

# Digital Health Management System (DHMS)

## Software Requirements Specification (SRS)

### Version 5.0

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DOCTOR MODULE | PATIENT MODULE | APPOINTMENT MANAGEMENT |  
DIAGNOSTIC CENTER | ADMIN MODULE | E-COMMERCE MODULE

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C O N F I D E N T I A L

# Version and Approvals

## Version History

Version	Date	Revised By	Reason
1.0	January 09, 2025	Md. Shahriar Karim Shawon	Initial Preparation
2.0	January 10, 2025	Md. Shahriar Karim Shawon	Main Application SRS Completed (3.1 to 3.18)
3.0	January 11, 2025	Md. Shahriar Karim Shawon	Merged Medical Test Booking & E-commerce
4.0	January 18, 2025	Md. Shahriar Karim Shawon	Nurse Module Added
5.0	January 22, 2025	Md. Shahriar Karim Shawon	Nurse Module Updated

## Document Approvals

This document has been approved as the official Software Requirements Specification (SRS) for the Digital Health Management System and accurately reflects the current understanding of requirements. Changes will follow the project's change management process, including impact analysis, reviews, and approvals.

Approver Name	Project Role	Signature/Electronic Approval	Date

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# 1. Introduction

## 1.1 Purpose of the Document

The purpose of this Software Requirements Specification (SRS) is to define the requirements for the Digital Health Management System. The system will streamline doctor-patient interactions, enable diagnostic center integration, and provide administrative oversight with secure payment processing and e-commerce capabilities.

## 1.2 Target Audience

This SRS is intended for:

1. **Healthcare Professionals:** Doctors, assistants, and diagnostic staff.
2. **Patients:** Individuals managing appointments and accessing healthcare services.
3. **Administrative Users:** Managers responsible for system configurations and oversight
4. **Developers:** Teams building and maintaining the software.

## 1.3 Scope

The system is a web-based and mobile-compatible platform offering modules for doctor registration, appointment management, patient medical records, diagnostic test scheduling, and administrative controls.

## 1.4 Definitions, Acronyms, and Abbreviations

1. **RBAC:** Role-Based Access Control, assigning user-specific roles and permissions.
2. **OTP:** One-Time Password, used for secure user verification.

## 1.5 References

1. HIPAA Compliance Guidelines
2. OWASP Security Standards
3. Laravel Documentation (Laravel 11.x)

## 2. System Overview

### 2.1 Product Perspective

This platform integrates multiple functions, including appointment scheduling, digital prescriptions, and e-commerce capabilities. It connects doctors, patients, and diagnostic centers under one unified solution.

### 2.2 Product Functions

Key functionalities include:

1. **Doctor Module:** Registration, verification, profile management, and prescription setup.
2. **Patient Module:** Registration, medical history management, appointment booking, and notifications.
3. **Admin Module:** Role-based access control, payment and refund management, and system oversight.
4. **Diagnostic Center:** Test scheduling, report generation, and integration with patient records.
5. **E-Commerce:** Selling medicines and healthcare equipment.

### 2.3 User Classes and Characteristics

1. **Doctors:** Manage appointments, issue prescriptions, and interact with patients.
2. **Patients:** Book appointments, access medical records, and communicate with doctors.
3. **Admins:** Oversee system operations, manage users, and generate reports.
4. **Diagnostic Centers:** Provide and manage medical test services.

### 2.4 Operating Environment

The application will be web-based, and accessible on all modern browsers (Chrome, Firefox, Edge, Safari) across desktop and mobile devices.

### 2.5 Assumptions and Dependencies

1. Integration with third-party APIs for payments, notifications, and video calling.
2. Stable internet connectivity is required.



## 3. Functional Requirements

### 3.1 Doctor Registration

#### 3.1.1 OTP for All Verification

- A One-Time Password (OTP) system for secure registration and verification.
- OTP sent to the doctor's registered email and mobile number for authentication.

#### 3.1.1 Doctor Verification

- Verification process includes uploading valid licenses and certifications.
- Admin reviews and approves documentation.
- Verified doctors receive a Verified Badge, while unverified doctors have a Pending Verification Badge.

### 3.2 Digital Prescription Management

#### 3.2.1 Digital Prescription Configuration

- Doctors can create and manage customizable prescription templates for efficiency and consistency.
- Templates include essential fields such as:
  - Patient Details: Name, age, gender, contact information, and medical history.
  - Diagnosis Information: Chief complaints, symptoms, and confirmed diagnosis.
  - Prescribed Medications: Medication name, dosage, frequency, duration, and additional instructions.
  - Additional Notes: Space for doctors to include lifestyle advice, follow-up recommendations, or referrals.
- Real-Time Auto-Suggestions
  - Provides real-time suggestions for commonly prescribed medications or dosage guidelines based on the diagnosis.
  - Medicine information from the database auto-fills into prescription templates, minimizing manual input.
  - Doctors can adjust dosage, frequency, and duration before finalizing.
- Patient Access and Communication
  - Prescriptions can be shared with patients.

- PDF format available for easy download and printing.
- Secure Digital Signatures
  - Option to digitally sign prescriptions to ensure authenticity and prevent tampering.

## 3.3 Doctor Profile

### 3.3.1 Profile Management

- Comprehensive Doctor Information:
  - Fields to capture all relevant details about the doctor, including:
    - Full Name and Title (e.g., Dr., MD, PhD).
    - Specialty (e.g., Cardiologist, Pediatrician).
    - Years of Experience and Professional Achievements.
    - Consultation Availability (e.g., office hours, online consultation slots).
    - Contact Details (e.g., phone number, email, clinic address).
- Profile Editing Capabilities:
  - Doctors or their authorized assistants can update profile information directly through a secure interface.
- Profile Verification and Credibility:
  - Verified badges are displayed for authenticated profiles to instill patient confidence.
  - Verification includes checking licenses, certifications, and other relevant credentials.

### 3.3.2 Integration with Other Modules

- Appointment Scheduling:
  - Profiles display available appointment slots for easy booking by patients.
  - Automatically syncs with the doctor's schedule.
- Prescription Management:
  - The doctor's details from their profile are automatically included in prescription templates for consistency.

## 3.4 Doctor Assistant Management

### 3.4.1 Doctor Assistant Role

- Doctors can assign one or more assistants to handle administrative and operational tasks, enabling the doctor to focus on patient care.
- Key responsibilities of the doctor assistant include:
  - Appointment Scheduling: Managing the doctor's calendar by scheduling, rescheduling, or canceling patient appointments.
  - Patient Records Management: Updating and organizing patient records, including medical history, test results, and visit summaries.
  - Prescription Assistance: Preparing draft prescriptions for the doctor's review and approval.
  - Communication Management: Handling patient inquiries.

### 3.4.2 Role-Specific Access and Permissions

- Assistants have restricted access tailored to their role:
  - Cannot view sensitive doctor-specific information like earnings or personal notes.
  - Limited access to patient health records based on need-to-know principles.
  - Cannot approve or finalize prescriptions without doctor authorization.
- Granular Permission Settings:
  - Doctors can customize access rights for each assistant, choosing what modules they can access (e.g., scheduling vs. full patient management).
  -

### 3.4.3 Assistant Onboarding and Management

- Adding and Removing Assistants:
  - Doctors can invite assistants to join the system.
  - Assistants can be disabled at any time by the doctor.
- Activity Monitoring:
  - The system logs all assistant activities, such as appointment changes or record updates, for accountability.

## 3.5 Appointment Management

### 3.5.1 Appointment Creation

- Doctors or their assistants can create, modify, or cancel appointments on behalf of patients.
- Appointments include essential details such as:
  - Date and Time: Fully customizable scheduling based on doctor availability.
  - Type of Appointment: Categories such as consultation, follow-up, diagnostic review, or procedure.
  - Duration: Configurable to suit the type of appointment (e.g., 15, 30, or 60 minutes).
  - Notes Section: Optional field for specific instructions or reasons for the appointment (e.g., "Review MRI results").

### 3.5.2 Appointment Payment Setup

- Configurable Fee Structure:
  - Different fee options for various appointment types, including:
    - Standard consultation fees.
    - Reduced fees or free for follow-up appointments.
    - Cancellation or rescheduling charges based on predefined policies.
- Payment Integration:
  - Patients can pay for appointments online through integrated payment gateways.
  - Support for multiple payment modes based on the requirements.
- Billing and Receipts:
  - Automatic generation of invoices and receipts for completed payments.
  - Records of payment status visible in both patient and doctor dashboards.

### 3.5.3 Video Calling

- Integrated Video Conferencing: Seamless video calling functionality for virtual appointments directly from the platform.

### 3.5.4 Patient Record View

- Comprehensive Patient Data Access:
  - Doctors can view and update the patient's medical history, including:
    - Previous visit details.
    - Prescriptions and ongoing medications.

- Diagnostic reports and lab results.
- Search and Filter Options:
  - Quick filters by appointment date, condition, or document type.
  - Advanced search for specific keywords or patient names for efficiency.
- Patient can control the privacy of their previous health records.

### **3.5.5 Patient Assessment**

- Doctors can document patient assessments in real-time during appointments.
- Fields include:
  - Reported symptoms and severity.
  - Physical examination findings.
  - Initial or updated diagnosis.
  - Follow-up notes or instructions for future care.
- All assessments are securely saved and linked to the patient's profile for future reference.

### **3.5.6 Appointment Payment Setup**

- Patients can request appointments through the platform.
- Doctors and assistants can approve or reject requests based on availability.

### **3.5.7 Appointment Booking Request**

- Doctors and patients can request to reschedule an appointment.
- Notifications are sent to both parties upon confirmation.

### **3.5.8 Real-time Notification System**

- Appointment confirmations, reminders, and cancellations.
- Updates on medical test results and prescription approvals.

### **3.5.9 Refund Confirmation**

- Allow refund requests for canceled appointments.
- Notifications for refund status (initiated, processed, completed).

### **3.5.10 Appointment Record Management**

- Maintain detailed records of all appointments, including:
  - Appointment date, time, and type.
  - Patient and payment details.

### **3.5.11 Payment Record Management**

- Track payment records for appointments and services, status (completed, pending, refunded).

## 3.6 Medical Test Management

### 3.6.1 Medical Test Type Setup

- Test Type Definition:
  - Doctors can define and manage medical test types specific to their practice or specialization, such as:
    - Blood tests (e.g., CBC, lipid profile).
    - Imaging tests (e.g., X-rays, MRIs, CT scans).
    - Diagnostic tests (e.g., ECG, stress tests).
    - Specialized tests (e.g., genetic screening, allergy tests).
- Test Categorization:
  - Organize test types into categories (e.g., pathology, radiology, cardiology) for better accessibility and clarity.

### 3.6.2 Medical Test Type-Wise Configuration

- Configure test-specific requirements, instructions, and fees.

## 3.7 Medicine Storage Management

### 3.7.1 Medicine Data Storage

- The system maintains a structured database with the following key fields:
  - Database includes fields for:
    - Generic Names: Primary names of medicines.
    - Company Names: Manufacturer or distributor information.
    - Variants: Dosage forms (e.g., tablet, syrup).
    - Regular Names: Commonly recognized names.
- Category classification (e.g., antibiotics, painkillers, supplements).

## 3.8 Patient Registration

### 3.8.1 Patient Account Creation

- Patients can register using their name, email, phone number, and password.
- Provide optional fields for additional information like address and date of birth.

### 3.8.1 OTP for All Verification

- OTP-based verification during registration and login.

- OTP sent to registered email and mobile for security.

## **3.9 Patient Profile**

### **3.9.1 Profile Management**

- Patients can view and update their profile information, including contact details, emergency contacts, and insurance details.
- Display appointment history and medical records on the dashboard.

## **3.10 Patient Medical History**

### **3.10.1 Medical History Management**

- Store records of past medical conditions, surgeries, allergies, and chronic illnesses.
- Allow patients to add and update their medical history.

## **3.11 Patient Appointment Purchases**

### **3.11.1 Appointment Booking**

- Patients can browse available doctors and book appointments based on availability and specialty.

### **3.11.2 Appointment Reminder**

- Automated reminders for upcoming appointments sent via email, SMS, or in-app notifications.

### **3.11.3 Appointment Record**

- Maintain a detailed log of booked, completed, rescheduled, and canceled appointments.

### **3.11.4 Prescription Viewer**

- View digital prescriptions issued by doctors, including medication details, dosage, and duration.

## **3.12 Patient Medical Assessment**

### **3.12.1 Health Check Records**

- Patients can access their medical assessments, including doctor notes, test results, and recommendations.

## **3.13 Medicine Reminder**

### **3.13.1 Automated Medication Alerts**

- Set reminders for taking prescribed medicines at specific times.
- Alerts via push notifications or SMS.

## **3.14 Old Medical Report Upload**

### **3.14.1 Upload Feature**

- Patients can upload previous medical reports (e.g., lab tests, prescriptions).
- Supported file formats include PDF, JPEG, and PNG.
- Allow tagging and categorization for easier access.

## **3.15 Access Control of Medical History**

### **3.15.1 Privacy Settings**

- Patients can manage access permissions for their medical history.
- Doctors can view patient history only with patient consent.

## **3.16 Refund Management**

### **3.16.1 Refund Requests**

- Patients can request refunds for canceled appointments or services.
- Refund status tracking (initiated, processed, completed).

## **3.17 Health Suggestions**

### **3.17.1 Personalized Health Recommendations**

- Provide health tips, diet plans, and fitness advice based on patient medical history and profile.
- Suggestions integrated with the doctor's recommendations.

## **3.18 Admin**

### **3.18.1 Role-Based Access Control**

- User Role Management:
  - Define multiple roles, including Super Admin, Admin, Support Staff, and Moderators.



- Assign specific permissions to each role for restricted access to features.
- Permission Customization:
  - Allow Super Admins to create custom roles with tailored permissions.
  -

### 3.18.2 Payment Coupon Management

- Coupon Creation
  - Create discount coupons for appointment bookings, tests, or consultations.
  - Define coupon attributes such as discount type (percentage or fixed), validity period, and usage limits.
- Coupon Distribution
  - Assign coupons to specific users or groups (e.g., new patients).
  - Support bulk coupon generation for promotional campaigns.

### 3.18.3 Notification Management

- Centralized Notifications
  - Send system-wide notifications to doctors, patients, or diagnostic centers.
  - Types include appointment reminders, updates, and promotional messages.
- Notification Customization
  - Use templates for different notification types.
  - Schedule notifications for future delivery.

### 3.18.4 Medicine Setup

- Add, edit, or delete entries for medicines, including generic names, brand names, variants, and manufacturer details.
- Tag medicines with therapeutic categories (e.g., antibiotics, analgesics).

### 3.18.5 Medical Test Setup

- Test Type Management
  - Define and manage test categories such as blood tests, imaging tests, and diagnostic screenings.
- Test Attributes Setup
  - Specify test details, including price, preparation requirements, and sample collection details.

### 3.18.6 Refund Management

- Refund Approval Workflow

- Review and approve refund requests submitted by patients or diagnostic centers.
  - Provide reasons for approval or rejection.
- Refund Tracking
  - Maintain a log of all refund transactions, including status and associated appointment/test details.

### **3.18.7 Doctor Payment Record**

- Payment Tracking
  - Maintain a record of payments made to doctors for consultations or completed appointments.
- Revenue Sharing
  - Calculate and distribute revenue shares between the platform and doctors.

### **3.18.8 All Patient Records**

- Patient Database
  - Access and manage complete profiles of all registered patients.
  - Search and filter by name, ID, or medical history.
- Data Export
  - Export patient records for reporting and analytics.

### **3.18.9 Support Management**

- Support Ticket System
  - Provide a ticketing system for resolving queries from patients, doctors, or diagnostic centers.
  - Assign tickets to support staff with defined resolution timelines.
- Issue Tracking
  - Monitor open, resolved, and pending issues via a dashboard.

### **3.18.10 Payment History Management**

- Transaction Records
  - View all platform-related transactions, including patient payments, refunds, and payouts to doctors.
- Payment Insights
  - Generate reports for revenue, payment failures, and refund trends.

### **3.18.11 Doctor Control**

- Verification & Suspension

- Approve or reject doctor registrations.
- Suspend or reactivate doctor profiles based on compliance or performance.
- Activity Monitoring
  - Monitor doctor activity, including appointment history and patient feedback.

### **3.18.12 Activity Log**

- Comprehensive Log System
  - Record every action performed on the system, such as profile updates, appointment modifications, and payment transactions.

### **3.18.13 Promotional Ad Management**

- Ad Creation and Management
  - Create and schedule promotional banners for app or website display.
  - Track click-through rates and engagement metrics.

### **3.18.14 Medical Suggestions**

- Health Tips Management
  - Provide general health advice and recommendations tailored to patient demographics.
- Doctor-Recommended Suggestions
  - Publish curated tips or advice shared by verified doctors.

### **3.18.15 Blog Management**

- Content Creation
  - Add and manage blog posts related to health, wellness, and medical advancements.
- SEO Optimization
  - Include metadata for better visibility and engagement.
- Comments Moderation
  - Monitor and approve user comments on blog posts.

## **3.19 E-Commerce**

### **3.19.1 User Profile & Order History**

- Order History Access:
  - Users can view their entire order history in a dedicated section on their dashboard.

- Records include product details, order date, delivery status, and payment method.
- **Invoice Management:**
  - Users can download invoices in PDF format for all completed orders.

### 3.19.2 Product Management

- **Prescription-Based Products:**
  - Products that require prescriptions will have automated checks:
    - Integrated with digital prescriptions from the platform.
    - Manual prescription uploads by users.
  - Enforced rules for quantity limits based on prescription details.
- **Availability Rules:**
  - Products are sold based on real-time availability.
  - Restricted products cannot be purchased if prescriptions are invalid or unavailable.
- **Admin Management:**
  - Admins can add, edit, or delete products, update stock levels, and manage categories.
- **Product Categorization:**
  - Products are categorized by type, brand, and medical usage for easy navigation.
- **QR Code Integration:**
  - Each product will have a QR code for inventory tracking and quick scanning.

### 3.19.3 Product Display and Purchase

- **Vendor Management:**
  - Products are sourced from multiple vendors, allowing flexibility and competitive pricing.
- **Product Attributes:**
  - Each product has detailed information, including:
    - Generic name.
    - Brand name.
    - Type (e.g., tablet, syrup).

- **Shopping Cart & Wishlist:**
  - Users can add products to a shopping cart or save them in a wishlist for later.
- **Promotions & Discounts:**
  - Support for coupon codes and promotional campaigns.

### 3.19.4 Order Management

- **Order Creation:**
  - Registered users can place orders, provided they meet prescription requirements.
- **Order Tracking:**
  - Real-time updates on order status, including processing, shipped, and delivered stages.
- **Cancellation & Refund:**
  - Users can cancel orders within a specific window. Refunds are processed based on platform policy.
- **Delivery Management:**
  - Orders are fulfilled through centralized warehouses or vendor outlets.

### 3.19.5 Payment Gateway

- **Flexible Payment Options:**
  - Secure online payments via integrated payment gateways like SSL Commerz.
  - Cash on Delivery (COD) option available for eligible orders.
- **Payment Verification:**
  - Payments are verified in real-time before confirming orders.

### 3.19.6 Stock & Warehouse Management

- **Stock Updates:**
  - Automatic stock adjustments after order fulfillment or returns.
- **Damage & Loss Reporting:**
  - Provision for admins to log and update damaged or stolen items.
- **Restocking Alerts:**

- Notifications for low-stock items to prevent product shortages.

### 3.19.7 Notifications and Alerts

- **Order Updates:**
  - Users receive real-time notifications about order status and delivery tracking.
- **Reminder Alerts:**
  - Prescription validity, upcoming deliveries, or restocking information are notified.

## 3.20 Medical Test Booking Management

### 3.20.1 Diagnostic Centre Setup

#### 3.20.1.1 Registration as Hospital

- **Description:**

Allows diagnostic centers to register as hospitals within the system.
- **Inputs:**
  - Hospital name
  - Address
  - Contact details
  - License information
- **Processes:**
  - Verification of provided information
  - Approval workflow
- **Outputs:**
  - Confirmation of registration
  - Unique hospital ID

#### 3.20.1.2 Role-wise Employee Management

- **Description:**

Manage employees with specific roles and permissions.
- **Roles:**

- Administrator
- Lab Technician
- Receptionist
- Finance Officer
- **Features:**
  - Add/Edit/Delete employee profiles.
  - Assign roles and permissions.
  - Track employee activity logs.

### 3.20.1.3 Medical Test Add (Test Type)

- **Description:**

Enable hospitals to add new medical tests to the system, categorizing them based on their test type and self-testability.
- **Inputs:**
  - Test Name
  - Description
  - Prerequisites
  - Duration
  - Test Type
  - Self-Testable Flag
- **Processes:**
  - Data Entry
  - Validation
  - Categorization
  - Approval Workflow
  - Database Update
- **Outputs:**
  - Confirmation Message
  - Updated Medical Test List
  - Notification to Relevant Roles
- **Features:**

- Bulk Upload
- Edit & Delete
- Search & Filter
- Audit Logs

### 3.20.1.4 Test Type Module

- **Description:**

Provide a module for managing test types.

- **Inputs:**

- Test Type Name
- Description
- Associated Tests
- Icon/Image (Optional)

- **Processes:**

- Creation
- Validation
- Modification
- Deletion
- Association Management

- **Outputs:**

- Test Type Listings
- Categorized Medical Tests
- Confirmation Messages

- **Features:**

- Hierarchical Structuring
- Search & Filter
- User Permissions
- Integration with Medical Test Add



### 3.20.1.5 Medical Test Schedule

- **Description:**  
Schedule medical tests for patients.
- **Sub-requirements:**
  - Medical Test Price Setup
  - Schedule Time Setup
  - Schedule Activity Log

### 3.20.1.6 Payment History

- **Description:**  
Track all payment transactions related to medical tests.
- **Features:**
  - View past payments
  - Filter by date, patient, test type
  - Export payment reports

### 3.20.1.7 Record for Medical Test List

- **Description:**  
Maintain a comprehensive list of all medical tests conducted.
- **Features:**
  - Search and filter tests
  - Update test statuses
  - Link tests to patient records

### 3.20.1.8 Upload Medical Test Report

- **Description:**  
Upload and manage test reports.
- **Inputs:**
  - Test results
  - Images

- Documents
- **Processes:**
  - Secure storage
  - Access control
- **Outputs:**
  - Accessible reports for patients and authorized staff

#### 3.20.1.9 Cancel Any Test

- **Description:**  
Allow cancellation of scheduled tests.
- **Features:**
  - Specify cancellation reasons
  - Update schedules and notify relevant parties

#### 3.20.1.10 Refund

- **Description:**  
Process refunds for canceled tests.
- **Features:**
  - Automatic or manual refund processing
  - Update financial records

#### 3.20.1.11 Additional Services

- **Description:**  
Manage supplementary services offered by the diagnostic center.
- **Examples:**
  - Home sample collection
  - Urgent reporting

### 3.20.1.12 Report Pad Design

- **Description:**  
Customize the layout and design of test reports.
- **Features:**
  - Templates for different tests
  - Branding elements

### 3.20.1.13 Notification

- **Description:**  
Send notifications related to test scheduling, results, and updates.
  - **Channels:**
    - Email
    - SMS
    - In-app notifications
- 

## 3.20.2 Patient Module

### 3.20.2.1 Book a Test Schedule (Self-Test Ability Module)

- **Description:**  
Allow patients to book and schedule medical tests.
- **Features:**
  - Select Test Type
  - Choose Specific Test
  - Choose Preferred Diagnostic Center
  - Select Date and Time
  - Confirm Booking
  - Receive Booking Details
  - Additional Functionalities

### 3.20.2.2 Medical Test History

- **Description:**

Provide patients with access to their past medical tests.

- **Features:**

- View test dates, types, and outcomes
- Download or print reports

### 3.20.2.3 Medical Test Payment

- **Description:**

Facilitate payment for booked medical tests.

- **Features:**

- Multiple payment options
- Secure payment processing
- Payment confirmation receipts

### 3.20.2.4 Medical Test Result View

- **Description:**

Enable patients to view their test results.

- **Features:**

- Secure access to reports
- Highlight key findings

### 3.20.2.5 Medical Test Reminder

- **Description:**

Send reminders to patients about upcoming tests.

- **Features:**

- Customizable reminder intervals
- Reminder via preferred channels

### 3.20.2.6 Notification

- **Description:**

Provide real-time notifications about test status, results, and promotions.

- **Channels:**

- Push notifications
- Email
- SMS

### 3.20.2.7 Refund Request

- **Description:**

Allow patients to request refunds for canceled or disputed tests.

- **Features:**

- Submit refund requests with reasons
- Track refund status

### 3.20.2.8 Payment History

- **Description:**

Allow patients to view their payment history.

- **Features:**

- Detailed transaction records
- Downloadable invoices

### 3.20.2.9 Medical Test Add to Prescription

- **Description:**

Enable patients to add medical tests to their prescriptions.

- **Features:**

- Link tests to specific prescriptions
- Share prescriptions with healthcare providers

### 3.20.2.10 Rating & Review

- **Description:**

Allow patients to rate and review diagnostic centers and services.

- **Features:**

- Star ratings and textual reviews
- Display of aggregated ratings

### 3.20.3 Nurses

#### 3.20.3.1 Patient Preparation

- **Description:**

Assist nurses in preparing patients for medical tests or procedures.

- **Features:**

- Checklist for test preparation (e.g., fasting, medication restrictions).
- Patient status tracking (e.g., "Ready for Test," "Awaiting Preparation").
- Notes section for additional instructions or observations.

#### 3.20.3.2 Sample Collection Management

- **Description:**

Manage the collection of patient samples (e.g., blood, urine).

- **Features:**

- Assign collection tasks to nurses.
- Track sample collection status (e.g., "Pending," "Collected," "Sent to Lab").
- Barcode generation for sample identification.
- Integration with lab modules to link samples to tests.

#### 3.20.3.3 Test Administration Assistance

- **Description:**

Provide tools for nurses assisting with test administration.

- **Features:**

- Step-by-step test administration guidelines.
- Timer for time-sensitive tests (e.g., stress tests, glucose tolerance tests).
- Patient vitals tracking during tests.

#### 3.20.3.4 Medication Administration

- **Description:**

Allow nurses to administer prescribed medications as part of test preparation or treatment.

- **Features:**

- Medication schedule reminders.
- Dosage and administration instructions.
- Recordkeeping for administered medications.

#### 3.20.3.5 Patient Monitoring

- **Description:**

Monitor patient status before, during, and after tests.

- **Features:**

- Vitals recording and alerts for abnormalities.
- Notes and observations logging.
- Integration with patient records for seamless updates.

#### 3.20.3.6 Notification and Alerts

- **Description:**

Keep nurses informed of tasks, test schedules, and emergencies.

- **Features:**

- Notifications for scheduled tasks or delays.
- Emergency alerts for critical patient conditions.

#### 3.20.3.7 Role-based Access and Permissions

- **Description:**

Ensure nurses have access to tools and data relevant to their responsibilities.

- **Features:**
  - View access to patient details for assigned tasks only.
  - Restrictions on sensitive data to ensure privacy.

#### 3.20.3.8 Documentation and Reporting

- **Description:**

Enable nurses to document activities and generate reports.
- **Features:**
  - Daily task logs (e.g., number of patients prepared, samples collected).
  - Incident reporting for unexpected events or complications.
  - Exportable reports for administrative review.

#### 3.20.3.9 Shift Management

- **Description:**

Facilitate nurse scheduling and shift tracking.
- **Features:**
  - Create and manage shift schedules.
  - Track shift assignments and nurse availability.
  - Notify nurses of shift changes or emergencies.

#### 3.20.3.10 Patient Education

- **Description:**

Provide resources for nurses to educate patients about tests and procedures.
- **Features:**
  - Test-specific educational materials.
  - FAQs and preparatory instructions for common tests.
  - Multilingual support for diverse patient populations.

#### 3.20.3.11 Feedback and Review

- **Description:**

Enable nurses to provide feedback on procedures and report system issues.



- **Features:**
  - Feedback forms for process improvements.
  - Issue reporting system for technical support.
  - Review and rating of diagnostic workflows.

### 3.20.3.12 Equipment and Supplies Tracking

- **Description:**  
Track the availability and usage of medical equipment and supplies.
- **Features:**
  - Inventory management for test-related supplies.
  - Alerts for low stock or equipment maintenance needs.
  - Assign equipment to specific tasks or tests.

## 3.21 Nurse Module

### 3.21.1 Registration and Login

- **Description:** Enable nurses to register and log in securely via web and mobile platforms.
- **Features:**
  - Registration with essential details (e.g., name, contact, license).
  - Secure login with two-factor authentication.
  - Multi-device compatibility (web and mobile).
  - Password recovery and account management options.

### 3.21.2 Nurse Profile Management

- **Description:** Allow nurses to manage and update their profiles.
- **Features:**
  - Personal details (e.g., name, contact, qualifications).
  - Work history and certifications.
  - Upload documents (e.g., licenses, IDs).
  - Set availability for shifts or tasks.

### 3.21.3 Category-wise Service Setup

- **Description:** Facilitate category-based service setup for roles such as cleaners or nurses.
- **Features:**
  - Define and configure service categories (e.g., Cleaner, Nurse).
  - Charge setup based on category type.

### 3.21.4 Area-wise Services

- **Description:** Enable admin to set up services and pricing based on specific areas.
- **Features:**
  - Define areas or zones for service availability.
  - Configure service prices for each area.
  - Manage area-specific service categories and roles.

### 3.21.5 Patient Requests for Service

- **Description:** Enable patients to request services based on categories.
- **Features:**
  - Search for services by category.
  - Submit requests for services (e.g., nursing care, cleaning assistance).
  - Make payment to the admin for requested services.

### 3.21.6 Admin Handling of Service Requests

- **Description:** Allow admins to manage patient service requests and create job postings.
- **Features:**
  - Review and approve service requests from patients.
  - Create and post jobs based on requests.
  - Job postings categorized by area or zone.

### 3.21.7 Job Acceptance and Completion

- **Description:** Facilitate job acceptance and completion notifications for nurses and patients.
- **Features:**
  - Nurses view and accept jobs posted by the admin.
  - Notifications to nurses and patients upon job completion.

### 3.21.8 Payment Management

- **Description:** Manage payments for services and nurse compensations.
- **Features:**
  - Patients make payments to the admin for services.
  - Admin processes payments to nurses after job completion.
  - Integration with financial modules for seamless transactions.

### 3.21.9 Notification and Alerts

- **Description:** Keep stakeholders informed of tasks, schedules, and emergencies.
- **Features:**
  - Notifications for scheduled tasks or delays.
  - Emergency alerts for critical patient conditions.

### 3.21.10 Payment History

- **Description:** Provide nurses with access to their payment history.
- **Features:**
  - List of payments with details (e.g., date, amount, job/task).
  - Exportable payment records.
  - Integration with financial modules for tax or payroll purposes.

## 4. Non-Functional Requirements

### 4.1 Performance Requirements

- **Requirement:** The application must respond within 2 seconds for most user actions.
- **Description:** Optimize backend processes and frontend rendering to ensure quick response times.

### 4.2 Security Requirements

- **Requirement:** Implement robust security measures across all layers.
- **Description:**
  - Use **OAuth 2.0** for authentication with Gmail/MS Outlook.
  - Implement **Laravel Sanctum/Passport** for secure API token management.
  - Encrypt data in transit and at rest, and ensure secure password handling, CSRF protection, and input validation.

### 4.3 Usability Requirements

- **Requirement:** The user interface should be intuitive and user-friendly.
- **Description:** The application must be easy to navigate and accessible on various devices, with a focus on user experience.

### 4.4 Availability Requirements

- **Requirement:** Ensure high availability with minimal downtime.
- **Description:** The application should maintain 99.9% uptime, excluding planned maintenance.

## 5. Technical Requirements

### 5.1 Technology Stack

- **Framework:** Laravel 11.x ( Latest )

- **Language:** PHP 8.x ( Latest )
- **Authentication:** Laravel Sanctum
- **Details:**
  - The backend must be built using Laravel 11.x to leverage the latest features, security improvements, and performance optimizations.
  - Use PHP 8.3 to ensure compatibility with Laravel 11.x and to utilize the latest language enhancements.
  - Implement Laravel Sanctum for API token-based authentication to manage secure access.

## 5.2 Database Technology

- **Database:** MySQL Server
- **Version:** Latest Version
- **Details:**
  - Use the latest version of MySQL for enhanced performance, scalability, and reliability.
  - Ensure compatibility with Laravel 11.x for efficient data handling and querying.

## 6. Conclusion

The **Digital Health Management System** aims to revolutionize healthcare services by providing a robust, secure, and user-friendly platform. By leveraging advanced technologies and an intuitive design, it seeks to streamline doctor-patient interactions, integrate diagnostic services, and simplify administrative oversight.