User Roles and Permissions

1. Admin

- **Full System Access**: Complete control over all system modules
- **User Management**: Create, edit, and delete user accounts
- **System Configuration**: Modify system settings and preferences
- **Report Generation**: Access all system reports and analytics
- **Content Management**: Manage static content and system announcements

2. Doctor

- **Appointment Management**: View, approve, cancel, and complete appointments
- **Patient Records**: Access and update patient medical information
- **Prescription Management**: Create and manage patient prescriptions
- **Billing**: Generate and manage patient bills
- **Schedule Management**: Set availability and working hours
- **Dashboard Access**: View personalized dashboard with relevant statistics

3. Patient

- **Appointment Booking**: Schedule appointments with available doctors
- **Profile Management**: Update personal and medical information
- **Appointment History**: View past and upcoming appointments
- **Prescription Access**: View prescribed medications and instructions
- **Bill Payment**: View and pay medical bills online
- **Medical Records**: Access personal medical history

Core Features

1. Authentication and Authorization

- **Email-based Login**: Secure authentication using email and password
- **Role-based Access Control**: Different interfaces and permissions based on user roles
- **Password Security**: Encrypted password storage and validation
- **Session Management**: Secure session handling with automatic timeout
- **Password Recovery**: Forgot password functionality

2. User Profile Management

- **Comprehensive Profiles**: Detailed user information with medical history
- **Profile Updates**: Real-time profile editing capabilities
- **Medical Information**: Storage of medical conditions, allergies, medications
- **Emergency Contacts**: Emergency contact information management
- **Insurance Information**: Insurance provider and policy details

3. Appointment System

- **Smart Scheduling**: Intelligent appointment booking with availability checking
- **Multiple Appointment Types**: Consultation, follow-up, emergency, check-up, specialist
- **Priority Levels**: Critical, high, medium, low priority categorization
- **Status Tracking**: Pending, confirmed, cancelled, completed, no-show status
- **Automated Notifications**: Email notifications for appointment confirmations
- **Calendar Integration**: Visual calendar representation of schedules

4. Prescription Management

- **Digital Prescriptions**: Electronic prescription creation and management
- **Medication Database**: Comprehensive drug information database
- **Dosage Instructions**: Detailed medication administration guidelines
- **Prescription History**: Complete record of all patient prescriptions
- **Drug Interaction Checks**: Basic drug interaction validation
- **Printable Prescriptions**: Generate printable prescription formats

5. Billing and Payments

- **Automated Billing**: Automatic bill generation based on services rendered
- **Multiple Payment Methods**: Cash, card, insurance, online payment options
- **Invoice Generation**: Detailed invoice creation with itemized billing
- **Payment Tracking**: Real-time payment status monitoring
- **Financial Reports**: Comprehensive billing and payment reports
- **Discount Management**: Apply discounts and special pricing

6. Medical Records Management

- **Electronic Health Records**: Digital storage of patient medical history
- **Document Upload**: Support for medical documents and test results
- **Clinical Notes**: Doctor's clinical notes and observations
- **Diagnostic Reports**: Lab results and diagnostic imaging storage

- **Treatment History**: Complete treatment and medication history
- **Data Security**: HIPAA-compliant data protection measures

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Module-wise Features

Appointments Module

Appointment Booking

- **Doctor Selection**: Browse and select available doctors
- **Time Slot Selection**: Visual calendar for appointment scheduling
- **Reason for Visit**: Detailed symptom and reason collection
- **Urgency Level**: Priority-based appointment scheduling
- **Confirmation System**: Immediate appointment confirmation

Appointment Management

- **Status Updates**: Real-time appointment status tracking
- **Rescheduling**: Easy appointment rescheduling functionality
- **Cancellation**: Patient and doctor-initiated cancellation
- **Reminders**: Automated appointment reminders
- **History Tracking**: Complete appointment history

Doctor Dashboard

- **Today's Appointments**: View today's scheduled appointments
- **Pending Requests**: Manage appointment approval requests
- **Quick Actions**: Approve, cancel, complete appointments
- **Patient Information**: Quick access to patient details
- **Statistics**: Appointment statistics and trends

Prescriptions Module

Prescription Creation

- **Drug Selection**: Search and select from medication database
- **Dosage Configuration**: Flexible dosage and frequency settings
- **Instructions**: Detailed administration instructions
- **Duration**: Treatment duration specification
- **Refill Management**: Prescription refill tracking

Prescription Management

- **Prescription History**: Complete prescription records
- **Active Prescriptions**: Currently active medications
- **Expiry Tracking**: Monitor prescription expiration dates
- **Drug Allergy Checks**: Allergy-based drug contraindications

Billing Module

Bill Generation

- **Service Billing**: Automatic billing based on services rendered
- **Itemized Invoices**: Detailed breakdown of charges
- **Tax Calculation**: Automatic tax computation
- **Discount Application**: Apply promotional discounts
- **Multiple Currencies**: Support for different currencies

Payment Processing

- **Online Payments**: Integration with payment gateways
- **Payment Tracking**: Real-time payment status updates
- **Receipt Generation**: Automatic receipt creation
- **Refund Management**: Process refunds and cancellations
- **Payment History**: Complete payment transaction records

Medical Records Module

Record Management

- **Digital Records**: Electronic storage of medical documents
- **File Upload**: Support for various file formats
- **Categorization**: Organize records by type and date
- **Access Control**: Role-based access to medical records
- **Audit Trail**: Track all record access and modifications

Clinical Documentation

- **Clinical Notes**: Doctor's observations and notes
- **Diagnostic Reports**: Lab results and imaging reports
- **Treatment Plans**: Detailed treatment documentation
- **Progress Tracking**: Monitor patient progress over time