments, payments, messages, video\_sessions, treatments

### 5.1 users Table

Base table for all users: id, name, email, password\_hash, role, created\_at, updated\_at

### 5.2 patients Table

Extended profile: user\_id, gender, date\_of\_birth, phone\_number, address, medical\_history, profile\_photo

### 5.3 doctors Table

Doctor info: user\_id, specialty, bio, license\_number, availability, profile\_photo

### 5.4 appointments Table

Appointment tracking: id, patient\_id, doctor\_id, appointment\_time, status, consultation\_mode, payment\_status, rescheduled\_at, cancelled\_by, created\_at

### 5.5 payments Table

Payment info: id, appointment\_id, patient\_id, method, amount, transaction\_id, status, paid\_at

### 5.6 messages Table

Chat messages: id, sender\_id, receiver\_id, message\_text, sent\_at

### 5.7 video\_sessions Table

Video call sessions: id, appointment\_id, doctor\_id, patient\_id, session\_link, started\_at, ended\_at

### 5.8 treatments Table

Treatment history: id, appointment\_id, doctor\_id, patient\_id, diagnosis, prescription, notes, follow\_up\_date, created\_at