Software Requirements Specification

for

Dental Management System

CodeOrigin – Software Development Company

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Revision History

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M. Zain Khan	*06/30/24*	*Verifying Requirements*	*1.1*
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Software Requirements Specification (SRS) for Dental Management System

1. Introduction

1.1 Purpose

The purpose of this SRS document is to provide a detailed description of the requirements for the Dental Management System (DMS) for the Dental Practice. It outlines the system's functionality, performance, and constraints, providing a comprehensive guide for developers, designers, and stakeholders.

1.2 Scope

The Dental Management System (DMS) is a web-based application designed to streamline the operations of a Dental Practice. It will manage appointment scheduling, invoices, payments, patient communication, marketing, and other essential Practice functions. The system will include interfaces for patients, Practice staff, admins, and a **Super Admin**.

1.3 Definitions, Acronyms, and Abbreviations

- **DMS:** Dental Management System
- **UI/UX:** User Interface/User Experience
- **CMS:** Content Management System
- **API:** Application Programming Interface

1.4 Key Components

- Web-Based Dental Management System for patients
- Super Admin Panel (accessible only by Ms. Amy)
- Admin Panel (for Practice staff and relevant admins)
- Graphics Services (UI/UX Design, Brand Identity)
- Portfolio Website

1.5 Overview

This document provides an overview of the DMS, including its objectives, features, user characteristics, operating environment, and design constraints. It details both functional and non-functional requirements, providing a comprehensive framework for the development process.

2. Overall Description

2.1 Product Perspective

The DMS is a new, web-based system developed specifically for the Dental Practice. It is a standalone application that integrates with existing systems via APIs for functionalities such as calendar synchronization and payment processing.

2.2 Product Functions

The DMS will provide the following key functions **(On-System Functionalities)**:

- **Appointment Scheduling**
- **Invoice Management**
- **Payment Processing**
- **Patient Communication**
- **Marketing and Engagement Tools**
- **Customizable Communication**
- **User Synchronization**
- **Support System**
- **Team Coordination**
- **Insurance Verification**
- **Online Forms**

2.3 User Classes and Characteristics

- **Patients:** Both existing and new registered patients who use the system to manage appointments, receive communications, and handle payments.
- **Practice Staff:** Administrative personnel responsible for managing daily operations, including scheduling, invoicing, and patient communication.
- **Admins:** Users with elevated privileges to manage system settings, user accounts, and oversee overall operations.

- **Super Admin:** Ms. Amy, who has access to all system functionalities and administrative controls.

2.4 Operating Environment

- The DMS will be a web-based application accessible through modern web browsers such as Chrome, Firefox, Safari, and Edge.
- **Front-End:** Developed using HTML, CSS, and Flutter for a responsive and user-friendly interface.
- **Back-End:** Built using JavaScript for server-side logic.
- **Database:** MySQL and MongoDB for structured and unstructured data storage.
- **CMS:** Wordpress for the portfolio website and content management.

2.5 Design and Implementation Constraints

- **Integration**

  1. Must integrate with existing calendar systems (Google Calendar, Outlook) and payment gateways.

  2. The Dental Management System will be designed to integrate seamlessly with various existing dental software systems to ensure compatibility and synchronization. This will allow dental clinics using different software solutions to easily incorporate this new system into their workflow. The following software systems will be supported for integration:

Commented [ZK1]: These softwares won't be purchased (priority is if we can find them for free from the web).

1. **Curve Dental**: Sync patient records, appointments, and billing information.
2. **Eagle Soft**: Integrate patient data, scheduling, and financials.
3. **Dentrix**: Support for patient management, treatment planning, and communication.
4. **OpenDental**: Ensure compatibility for practice management and clinical operations.
5. **Dolphin**: Sync orthodontic practice data including imaging and treatment plans.
6. **Endosoft**: Integration for endodontic records and procedural documentation.
7. **Carestack**: Comprehensive practice management including patient engagement and billing.
8. **360 Ortho**: Orthodontic practice management and patient tracking.
9. **Periovision**: Periodontal charting and patient data management.
10. **EasyDental**: Integration for basic practice management and patient scheduling.
11. **Henry Schein One**: Synchronize with practice management and clinical solutions.
12. **iDental Soft**: Cloud-based integration for practice management and patient records.
13. **Practice-Web**: Sync patient data, scheduling, and financial management.
14. **Denticon**: Cloud-based practice management including patient engagement and billing.
15. **Cloud 9 Software**: Integration for orthodontic and pediatric dental practice management.
16. **XLDent**: Comprehensive dental practice management including patient records and scheduling.
17. **eDentra**: Integration for dental practice management and patient data.
18. **Topsortho**: Orthodontic practice management and patient tracking.
19. **tab32**: Cloud-based practice management including patient engagement and billing.
20. **ABELDent**: Integration for practice management, patient communication, and billing.

(These integrations will ensure that dental clinics can continue using their preferred software solutions while benefiting from the enhanced capabilities of the new Dental Management System. The integration will cover patient records, appointment scheduling, billing, treatment plans, and other critical functionalities (listed above).

- **Performance:** Must ensure real-time synchronization with minimal latency.

2.6 User Documentation

- Comprehensive user manuals for patients, Practice staff, and admins.
- Technical documentation for developers, including API references and data schemas.

2.7 Assumptions and Dependencies

- Reliable internet connectivity for accessing the web-based system.
- Users possess basic computer literacy and familiarity with web applications.

3. System Features

3.1 Comprehensive Appointment Scheduling

3.1.1 Multi-Channel Appointment Reminders

- **Description:** This feature ensures that patients receive timely reminders for their appointments via their preferred communication method—whether it be email, text, or phone calls. This increases the likelihood of patients attending their scheduled appointments and reduces no-shows.
- **Functional Requirements:**
  - Allow patients to select their preferred communication method.
  - Send reminders at configurable intervals (e.g., 24 hours, 1 week before the appointment).
  - Log reminders sent and responses received.

  - **Updated Requirement**: Automatically confirm the appointment in the system when patients respond to reminders, eliminating the need for manual confirmation by the staff.

3.1.2 Calendar Integration

- **Description:** Integrates the dental Practice's appointment schedules with patients' personal calendars, making it easier for patients to keep track of their appointments. This integration supports popular calendar services like Google Calendar and Outlook.
- **Functional Requirements:**

- Support calendar integration with Google Calendar, Outlook, and other popular calendar services.
- Provide links in reminder emails/texts for adding appointments to personal calendars.

3.1.3 Automatic Confirmation Requests

- **Description:** Allows patients to confirm their appointments directly through the reminders they receive. This helps the dental Practice manage and track appointment confirmations and cancellations more efficiently.
- **Functional Requirements:**
  - Include a confirmation option in reminder notifications.
  - Update appointment status based on patient responses.

3.2 Efficient Invoices and Payment Processing

3.2.1 Invoice Management

- **Description**: Facilitates the creation, sending, and tracking of invoices for dental treatments and services. This feature helps the dental practice manage its billing processes efficiently.
- **Functional Requirements**:
  - Generate invoices based on treatment records.
  - Send invoices via email and text, providing download links.
  - Track invoice status (paid, unpaid, overdue).

3.2.2 Payment Processing

- **Description:** Provides secure and efficient handling of payments through various methods, including credit cards, bank transfers, and digital wallets. This ensures smooth financial transactions for both the dental Practice and patients.
- **Functional Requirements:**
  - Support payments via credit cards, bank transfers, and digital wallets.
  - Ensure secure transaction processing and data encryption.
  - Update payment status and provide receipts to patients.

3.3 Enhanced Patient Communication

3.3.1 Automatic Appointment Reminders

- **Description:** Synchronizes and sends appointment reminders automatically based on the appointment schedule. This helps in maintaining effective communication with patients regarding their upcoming appointments.
- **Functional Requirements:**
  - Automatically sync and send reminders based on the appointment schedule.
  - Log reminder deliveries and patient interactions.

3.3.2 Birthday Greetings and Recall Messages

- **Description:** Sends automated birthday greetings and recall messages to patients, helping maintain a personalized touch and encouraging regular check-ups.
- **Functional Requirements:**
  - Send personalized birthday greetings to patients.
  - Send recall messages for overdue appointments or check-ups.

3.3.3 Last-Minute Text Messages

- **Description:** Notifies patients of any last-minute changes or updates to their appointments via text messages, ensuring they are promptly informed.
- **Functional Requirements:**
  - Allow Practice staff to send last-minute updates to patients via text.

3.4 Marketing and Patient Engagement

3.4.1 Marketing Email Campaigns

- **Description:** Enables the creation and management of marketing campaigns to engage and retain patients. This helps in promoting dental services and maintaining patient relationships.
- **Functional Requirements:**
  - Allow creation of email marketing campaigns.
  - Track open rates and engagement metrics.

3.4.2 Promote Patient Reviews

- **Description:** Facilitates the sharing of patient reviews on platforms like Google, Facebook, and Yelp, enhancing the dental Practice’s online reputation.
- **Functional Requirements:**
  - Facilitate sharing patient reviews on selected platforms.
  - Track and report on review engagement.

3.4.3 Templated Messages

- **Description:** Provides pre-written, customizable templates for communications such as emails, texts, and phone calls. This saves time and ensures consistent, professional communication with patients.
- **Functional Requirements:**
  - Provide pre-written, customizable message templates.
  - Allow users to edit and save templates for reuse.

3.5 Customizable Communication

3.5.1 Custom Messages

- **Description:** Allows the dental Practice to fully customize all patient communications to better reflect the practice's brand and culture.
- **Functional Requirements:**
  - Allow customization of email, text, and phone call scripts.
  - Ensure consistency and professionalism in communications.

3.5.2 Two-Way Texts

- **Description:** Enables secure two-way texting with patients, allowing for convenient communication while maintaining confidentiality.
- **Functional Requirements:**
  - Support secure two-way texting.
  - Log all text communications for reference.

3.6 User-Friendly Synchronization

3.6.1 5 Minute Sync Times

- **Description:** Ensures that all updates and reminders are synchronized within 5 minutes, providing timely information to patients and staff.
- **Functional Requirements:**
  - Sync updates within 5 minutes to ensure timely notifications.

3.6.2 No Contracts

- **Description**: Offers a flexible subscription model, allowing users to start and stop subscriptions without long-term commitments.
- **Functional Requirements**:
  - Allow users to start and stop subscriptions without long-term contracts.
  - Include a clause in the monthly subscription sign-up process stating that "if a card or payment method on file declines, users have 14 days to rectify(fix) the issue, or their system access will be turned off".

3.7 Morning Huddle with Demo

3.7.1 Team Coordination

- **Description:** Facilitates daily meetings to discuss the schedule and patient cases, ensuring the team is well-coordinated and prepared.
- **Functional Requirements:**
  - Facilitate daily morning huddle meetings for team coordination.

3.7.2 Workflow Efficiency

- **Description:** Ensures all team members know their roles and responsibilities, promoting an efficient workflow.
- **Functional Requirements:**
    - Provide tools for defining and tracking team roles and responsibilities.

3.7.3 Real-time Updates

- **Description:** Provides instant communication throughout the day to keep the team informed of any changes or updates.
- **Functional Requirements:**
    - Support real-time communication among team members.

3.7.4 Training Demos

- **Description:** Includes training demos during the huddle to showcase new tools or techniques, enhancing team skills and knowledge.
- **Functional Requirements:**
    - Support the inclusion of training demos in morning huddles.

3.7.5 Boosted Morale

- **Description:** Starts the day positively, enhancing team spirit and morale.
- **Functional Requirements:**
    - Provide tools for motivational content during huddles.

3.8 Dental Insurance Eligibility Verification

3.8.1 Automated Checks

- **Description:** Streamlines the verification of insurance eligibility, ensuring that patient insurance information is accurate and up-to-date.
- **Functional Requirements:**
    - Automate insurance eligibility checks.
    - Provide real-time insurance information.

3.8.2 Error Reduction

- **Description:** Minimizes manual entry errors by automating insurance verification processes.
- **Functional Requirements:**
    - Reduce errors through automation and validation.

3.8.3 Time Efficiency

- **Description:** Ensures quick verification of insurance eligibility, saving time for both staff and patients.

- **Functional Requirements:**
  - Ensure fast insurance verification processes.

3.8.4 Enhanced Experience

- **Description:** Improves patient satisfaction by providing fast and accurate insurance information.
- **Functional Requirements:**
  - Enhance patient satisfaction through efficient insurance verification.

3.9 Online Dental Forms

3.9.1 User-Friendly

- **Description:** Provides easy-to-navigate online forms for patients, simplifying the process of providing necessary information.
- **Functional Requirements:**
  - Provide user-friendly online forms for patients.

3.9.2 Paperless

- **Description:** Eliminates the need for paper forms, contributing to a more efficient and environmentally friendly practice.
- **Functional Requirements:**
  - Support paperless operations through digital forms.

3.9.3 Efficient Intake

- **Description:** Speeds up patient intake by allowing patients to complete forms online before their appointments.
- **Functional Requirements:**
  - Streamline patient intake processes through online forms.

3.9.4 Secure Data

- **Description:** Ensures that patient information collected through online forms is securely stored and compliant with data protection regulations.
- **Functional Requirements:**
  - Ensure data security and compliance with regulations.

3.9.5 System Integration

Description: Integrates online forms with the main management system, ensuring that patient information is easily accessible and up-to-date.

Functional Requirements:

- **Integrate online forms with the main management system.**
    - When forms are filled out online, the information is automatically updated in the main management system, eliminating the need for manual data entry.

3.10 HIPAA Compliance

- **Description:** Ensures that the dental practice complies with HIPAA regulations, safeguarding patient privacy and security.
- **Functional Requirements:**
    - Implement safeguards to protect patient information.
    - Ensure all communications and data storage comply with HIPAA requirements.

3.11 Data Encryption/Security Measures

- **Description:** Protects patient data through encryption and other security measures, ensuring that sensitive information is secure both in transit and at rest.
- **Functional Requirements:**
    - Encrypt patient data in transit and at rest.
    - Implement security protocols to prevent unauthorized access.

3.12 User Access Controls and Audit Trails

- **Description:** Manages user access to the system, ensuring that only authorized personnel can access sensitive information. Maintains audit trails to track system usage and access.
- **Functional Requirements:**
    - Implement role-based access control.
    - Maintain audit trails of user activities.

3.13 Patient Engagement for Review and Feedback

3.13.1 Feedback Collection

- **Description:** Facilitates the collection of patient feedback regarding their experiences with the dental practice, helping to improve services and patient satisfaction.
- **Functional Requirements:**
    - Provide mechanisms for patients to submit feedback.
    - Analyze and compile feedback for actionable insights.

3.13.2 Satisfaction Surveys

- **Description:** Conducts periodic satisfaction surveys to gauge patient satisfaction levels and identify areas for improvement.
- **Functional Requirements:**
    - Create and distribute satisfaction surveys to patients.

  - Analyze survey results to improve service quality.

3.14 Patient Statistics/Demographics

3.14.1 Demographic Data Collection

- **Description:** Gathers and maintains demographic information about patients, aiding in understanding patient demographics and preferences.
- **Functional Requirements:**
  - Collect and store demographic data (e.g., age, gender, location).
  - Generate reports based on demographic insights.

3.14.2 Statistical Analysis

- **Description:** Analyzes patient data to derive statistical insights, helping in decision-making and resource allocation.
- **Functional Requirements:**
  - Perform statistical analysis on patient demographics and behaviors.
  - Generate reports and visualizations for data-driven decision-making.

3.15 Supply Tracking and Ordering

3.15.1 Inventory Management

- **Description:** Tracks dental supplies and equipment, ensuring adequate stock levels and timely reordering.
- **Functional Requirements:**
  - Monitor inventory levels of dental supplies.
  - Automate purchase orders for replenishment.

3.15.2 Supplier Management

- **Description:** Manages relationships with suppliers for efficient procurement of dental supplies and materials.
- **Functional Requirements:**
  - Maintain supplier contact information and contracts.
  - Track supplier performance and delivery schedules.

3.16 Reporting and Analytics

3.16.1 Performance Metrics

- **Description:** Generates reports and analytics to monitor key performance indicators (KPIs) such as patient visits, revenue, and treatment outcomes.
- **Functional Requirements:**
  - Create customizable reports for various stakeholders.
  - Analyze KPIs to assess practice performance.

3.16.2 Financial Analytics

(COVERED IN 3.14)

- **Description:** Provides financial insights through analytics, supporting budgeting, forecasting, and financial decision-making.
- **Functional Requirements:**
  - Analyze revenue streams and financial trends.
  - Forecast financial performance based on historical data.

3.17 Invoicing, Payment Processing, and Tracking

Commented [ZK2]: How will we Integrate (Integration Process) the Insurance Information into the Billing and Invoicing:

1. **Insurance Eligibility Checks:**

> We'll be using an Insurance verification API to check the patient's insurance eligibility and coverage details in real-time.

> Retrieve and store insurance information, including coverage amounts and copay details.

2. Billing Integration:

(1)

> When generating an invoice, the system will automatically fetch the patient's insurance coverage details.

> The invoice will itemize charges for treatments or services and apply the insurance coverage amounts, displaying the remaining balance owed by the patient.

3. Payment Integration:

> Payments from insurance providers will be automatically recorded in the **system** when received.

> The system will reconcile these payments with the corresponding invoices, updating the patient's account balance.

> Patients will receive updated account statements reflecting both their payments and insurance payments.

3.17.1 Transparent Billing

Description: Provides clear and detailed invoices for dental treatments and services, ensuring transparency in billing.

Functional Requirements:

- **Itemize charges for each treatment or service.**
- **Include patient insurance information and coverage details.**
  - Automatically retrieve and display insurance coverage details for the patient.
  - Show the amount covered by insurance and the remaining balance owed by the patient.

3.17.2 Payment Tracking

Description: Tracks payments received from patients and insurance providers, ensuring accurate accounting and reconciliation.

Functional Requirements:

- **Record payment details (amount, date, method).**
  - Record payments received from both patients and insurance provider **(into the system).**
  - Separate and itemize payments made by insurance from those made by patients in the invoicing.
- **Reconcile payments with invoices and patient accounts.**
  - Automatically update patient account balances when payments are received.
  - Integrate with the insurance verification system **(API)** to confirm insurance payments and update patient accounts accordingly.

3.18 Appointment Requests through a QR Code

3.18.1 QR Code Generation

Description: Generates QR codes that patients can scan to request appointments.

Functional Requirements:

- Create unique QR codes linked to appointment scheduling.
- Display QR codes on the practice website or patient portal.
- Include a description box in the QR code request form where patients can type what they want.

3.18.2 Appointment Management

Description: Integrates QR code requests into the appointment scheduling system, ensuring seamless booking and confirmation.

Functional Requirements:

- Automatically process appointment requests from scanned QR codes.
- Send QR code requests to staff messages so staff can reach out to schedule.
- Update appointment schedules in real-time.

3.19 Patient Account Creation and Communication within the Practice

3.19.1 Secure Account Creation

Description: Allows patients to create accounts securely within the dental practice system, and also a personalized communication and access to **services**.

Functional Requirements:

- Implement secure patient account creation procedures.
- Authenticate patient identities during account setup.
- Allow patients to access only their **appointments, balance, and patient forms** through their accounts.

3.19.2 Internal Communication

Description: Enables secure communication among dental practice staff and patients through the patient portal or secure messaging system.

Functional Requirements:

- Facilitate internal messaging for patient-staff communication.
- Ensure messages are encrypted and compliant with privacy regulations.

3.20 Medical Form Updates, Record Access, Patient Balance Viewing, and Payments

(FOLLOWS 3.19 IN TERMS OF ACCESS ONLY TO APPOINTMENTS, BALANCE, PATIENT FORMS)

3.20.1 Electronic Medical Records (EMR)

- **Description:** Allows for the update and access of patient medical forms and records electronically.
- **Functional Requirements:**
    - Maintain electronic medical records (EMR) with update capabilities.
    - Ensure secure access to patient records by authorized **(staff panel members).**

3.20.2 Patient Balance Management

- **Description:** Enables patients to view their account balances and make payments securely through the patient portal or online platform.
- **Functional Requirements:**
    - Display current account balances and transaction history.
    - Facilitate secure online payments through integrated payment gateways.

3.21 Appointment Reminders via Text, Call, and Email

3.21.1 Multi-Channel Reminders

Description: Sends automated reminders to patients via text messages, phone calls, and emails to reduce missed appointments and improve schedule adherence.

Functional Requirements:

- Schedule reminders based on patient preferences and appointment times.
- Allow offices to choose reminder intervals: 30 days, 14 days, 7 days, 3 days, 1 day, or all of these intervals.
- Track delivery and patient response to reminders.

3.22 Insurance Claims Processing

(TBD)

3.22.1 Claim Submission

- **Description:** Facilitates the submission of insurance claims for dental treatments and services provided to patients.
- **Functional Requirements:**
    - Prepare and submit insurance claims electronically.
    - Include necessary documentation and patient information for claim processing.

3.22.2 Claim Status Tracking

- **Description:** Tracks the status of submitted insurance claims, providing visibility into claim processing and reimbursement timelines.
- **Functional Requirements:**
    - Monitor and update claim status (pending, processed, denied).

- Notify staff and patients of claim outcomes and next steps.

3.23 Support System

3.23.1 Dedicated Support Channels

- **Description:** Provides channels for **office staff** to seek assistance and resolve issues related to the dental management system.
- **Functional Requirements:**
  - Implement a ticketing system for logging and tracking support requests.
  - Provide timely responses and resolutions to support tickets.

3.23.2 Knowledge Base

- **Description:** Offers a repository of resources, FAQs, and troubleshooting guides to support users in navigating and using the system effectively.
- **Functional Requirements:**
  - Maintain an updated knowledge base accessible to users.
  - Include tutorials and user manuals for system functionalities.

3.24 Payment Gateway and Fee Automation Integration

3.24.1 Fee Automation and Auto Subscription Charge Description

- **Description:** Automates the subscription fee charges and manages recurring payments to streamline billing processes.
- **Functional Requirements:**

  - Implement automated subscription fee charges for patients.
  - Set up auto-renewal and auto-payment functionalities for recurring subscriptions.

3.24.2 Stripe & Moolah Payment Integration

- **Description:** Integrates Stripe and Moolah payment gateway for payment processing.
- **Functional Requirements:**

  - Integrate Stripe payment gateway for processing credit/debit card transactions.
  - Integrate Moolah payment gateway for additional **(another)** payment processing option.

3.24.3 Invoicing Tab

- **Description:** Provides a dedicated tab for managing and sending invoices, while allowing integration with existing payment systems.

- **Functional Requirements:**
  - Create an invoicing tab within the system.
  - Allow the creation and sending of invoices via email and text.
  - Integrate with existing payment systems **(Stripe & Moolah)** used by the practice to track invoice status (paid, unpaid, overdue).

3.25 Marketing Tools Integration

3.25.1 Marketing Tools

- **Description:** The dental practice will include tools and resources for effective marketing, including social media post ideas, campaign management, and analytics.
- **Functional Requirements:**

  1. **Market Campaigning:**
     - Publish posts to social media platforms.
  2. **Social Media Tools**
     - Provide templates and ideas for social media posts.
     - Track engagement metrics.
  3. **Analytics and Reporting**
     - Provide reports on marketing campaign performance.

3.25.2 Patient Loyalty Program

Description: Allows dental practices to create and manage a customized patient loyalty program, incentivizing patients to pay on time, keep appointments, and refer friends.

Functional Requirements:

- Enable offices to customize their own loyalty programs.
- Track patient participation and rewards earned.
- Provide options for patients to earn incentives for timely payments, appointment adherence, and referrals.
- Integrate loyalty program information into patient profiles for easy tracking and management.

4. Admin Panel Features (On-System/On-Site)

1. Appointment Management

- **Calendar View:** Visual representation of appointments for easy management.
- **Appointment Confirmation:** Track and manage appointment confirmations from patients.

2. Patient Management

- **Access and Update:** Access and update patient information, including medical history and treatment plans.
- **Medical Records Management:** Store and retrieve patient medical records securely.
- **Patient Communication:** Send notifications and reminders to patients regarding appointments, payments, and other updates.

3. Billing and Payment Processing

- **Invoice Generation:** Create and send invoices for treatments and services.
- **Payment Tracking:** Track payments made by patients and update payment statuses.
- **Financial Reports:** Generate financial reports for accounting and auditing purposes.
- **Insurance Claims Processing:** Manage and process insurance claims for treatments.

4. Inventory and Supply Management

- **Inventory Tracking:** Monitor and manage dental supplies and equipment.
- **Supply Ordering:** Automate the ordering process for supplies when inventory levels are low.
- **Vendor Management:** Maintain a database of suppliers and vendors.

5. Reporting and Analytics

- **Performance Reports:** Generate reports on clinic performance, including patient visits, treatments performed, and financial metrics.
- **Patient Demographics:** Analyze patient demographics to understand the patient base and target marketing efforts.
- **Treatment Outcomes:** Track and report on treatment outcomes to ensure quality of care.

6. User Access Controls

- **Role-Based Access:** Assign roles and permissions to staff members based on their responsibilities.
- **Audit Trails:** Maintain logs of user activities for accountability and security.
- **User Management:** Add, remove, and update user accounts.

7. Data Security and Compliance

- **HIPAA Compliance:** Ensure all patient data is handled in compliance with HIPAA regulations.
- **Data Encryption:** Encrypt sensitive patient information both in transit and at rest.
- **Backup and Recovery:** Regular data backups and recovery procedures to prevent data loss.

8. Communication and Patient Engagement

- **Patient Feedback:** Collect and manage feedback from patients to improve services.
- **Review Management:** Track and respond to patient reviews on various platforms.

9. Support System

- **Ticketing System:** Manage support requests from staff.
- **Knowledge Base:** Provide a repository of FAQs and troubleshooting guides for common issues.

10. QR Code Integration

- **Appointment Requests:** Generate QR codes for patients to request appointments online.
- **Patient Portal Access:** Provide QR codes for easy access to the patient portal.

11. Supply Tracking and Ordering

(CAN FOLLOW #5 TOO WHERE NEEDED)

- **Inventory Management:** Track inventory levels of dental supplies.
- **Order Automation:** Automate reordering of supplies when inventory is low.
- **Supplier Integration:** Integrate with suppliers for streamlined ordering.

12. Training and Documentation

- **User Training:** Provide training materials and sessions for new staff members.
- **Documentation:** Maintain up-to-date documentation for all system features and processes.

13. Morning Huddle Tools

- **Daily Schedule Review:** Review the daily schedule during morning huddles.
- **Team Coordination:** Tools for coordinating team activities and responsibilities.
- **Updates and Announcements:** Share important updates and announcements with the team

14. Insurance Claims Processing

(WILL FOLLOW 3.22 – COMMENTED)

- **Automated Checks:** Streamline the verification of insurance eligibility, ensuring patient insurance information is accurate and up-to-date.

Commented [ZK3]: 3.22 Claims Processing (Additional)
> Claims Submission: Submit claims electronically to insurance providers via clearing houses like DentalXChange or Vyne Dental.

> Claims Tracking: Track the status of submitted claims and manage any rejections or issues that arise.

> Payment Reconciliation: Reconcile payments received from insurance providers with patient accounts and invoices.

- **Error Reduction:** Minimize manual entry errors by automating insurance verification processes, reducing administrative workload.
- **Time Efficiency:** Ensure quick verification of insurance eligibility, saving time for both staff and patients.
- **Enhanced Experience:** Improve patient satisfaction by providing fast and accurate insurance information, ensuring smooth claim processing.

(NOTES ARE TBU)

15. Patient Account Management

- **Account Creation:** Enable patients to create accounts within the office system for personalized communication.
- **Medical Form Updates:** Allow patients to update their medical forms online, ensuring accurate and current health information.
- **Record Access:** Provide patients with access to their medical records, promoting transparency and patient engagement.
- **Balance Viewing and Payments:** Allow patients to view their account balance and make payments, improving financial transparency and convenience.

16. Payment Gateway and Fee Automation and Subscription Charge Management

- **Automated Subscription Charges**: Monitor subscription status and view payment history.
- **Auto-Renewal and Auto-Payment**: View auto-renewal status and payment methods.

- **Payment Integration Management:** Process transactions, view transaction history, and handle refunds.

- **Invoicing Tab**: Create and send invoices via email and text with the Tracking of invoice status (paid, unpaid, overdue) and view payment history.

17. Marketing Tools and Patient Loyalty Program Management

- **Market Campaigning**: Schedule and publish posts to social media platforms.
- **Social Media Tools**: Access templates and ideas for social media posts with the Tracking of engagement metrics.
- **Analytics and Reporting**: View reports on individual marketing campaigns.

- **Customize Loyalty Programs**: View and manage patient participation and Track rewards earned and update patient profiles with loyalty information.

5. Super Admin Panel Features

Super Admin Panel Features

1. Appointment Management

- **View, add, edit, and cancel appointments** for all patients.
- **Manage appointment reminders** (text, email, call).
- **Oversee calendar integrations** and scheduling.

2. Patient Management

- **Access and update patient records** and histories.
- **Manage patient communications** (emails, texts, calls).
- **Enable patient account creation and updates.**

3. Billing and Payments

- **Generate and manage invoices.**
- **Process payments** and track payment statuses.
- **Monitor patient balances** and payment histories.

4. Reporting and Analytics

- **Generate reports** on appointments, billing, and patient demographics.
- **Access analytics dashboards** for performance metrics.

5. Staff and User Management

- **Add, edit, or remove admin users** and staff.
- **Set and manage user permissions** and access levels.
- **Monitor staff activities** and logins.

6. System Configuration

- **Configure system settings** (appointment slots, reminder intervals, etc.).
- **Manage integrations** with third-party services (calendars, payment gateways).
- **Oversee data security** and encryption settings.

7. Communication Management

- **Create and manage templates** for emails, texts, and calls.
- **Set up marketing campaigns** and patient engagement initiatives.
- **Monitor and log all communications.**

8. Supply and Inventory Management

- **Track inventory levels** and manage supply orders.
- **Generate reports on supply usage** and inventory status.
- **Manage supplier information** and orders.

9. Compliance and Audit

- **Ensure HIPAA compliance** across all functionalities.
- **Maintain audit trails** for all activities and changes.
- **Monitor data encryption** and security protocols.

10. Insurance and Claims

- **Verify patient insurance eligibility.**
- **Manage insurance claims** and submissions.
- **Track claim statuses** and reimbursements.

11. Support and Training

- **Provide access to support resources** and documentation.
- **Schedule and manage staff training sessions.**
- **Monitor support tickets** and resolutions.

12. Admin Panel Oversight

- **Full access and control** over Admin Panel functionalities.
- **Monitor, add, edit, or remove admin users** and their roles.
- **Adjust permissions and access levels** for Admin Panel users.
- **Intervene in any admin-managed processes** if necessary.

13. Fee Automation and Auto Subscription Charge Management

- **Automated Subscription Charges**:
  - Configure and manage subscription plans.
  - Set pricing and adjust billing cycles.
- **Auto-Renewal and Auto-Payment**:
  - Enable/disable auto-renewal features.
  - Set up payment schedules and manage payment method integration.

14. Payment Integration Settings

- **Stripe Integration**:
  - Configure Stripe settings.
  - Manage API keys and monitor payment gateway related settings & issues.
- **Moolah Integration**:
  - Configure Moolah settings.

- Manage API keys and monitor payment gateway related settings & issues.

15. Invoicing Tab

- **Invoicing Tab**:
  - Configure invoicing settings.
  - Integrate with payment systems (Stripe & Moolah).
  - Generate invoice reports.

16. Marketing Tools Integration

- **Market Campaigning**:
  - Manage campaign settings.
  - Track campaign performance and generate marketing reports.
- **Social Media Tools**:
  - Configure social media integration settings.
  - Analyze overall social media strategy.
- **Analytics and Reporting**:
  - Generate comprehensive marketing reports **(for office use).**

17. Patient Loyalty Program Management

- **Customize Loyalty Programs**:
  - Create and configure loyalty program rules.
  - Set reward criteria and monitor overall program performance.
- **Track and Reward**:
  - Integrate loyalty program with payment and appointment systems.

6. Non-Functional Requirements

6.1 Performance Requirements

- **Scalability:** The system must handle increased loads without performance degradation. It should support up to 10,000 concurrent users.
- **Response Time:** The system should respond to user actions within 2 seconds for 95% of requests.
- **Throughput:** The system should handle at least 100 transactions per second during peak hours.

6.2 Usability Requirements

- **User Interface:** The UI should be intuitive and accessible, designed with user experience principles tailored for dental practice staff and patients.
- **Training:** Comprehensive user manuals and resources should be provided to ensure staff and patients can effectively use the system.

6.3 Reliability Requirements

- **Availability:** The system must be available 99.9% of the time, excluding scheduled maintenance.
- **Error Handling:** The system must provide clear error messages and logs to facilitate quick resolution of issues.

6.4 Security Requirements

- **Data Encryption:** All patient data must be encrypted in transit and at rest using industry-standard encryption protocols (e.g., AES-256).
- **Authentication and Authorization:** Implement multi-factor authentication (MFA) for all users to restrict access to sensitive data.
- **Audit Trails:** Maintain detailed audit logs of user activities, especially those involving patient data access and modifications.

6.5 Compliance Requirements

- **HIPAA Compliance:** Ensure that all data handling and storage practices comply with HIPAA regulations to protect patient privacy.
- **Data Retention:** Retain patient records and related data as per legal and regulatory requirements, typically for a minimum of 7 years.

6.6 Maintainability Requirements

- **Modularity:** The system should be modular, allowing for easy updates and maintenance without impacting the entire system.
- **Automated Testing:** Implement automated testing for critical components to ensure system reliability during updates and maintenance (only for initial phase of development).

6.7 Interoperability Requirements

- **Integration with Third-Party Systems:** The system must integrate seamlessly with third-party applications such as insurance providers, payment gateways, and calendar services and many more (stated in System & Product Features).
- **Standard Protocols:** Use standard communication protocols (e.g., TP-APIs) to facilitate interoperability.

(NOTE: Must Integrate with ALL DENTAL SOFTWARES that are listed above so that every practice software can be used and be compatible)

6.8 Efficiency Requirements

- **Resource Utilization:** Optimize system performance to ensure efficient use of server resources, minimizing CPU and memory usage.
- **Power Efficiency:** Ensure that the system is designed to minimize power consumption, especially in cloud-based deployments.

6.9 Scalability Requirements

- **Horizontal Scaling:** The system should support horizontal scaling to handle increased loads by adding more servers (optional: cost-effective).
- **Vertical Scaling:** The system should also support vertical scaling to enhance performance by upgrading server hardware (optional: cost-effective).

6.10 Portability Requirements

- **Platform Independence:** The system should be operable on various platforms (Windows, macOS, Linux) and devices (desktops, tablets, smartphones).
- **Cloud Compatibility:** Ensure the system can be deployed on popular cloud platforms (AWS, Azure, Google Cloud) - (if).

7. API's Integration

1. PracticeWorks
2. Connector for Dolphin
3. Connector for Easy Dental
4. Stripe and Moolah (Payment Gateway Integration API)
5. OfficeAlly (more reliable and affordable and best value for money) or Availity (widely used in US) – Includes ClearingHouse, Practice Management and Electronic Health Card (NC).
6. Connector for Dentrix
7. Connector for Eaglesoft
8. Connector for OpenDental
9. Text Alert

8. Approval

8.1 Client Approval

The client *"Ms. Amy"* will review and approve the SRS document, encompassing the on-site/on-system features and their functionalities including the Admin & Super Admin Panel features before the development begins.

Approval History

Client: Ms. Amy	*Date*	*Reason For Changes*	*Version*
Approval: 1	*TBD*	*TBT*	*1.1*