

# System Requirements

## 1.Login System

UC Name	UC001
Summary	<i>Allows users to authenticate and access the system.</i>
Dependency	
Actors	<i>Primary actor - User</i>
Preconditions	<i>User account is created and active. The system is operational and accessible by users.</i>
Description of the Main Sequence	<ul style="list-style-type: none"><li>● <i>Step 1: User enters username and password.</i></li><li>● <i>Step 2: System validates credentials.</i></li><li>● <i>Step 3: If credentials are valid the user is logged in to the system, else login attempt fails.</i></li></ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"><li>● <i>Step 1: User retries to enter into the system by reentering their credentials.</i></li><li>● <i>Step 2: If the login attempt fails, the user selects the “Forgot Password” option.</i></li><li>● <i>Step 3: System prompts the user to enter their email address for password reset.</i></li><li>● <i>Step 4: System sends a password reset link to the user’s email.</i></li></ul>
Non functional requirements	<i>Usability: The login interface should be user-friendly and easily understood, with clear instructions.</i> <i>Security: The system must use a strong encryption method to protect user passwords, so that sensitive information remains secure and confidential.</i> <i>Access to sensitive information or administrative features should be restricted based on user roles and permissions.</i> <i>Performance: The system should be able to handle a high volume of login requests simultaneously without slowing down or freezing.</i>

	<i>Reliability: The system should be highly reliable, with minimal downtime.</i>
Postconditions	<i>If credentials are valid the user is successfully logged into the system. If user credentials are not valid and they need to follow the alternative route for password reset, the user will receive instruction on resetting their password.</i>

## 2. Fixing Appointment

UC Name	UC002
Summary	<i>The receptionist can fix appointments for patients in the clinic.</i>
Dependency	<i>This use case depends on UC001 (login) as the receptionist must login to the system to fix appointments.</i>
Actors	<i>Primary actor - Receptionist Secondary actor - Patients, Dentists</i>
Preconditions	<i>The receptionist has access to the dental clinic management system. The schedule of the dentists' availability is up-to-date.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The receptionist opens the appointment scheduling interface in the dental clinic management system.</i></li> <li>• <i>Step 2: The receptionist opens a patient card for the patient.</i></li> <li>• <i>Step 3: The receptionist enters the patient's personal information, reason for appointment, and specific treatment name.</i></li> <li>• <i>Step 4: The receptionist makes the appointment.</i></li> </ul>
Description of the Alternative	<ul style="list-style-type: none"> <li>• <i>Step 1: If the patient already has an opened patient</i></li> </ul>

Sequence	<p><i>card in the system, the receptionist shall add the new treatment to that existing card.</i></p> <ul style="list-style-type: none"> <li>• <i>Step 2: If additional information is requested for the patient such as insurance details, or past medical history, the receptionist requests the missing information.</i></li> </ul>
Non functional requirements	<p><i>Performance: The system should handle multiple appointment bookings simultaneously without slowing down.</i></p> <p><i>Usability: The appointment scheduling interface should be efficient and easily usable by the receptionist.</i></p> <p><i>Security: Patient information must be accessible only to authorized personnel.</i></p>
Postconditions	<p><i>The appointment is successfully booked and added to the dentist's schedule.</i></p> <p><i>The patient receives confirmation for the appointment and additional information if needed.</i></p>

### 3.Manage employee information

UC Name	UC003
Summary	<i>This use case enables HR workers to manage employee information, including their active or inactive status.</i>
Dependency	<i>This use case may depend on UC001 (login) for user authentication and access control.</i>
Actors	<p><i>Primary actor - HR worker</i></p> <p><i>Secondary actor - Employee</i></p>
Preconditions	<p><i>HR workers have authorization to access employee information.</i></p> <p><i>The system is operational and accessible.</i></p>
Description of	

the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: HR worker searches for specific employee data using filters.</i></li> <li>• <i>Step 2: HR worker selects an employee record to view or to update.</i></li> <li>• <i>Step 3: HR worker updates the employee's information.</i></li> <li>• <i>Step 4: HR worker saves the changes made into the system.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If the search filters applied by the HR worker yield no results, they refine the search criteria and try again.</i></li> <li>• <i>Step 2: If the selected employee record is locked for editing by another HR worker, the system notifies the current HR worker and prompts them to try again later or request access from the other HR worker.</i></li> <li>• <i>Step 3: If the HR worker encounters validation errors while updating the employee's active/inactive status , they correct the errors and attempt to save the changes again.</i></li> </ul>
Non functional requirements	<p><i>Security: Access to employee information is restricted to authorized HR workers only, with secure authentication mechanisms in place.</i></p> <p><i>Performance: The system should handle a large number of employee records efficiently, with quick response time for data retrieval and updates.</i></p>
Postconditions	<p><i>The employee's active/non-active status is updated according to the HR worker's actions.</i></p> <p><i>Changes made by the HR worker are saved and reflected in the system's employee records.</i></p>

#### 4.Calculating employee wages

UC Name	UC004
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Summary	<i>This use case involves the calculation of employee wages.</i>
Dependency	<i>This use case may depend on UC007 (attendance management )which involves employee attendance tracking.</i>
Actors	<i>Primary actor: HR workers,Employee</i>
Preconditions	<i>Employee records must be up-to-date with accurate work hours, rates, and other relevant data. Payroll configurations such as tax rates and deduction policies, must be correctly set up in the system.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Finance worker selects the employee whose wages need to be calculated and retrieves the employee's working hours.</i></li> <li>• <i>Step 3: The system calculates the wages based on the employee's hours worked, considering any overtime.</i></li> <li>• <i>Step 4:Deductions such as taxes, or benefits are applied to calculate the net wages.</i></li> <li>• <i>Step 5: The system generates wage statements for employees.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The system calculates wages for multiple employees selected by the HR manager.</i></li> <li>• <i>Step 2: Special rules or adjustments are applied to specific employees, such as bonuses.</i></li> </ul>
Non functional requirements	<p><i>Accuracy: The system must accurately calculate wages based on predefined rules, ensuring correct deductions and net pay calculations.</i></p> <p><i>Security:Access to wage calculation data and reports should be restricted to authorized HR workers and employees.</i></p> <p><i>Ensure data encryption and secure transmission of wage statements to maintain confidentiality.</i></p>

Postconditions	<i>The system generates accurate wage statements for the selected employees, reflecting their gross wages, deductions, and net pay for the specified period. The wage calculation process is logged and documented for reference purposes.</i>
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#### 5. Generating receipts

UC Name	<i>UC005</i>
Summary	<i>This use case describes the process of generating receipts for financial transactions.</i>
Dependency	<i>This use case may depend on UC012(treatment plan) and UC019(service catalog management).</i>
Actors	<i>Primary actor: Finance worker Secondary Actor: Patient</i>
Preconditions	<i>The finance worker is logged into the dental clinic management system. Financial transactions, such as payments received or refunds issued, have been recorded in the system.</i>

Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Finance worker enters patient id.</i></li> <li>• <i>Gets information from a patient card.</i></li> <li>• <i>Finance worker generates a receipt containing required information.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>If there is missing information in the transaction details, the finance worker communicates with the relevant departments to resolve the issue and update the transaction information in the system.</i></li> </ul>
Non functional requirements	<p><i>Reliability: The system should maintain accurate and reliable financial records, ensuring that generated receipts reflect the correct transaction details.</i></p> <p><i>Compliance: Receipts should comply with relevant accounting standards and regulations governing financial documentation in healthcare settings.</i></p> <p><i>Security: Access to receipt generation functionalities should be restricted to authorized finance staff members, with secure authentication mechanisms in place.</i></p> <p><i>Usability: The receipt generation process should be user-friendly, with clear prompts and intuitive navigation.</i></p>
Postconditions	<p><i>A receipt is generated and stored in the system for the specified financial transaction, providing an official record of the transaction.</i></p>

## 6.Inventory Management

UC Name	UC006
Summary	<i>This use case involves managing inventory within the dental clinic management system, including stock tracking, ordering, and replenishment.</i>
Dependency	<i>This use case may depend on UC008 (database management )which involves employee attendance tracking.</i>
Actors	<i>Primary Actor: Finance Worker</i>
Preconditions	<i>The inventory database must be populated with initial stock data, including product names, quantities, and pricing. The system should have access to supplier information and procurement policies.</i>
Description of the Main Sequence	<ul style="list-style-type: none"><li>● <i>Step 1: Finance Worker views inventory levels.</i></li><li>● <i>Step 2: The system generates alerts or notifications for low item levels .</i></li><li>● <i>Step 3: Inventory manager places orders for low-stock items.</i></li><li>● <i>Step 4: Inventory is updated after order.</i></li></ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"><li>● <i>Step 1: The system suggests reorder quantities and timing based on demand and stock turnover rates.</i></li><li>● <i>Step 2: Inventory manager adjusts reorder quantities or priorities based on urgent needs or budget constraints.</i></li></ul>
Non functional requirements	<i>Performance: The inventory management system should handle real-time updates and queries efficiently, even with a large number of items in the inventory. Security: Access to inventory management functionalities should be restricted to authorized personnel, with secure authentication and role-based access controls.</i>



	<i>Reliability: The system should accurately track inventory movements and maintain data integrity to prevent discrepancies.</i>
Postconditions	<i>Inventory levels are accurately updated and maintained in the system after each transaction or inventory adjustment. Purchase orders, supplier communications, and inventory records are logged and documented which may be used for analysis purposes.</i>

## 7. Leave and Attendance Management

UC Name	UC007
Summary	<i>This use case involves tracking employee attendance, managing leave requests, and calculating leave balances.</i>
Dependency	<i>This use case depends on use case UC001(login).</i>
Actors	<i>Primary Actor: HR Worker Secondary Actor: Employee</i>
Preconditions	<i>Employee profiles and roles must be set up in the system, including leave policies and entitlements. The system should have access to employee work</i>

	<i>schedules and attendance data.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The system displays employee attendance records.</i></li> <li>• <i>Step 2: HR manager approves/rejects employee leave requests, based on attendance records.</i></li> <li>• <i>Step 3: HR manager generates reports or views leave balances for individual employees or the entire team.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Employee submits a leave request.</i></li> <li>• <i>Step 2: The system automatically checks for leave conflicts, such as overlapping requests or insufficient leave balances.</i></li> <li>• <i>Step 3: HR manager reviews and adjusts leave requests as needed before approval.</i></li> </ul>
Non functional requirements	<p><i>Security: Access to leave management functionalities should be restricted to authorized personnel, with secure authentication and role-based access controls.</i></p> <p><i>Accuracy: The system must accurately track attendance, calculate leave balances, and apply leave policies.</i></p>
Postconditions	<p><i>Employee attendance records and leave balances are updated and maintained accurately in the system.</i></p> <p><i>HR Managers can view reports and monitor leave requests.</i></p>

## 8.Data Backup

UC Name	<i>UC008</i>
Summary	<i>Maintain regular backups of the database system to ensure data integrity and availability.</i>



Dependency	
Actors	Primary Actor: HR Worker
Preconditions	The database system is set up and operational.
Description of the Main Sequence	<ul style="list-style-type: none"> <li>Step 1: HR worker initiates the scheduled backup process: The HR worker uses a backup software interface to start the backup process at the scheduled time or verifies that the automated schedule is in place.</li> <li>Step 2: The system creates a backup of the database, including patient records, appointment schedules, and employee information.</li> <li>Step 3: The backup is stored securely in a designated location, ensuring data confidentiality and integrity.</li> <li>Step 4: The HR worker reviews the backup logs provided by the software to ensure that the backup was successful.</li> </ul>
UC Name	UC009
Description of the Alternative Sequence	<p>Implement a feature in our web application to send appointment reminders to clients either online or via SMS, to avoid scheduling conflicts and improve communication.</p> <ul style="list-style-type: none"> <li>Step 1: The system alerts administrators and initiates reminders to patients.</li> </ul>
Dependency	<p>This use case may depend on UC002 (fixing technical issues (e.g., insufficient storage space, connectivity issues), the system logs the error and retries the backup process.</p> <ul style="list-style-type: none"> <li>Step 2: In case of backup failure due to technical issues (e.g., insufficient storage space, connectivity issues), the system logs the error and retries the backup process.</li> <li>Step 3: If data restoration from backups is required (e.g., due to data corruption, accidental deletion), the system follows predefined recovery procedures to restore the database to a consistent state, ensuring minimal data loss and downtime.</li> </ul>
Actors	Primary Actor: Web application users (administrators, receptionists, patients) Secondary Actor:
Preconditions	The web application is operational and has access to client appointment schedules and contact information
Non functional Requirements of the	Security: Backup files must be encrypted to protect sensitive patient and employee information

Main Sequence	<p><i>appointments from the database.</i></p> <ul style="list-style-type: none"> <li>• <i>Step 2: For each appointment, the system checks if a reminder needs to be sent based on predefined criteria (e.g., time before appointment).</i></li> <li>• <i>Step 3: If a reminder is required, the system prepares the reminder message.</i></li> <li>• <i>Step 4: The system sends the reminder to the client through the selected communication channel (online notification or SMS).</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If the system encounters an error while retrieving appointments or preparing reminders, it logs the error and proceeds to the next appointment.</i></li> <li>• <i>Step 2: If the selected communication channel fails (e.g., internet connection issue for online notifications, SMS service outage), the system retries sending the reminder after a short delay.</i></li> <li>• <i>Step 3: If the retry attempts fail, the system logs the failed reminder and alerts administrators for manual intervention.</i></li> </ul>
Non functional requirements	<p><i>Scalability: The reminder system should be able to scale up seamlessly to accommodate a growing number of clients and appointments without compromising performance.</i></p> <p><i>Customization: The system should allow administrators to customize reminder messages according to the clinic's branding and communication style.</i></p> <p><i>Localization: Support for multiple languages and regional settings to cater to clients from diverse linguistic backgrounds.</i></p>
Postconditions	<p><i>Clients receive appointment reminders through their preferred communication channel, reducing the likelihood of missed appointments.</i></p> <p><i>The system logs all reminder activities, including</i></p>

	<p><i>successful deliveries and any errors encountered, for future reference and analysis.</i></p> <p><i>Administrators can review the reminder logs to ensure that reminders are being sent as expected and take corrective actions if necessary.</i></p>
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## 10. Electronic Prescribing (e-Prescribing)

UC Name	<i>UC010</i>
Summary	<i>Enable the electronic prescribing of medications within the Dental Clinic Management System.</i>
Dependency	
Actors	<i>Primary Actors: Dentists, Patients</i>
Preconditions	<p><i>The patient has provided consent for the dentist to electronically prescribe medications on their behalf.</i></p> <p><i>Patient's medical history, allergies, and other information are available in the system.</i></p>
Description of the Main Sequence	<p><i>Step 1: Patient's medical history and allergies information are available in the system. Dentist access the patient information.</i></p> <p><i>Step 2: Dentist selects medications, dosage, and instructions for the prescription.</i></p> <p><i>Step 3: Dentist reviews and confirms the prescription details.</i></p> <p><i>Step 4: System securely transmits the electronic prescription to the patient.</i></p>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If medication history or allergy information is missing, the system prompts the dentist to review patient records before prescribing.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Step 2: If potential medication interactions are detected, the system alerts the dentist to review and modify the prescription as necessary.</i></li> </ul>
Non functional requirements	<p><i>Performance: Ensure efficient processing and minimal latency for electronic prescription transactions to maintain system responsiveness.</i></p> <p><i>Security: Implement industry-standard security measures to protect electronic prescription data from unauthorized access, interception, or tampering, with robust user authentication and access controls.</i></p> <p><i>Scalability: Design the electronic prescribing system to accommodate growth in user base, patient volumes, and transaction loads over time, with support for horizontal and vertical scaling strategies.</i></p> <p><i>Usability: Ensure that the user interface of the electronic prescribing system is intuitive, user-friendly, and consistent, with comprehensive training and onboarding materials provided to users.</i></p>
Postconditions	<p><i>Dentist successfully electronically prescribes medications to the patient.</i></p> <p><i>Patient receives the electronic prescription and presents it to the pharmacy for medication fulfillment.</i></p> <p><i>Pharmacy or healthcare provider receives the electronic prescription and processes it for dispensing medication.</i></p> <p><i>Electronic prescription records are stored for documentation and auditing purposes.</i></p>

## 11.Remote online consults

UC Name	<i>UC011</i>
Summary	<i>Enable remote consultations and virtual appointments</i>

	<i>between dentists and patients, utilizing telehealth technologies. Provide secure video conferencing and messaging functionalities to facilitate effective communication</i>
Dependency	
Actors	<i>Primary Actors:Dentists, Patients</i>
Preconditions	<ul style="list-style-type: none"> <li>• <i>Availability of online communication infrastructure,including video conferencing software and messaging platforms.</i></li> <li>• <i>Compliance with healthcare regulations, and secure access to patient records.</i></li> </ul>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Dentists schedule remote consultations.</i></li> <li>• <i>Step 2: Patients join the virtual appointments using secure video conferencing links provided by the platform.</i></li> <li>• <i>Step 3: Dentists and patients communicate effectively using video conferencing and messaging functionalities for diagnosis, treatment planning, and follow-ups.</i></li> </ul>
<i>Description of the Alternative Sequence</i>	<ul style="list-style-type: none"> <li>• <i>Step 1: If technical issues occur during the virtual appointment (e.g., poor video quality), dentists and patients troubleshoot or switch to alternative communication methods (e.g., phone call) to continue the consultation.</i></li> <li>• <i>Step 2: If patients encounter difficulties accessing the online platform, clinic staff provide assistance in troubleshooting or rescheduling the appointment.</i></li> </ul>
Non functional requirements	<i>Accessibility: The remote consultation platform should be accessible to users with disabilities, complying with accessibility standards such as WCAG (Web Content Accessibility Guidelines) to ensure equal access to dental services.</i>



	<p><i>Data Storage: Patient data shared during virtual appointments should be securely stored in compliance with data protection regulations, with proper backup and disaster recovery measures in place.</i></p> <p><i>User Feedback Mechanism: Provide a feedback mechanism within the platform to allow users to submit feedback and suggestions for improvement, enabling continuous enhancement of the remote consultation experience.</i></p>
Postconditions	<p><i>Dentists and patients successfully conduct remote consultations and virtual appointments, improving access to dental care and reducing the need for in-person visits.</i></p> <p><i>Patient data exchanged during virtual appointments is securely stored and compliant with privacy regulations, maintaining patient confidentiality.</i></p>

## 12.Treatment Plan

UC Name	UC012
Summary	<i>Develop a comprehensive plan for the entire treatment of the patient, including necessary interventions, and the timeline for the entire process.</i>
Dependency	<i>This use case may depend on UC019(service catalog management) for getting the price of the services or treatments the patient may need.</i>
Actors	<p><i>Primary Actors:Dentists, Patients</i></p> <p><i>Secondary Actors:Receptionists</i></p>
Preconditions	<ul style="list-style-type: none"> <li>● <i>Availability of patient medical history, diagnostic tests, and consultation with the dentist.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Understanding of patient preferences, budget, and treatment options.</i></li> </ul>
<i>Description of the Main Sequence</i>	<ul style="list-style-type: none"> <li>• <i>Step 1: Dentist reviews patient card and diagnostic results to assess the current oral health status.</i></li> <li>• <i>Step 2: Dentist discusses treatment options with the patient, considering factors such as oral health goals, budget, and timeline.</i></li> <li>• <i>Step 3: Dentist develops a customized treatment plan outlining the necessary interventions, procedures, and timeline for each phase of treatment.</i></li> <li>• <i>Step 4: Dentist presents the treatment plan to the patient, explaining the recommended interventions, associated costs, and payment options.</i></li> </ul>
<i>Description of the Alternative Sequence</i>	<ul style="list-style-type: none"> <li>• <i>Step 1: If the patient requests alternative treatment options or expresses concerns about the proposed plan, the dentist explores alternative approaches and revises the treatment plan accordingly.</i></li> <li>• <i>Step 2: If the estimated costs exceed the patient's budget, the treatment coordinator works with the patient to explore financing options or adjust the treatment plan to accommodate the budget constraints.</i></li> </ul>
<i>Non functional requirements</i>	<p><i>Accuracy: The treatment plan should accurately reflect the patient's oral health status, treatment needs, and preferences.</i></p> <p><i>Clarity: The treatment plan should be presented in a clear and understandable manner to the patient, avoiding technical jargon or ambiguity.</i></p> <p><i>Transparency: The patient should have access to detailed information about the proposed treatment plan, including procedures, costs, and expected outcomes, to make informed decisions.</i></p>

Postconditions	<p><i>The patient and dentist agree on a comprehensive treatment plan tailored to the patient's needs and preferences.</i></p> <p><i>The treatment coordinator assists the patient in scheduling appointments, coordinating treatment phases, and managing financial arrangements according to the agreed-upon plan.</i></p>

### 13. Language Localization

UC Name	<i>UC013</i>
Summary	<i>Implement language localization functionality in the software to allow users to select their preferred language for interface display.</i>
Dependency	
Actors	<i>Primary Actors: System Users (Dentist, Receptionist, Patients)</i>
Preconditions	<ul style="list-style-type: none"> <li>• <i>Availability of language translation resources for the desired languages.</i></li> <li>• <i>Understanding of user preferences and language settings</i></li> </ul>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: System users access the software settings or preferences menu.</i></li> <li>• <i>Step 2: Users select their language from the list of available languages(language localization).</i></li> <li>• <i>Step 3: The software dynamically adjusts the interface elements, menus, and text content to display in the selected language.</i></li> <li>• <i>Step 4: Users interact with the software using the newly selected language for improved</i></li> </ul>

	<i>accessibility and usability.</i>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If the desired language is not available in the list of options, users may request additional language support through feedback or support channels.</i></li> <li>• <i>Step 2: System administrators evaluate user requests and prioritize the addition of new languages based on user demand and resource availability.</i></li> </ul>
Non functional requirements	<p><i>Flexibility: The software should support a wide range of languages to accommodate diverse user preferences and demographics.</i></p> <p><i>Accuracy: Language translations should be accurate and culturally appropriate to ensure effective communication and user understanding.</i></p> <p><i>Performance: The language localization feature should have minimal impact on software performance, ensuring smooth and responsive user experience across all supported languages.</i></p>
Postconditions	<p><i>Users can interact with the software interface in their preferred language, enhancing user experience and accessibility.</i></p> <p><i>System administrators have the capability to add or update language translations as needed to support evolving user needs and preferences.</i></p>

## 15. Image Management

UC Name	<i>UC015</i>
Summary	<i>Allows users to store and manage digital images such as intraoral photos, panoramic radiographs, and dental models and also view previous images uploaded by the clinic.</i>

Dependency	<i>This use case may depend on UC016(Patient Management).</i>
Actors	<i>Primary actor - Dentist , Patient Secondary actor - HR worker</i>
Preconditions	<i>The system is active and accessible.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The system checks if the storage infrastructure is capable of handling large volumes of digital images efficiently.</i></li> <li>• <i>Step 2: The system identifies the type of image entered.</i></li> <li>• <i>Step 3: The user in case uploads the new desired image with all the extra annotation they may want to insert.</i></li> <li>• <i>Step 4: The dentist can implement organizational features like tagging, categorization, and search functionality to streamline image retrieval and management</i></li> <li>• <i>Step 5: The system seamlessly integrates the new image with patient records, ensuring easy access and correlation during consultations and treatment planning.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: In case of image not uploading, the user tries to reenter the image.</i></li> <li>• <i>Step 2: In case of a crash, the patient/doctor can report it to IT personnel who can provide ongoing support to address any technical issues.</i></li> </ul>
Non functional requirements	<p><i>Security: Access to patient records is restricted to authorized dental clinic workers, with secure authentication mechanisms in place.</i></p> <p><i>Performance: The system should handle a large number of uploaded images in real time without crashing.</i></p>
Postconditions	<i>All uploaded images are correctly stored in the designated storage system and are accessible within the patient records.</i>

## 16. Patient Management:

UC Name	UC016
Summary	<i>This use case gives the authorized user the ability to create, update, and maintain comprehensive patient records including personal information, medical history, insurance details and any other information.</i>
Dependency	<i>This use case depends on UC001 for user authentication and access control, UC002 for appointment scheduling, UC008 for database management, UC012 for treatment plan.</i>
Actors	<i>Primary actor - Patient , Dentist(Healthcare Providers)</i>
Preconditions	<i>The system is operational and accessible. Healthcare providers have authorization to access patient information.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: The patient logs in his credentials to enter his own personal information such as medical history and insurance details and more.</i></li> <li>● <i>Step 2: The system saves the information mentioned above in the database.</i></li> <li>● <i>Step 3: If the healthcare provider matches the allowed access credentials, they can view and add patient information.</i></li> <li>● <i>Step 4: The changes done by the dentist are saved onto the database.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: Users encounter an error during data entry.</i></li> <li>● <i>Step 2: Pop-up guides the user to correct the errors/reenter the information.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Step 3: User decides to cancel registration.</i></li> <li>• <i>Step 4: Registration is aborted, no new patient record is created.</i></li> </ul>
Non functional requirements	<i>Security: Patient data must be encrypted and securely stored.</i> <i>Performance: System should be able to handle a large number of patient registrations without significant delay.</i>
Postconditions	<i>A new patient record is created in the system.</i>

#### 17. Patient Feedback:

UC Name	<i>UC017</i>
Summary	<i>This use case allows the collection of patient feedback and satisfaction surveys to assess the quality of care and enhance patient experience.</i>
Dependency	
Actors	<i>Primary actor - Patient</i> <i>Secondary actor - HR worker</i>
Preconditions	<i>The patient must have received care from the healthcare provider and clinical staff.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The healthcare provider initiates the feedback/survey process after a procedure is done.</i></li> <li>• <i>Step 2: The system generates a feedback/survey form with relevant questions.</i></li> <li>• <i>Step 3: The patient fills out the feedback/survey form.</i></li> <li>• <i>Step 4: System collects and stores the feedback/survey responses.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The patient can choose to skip the survey.</i></li> <li>• <i>Step 2: In case of a wrong input, a pop-up guides the user to reenter said information.</i></li> </ul>

Non functional requirements	<i>Performance: System should be able to handle a large volume of feedback/surveys without significant delay.</i>
Postconditions	<i>Patient feedback and survey responses are stored in the system for analysis and improvement purposes.</i>

## 18. Service Catalog Management

UC Name	<i>UC019</i>
Summary	<i>Development of a service catalog within the system listing all available dental services, along with detailed descriptions, pricing information, and terms and conditions.</i>
Dependency	<i>None</i>
Actors	<i>Primary actor - System administrator , dental clinic staff</i>
Preconditions	<i>The system is operational and accessible.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The administrator adds new dental services to the catalog with detailed descriptions, pricing information, and terms and conditions..</i></li> <li>• <i>Step 2: The system stores the new added services in the catalog database.</i></li> <li>• <i>Step 3: The users access the information in the catalog.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The system administrator updates the previous saved information of the catalog.</i></li> </ul>
Non functional requirements	<i>Usability: The service catalog interface must be user-friendly and easy to navigate.</i> <i>Performance: The system should handle concurrent access to the catalog without significant delay.</i>
Postconditions	<i>The service catalog is up-to-date with all available dental services, their descriptions, pricing information, and</i>



	<i>terms and conditions.</i>
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#### 19. Patient Search and Filtering.

UC Name	UC020
Summary	<i>Provides search functionality to quickly find patient records based on name, ID, or other identifiers, with filtering options to narrow down search results.</i>
Dependency	<i>This user case is dependent on UC016(patient management) and on UC008(database management) for accessing the patient management database.</i>
Actors	<i>Primary actor - Dental clinic staff (dentist)</i>
Preconditions	<i>The system is operational and accessible. The database is functional and accessible and the data is categorized. Only identified users can access patient information</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The dentist (healthcare provider) enters search criteria such as ID or other identifiers.</i></li> <li>• <i>Step 2: The system retrieves the patient records matching the search criteria.</i></li> <li>• <i>Step 3: The dentist (healthcare provider) reviews the searched result.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: There are no matches for the search.</i></li> <li>• <i>Step 2: a pop-up identifies the dentist (healthcare provider) that there are no matches.</i></li> </ul>
Non functional requirements	<i>Performance: The search function should return results quickly, even with a large database. Usability: The search interface should be efficient and easy to use.</i>
Postconditions	<i>Healthcare providers successfully find and review patient records matching the search criteria or filters.</i>

## 20. Dentist management.

UC Name	UC021
Summary	<i>This use case gives the dentist the ability to check patient records and to look and find all his personal information as well as look at his schedules, vacations, payment and more.</i>
Dependency	<i>This use case depends on UC001 for user authentication and access control, UC002 for appointment scheduling, UC008 for database management, UC012 for treatment plan, UC004 for employment management</i>
Actors	<i>Primary actor - Dentist</i>
Preconditions	<i>The system is operational and accessible.</i>
Description of the Main Sequence	<ul style="list-style-type: none"><li>● <i>Step 1: The dentist logs in his credentials to enter his own personal information.</i></li><li>● <i>Step 2: The system saves the information mentioned above in the database.</i></li><li>● <i>Step 3: If the dentist id matches the allowed access credentials, they can view and add patient information.</i></li><li>● <i>Step 4: The changes done by the dentist are saved onto the database.</i></li><li>● <i>Step 5: They can view all the information related to them.</i></li></ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"><li>● <i>Step 1: Users encounter an error during data entry.</i></li><li>● <i>Step 2: Pop-up guides the user to correct the errors/reenter the information.</i></li></ul>
Non functional requirements	<i>Security: Dentist data must be encrypted and securely stored.</i> <i>Performance: System should be able to handle a large number of dentist registrations without significant delay.</i>
Postconditions	<i>A new dentist record is created safely in the system.</i>

21. Accessible support resources.

UC Name	UC024
Summary	<i>This use case describes the requirement for the dental clinic management system to provide accessible support resources for users, including FAQs, online support, forums, troubleshooting, and software inquiries, within the website application interface.</i>
Dependency	<i>None</i>
Actors	<i>Primary actor - Users (Dentists, Dental assistants, Receptionists, Staff that will interact with the software, Clients)</i>
Preconditions	<i>The dental clinic management system website application is accessible and operational.</i>
Description of the Main Sequence	<ul style="list-style-type: none"><li>• <i>Step 1: Users navigate to the support section within the website application.</i></li><li>• <i>Step 2: Users are presented with options to access support resources such as FAQs, online support, forums, troubleshooting guides, and avenues for software inquiries.</i></li><li>• <i>Step 3: Users select the desired support resource based on their query or issue.</i></li><li>• <i>Step 4: Users are provided with relevant information and guidance to address their query or resolve their issue.</i></li><li>• <i>Step 5: Users utilize the support resource to troubleshoot problems, seek assistance, or obtain information about the software.</i></li><li>• <i>Step 6: Users may engage with online forums to seek advice from peers or contribute to discussions.</i></li></ul>

	<ul style="list-style-type: none"> <li>• <i>Step 7: Users may submit software inquiries or requests for additional support if needed.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Users navigate to the support section within the website application.</i></li> <li>• <i>Step 2: Users encounter an unexpected error or issue accessing the support resources.</i></li> <li>• <i>Step 3: Users attempt to refresh the page or navigate to the support section again, but the issue persists.</i></li> <li>• <i>Step 4: Users notice a message indicating technical difficulties or server downtime.</i></li> <li>• <i>Step 5: Users are unable to access the support resources through the website application.</i></li> <li>• <i>Step 6: Users resort to alternative support channels such as contacting customer support via phone or email.</i></li> <li>• <i>Step 7: Users receive assistance from customer support representatives to address their queries or issues.</i></li> <li>• <i>Step 8: Customer support logs the reported issue and works towards resolving it promptly.</i></li> <li>• <i>Step 9: Users receive follow-up communication from customer support regarding the resolution of the issue.</i></li> <li>• <i>Step 10: Users may provide feedback or additional information to aid in resolving the issue effectively.</i></li> </ul>
Non functional requirements	<ul style="list-style-type: none"> <li>• <i>Accessibility of support resources within the website application interface.</i></li> <li>• <i>Availability of diverse support resources including FAQs, online support, forums, troubleshooting guides, and avenues for software inquiries.</i></li> <li>• <i>User-friendly interface for easy navigation and access to support resources.</i></li> <li>• <i>Timely and accurate provision of information and</i></li> </ul>

	<i>assistance through support resources.</i>
Postconditions	<i>Users have access to a comprehensive range of support resources within the dental clinic management system website application, enabling them to troubleshoot issues, seek assistance, and obtain information effectively and efficiently. The availability of accessible support resources enhances user experience and facilitates smooth operation of the system.</i>

## 22. Patient Education Resources

UC Name	<i>UC023</i>
Summary	<i>This use case provides access to a library of patient education resources, including videos, articles, and interactive multimedia content on oral hygiene, treatment options, and preventive care.</i>
Dependency	<i>None</i>
Actors	<i>Primary actor - Users (Employee, Patients)</i>
Preconditions	<i>The dental clinic management system website application is deployed and operational.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li><i>Step 1: The dentist or patient logs in to the system.</i></li> <li><i>Step 2: The system displays the library of educational resources.</i></li> <li><i>Step 3: Users select and view the desired</i></li> </ul>

	<p><i>educational material.</i></p> <ul style="list-style-type: none"> <li>• <i>Step 4: The system allows sharing of educational materials via the patient portal or printouts.</i></li> <li>• <i>Step 5: Shared materials are saved in the patient's records.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Users encounter an error accessing the resources.</i></li> <li>• <i>Step 2: The system provides troubleshooting steps to resolve the issue.</i></li> </ul>
Non functional requirements	<ul style="list-style-type: none"> <li>• <i>Security: Educational materials should be protected against unauthorized access.</i></li> <li>• <i>Usability: The library should be easy to navigate and search.</i></li> <li>• <i>and efficiently.</i></li> <li>• <i>Compliance with industry standards and regulations for secure handling of financial transactions.</i></li> </ul>
Postconditions	<i>Educational resources are accessed, shared, or printed successfully.</i>

## 23.Flexible Payment Options.

UC Name	<i>UC024</i>
Summary	<i>This use case describes the requirement for the dental clinic management system website application to support flexible payment options. This includes the</i>

	<i>integration of various payment methods such as cash, credit/debit cards, checks, and online payments, with seamless integration with payment gateways to ensure secure transaction processing.</i>
Dependency	<i>None</i>
Actors	<i>Primary actor - Users (Employee, Patients)</i>
Preconditions	<i>The dental clinic management system website application is deployed and operational.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: System administrators configure the payment options available within the website application.</i></li> <li>• <i>Step 2: Users initiate payment for services rendered within the dental clinic management system.</i></li> <li>• <i>Step 3: Users are presented with a choice of payment methods including cash, credit/debit cards, checks, and online payments.</i></li> <li>• <i>Step 4: Users select their preferred payment method and provide necessary payment details.</i></li> <li>• <i>Step 5: The website application securely processes the payment transaction through integration with payment gateways.</i></li> <li>• <i>Step 6: Payment gateways authenticate and authorize the transaction, ensuring the security and validity of the payment.</i></li> <li>• <i>Step 7: Upon successful authorization, users receive confirmation of the completed payment transaction.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Users encounter technical difficulties during the payment process, such as errors or delays in transaction processing.</i></li> <li>• <i>Step 2: Users contact customer support or seek assistance within the website application for</i></li> </ul>

	<p><i>resolution of the payment issue.</i></p> <ul style="list-style-type: none"> <li>• <i>Step 3: System administrators investigate the reported payment issue and identify the root cause, such as connectivity issues with payment gateways or system errors.</i></li> <li>• <i>Step 4: System administrators implement temporary measures to address the payment issue and ensure continuity of service for users.</i></li> <li>• <i>Step 5: Technical support teams work to resolve the underlying technical issue, such as troubleshooting connectivity problems or resolving software bugs.</i></li> <li>• <i>Step 6: Once the payment issue is resolved, system administrators communicate with users to provide updates and ensure satisfaction with the resolution.</i></li> <li>• <i>Step 7: Users are able to successfully complete their payment transactions without further interruption.</i></li> </ul>
Non functional requirements	<ul style="list-style-type: none"> <li>• <i>Seamless integration with payment gateways to ensure secure and reliable transaction processing.</i></li> <li>• <i>Support for a wide range of payment methods to accommodate user preferences and convenience.</i></li> <li>• <i>Robust error handling and recovery mechanisms to address payment processing issues promptly and efficiently.</i></li> <li>• <i>Compliance with industry standards and regulations for secure handling of financial transactions.</i></li> </ul>
Postconditions	<p><i>The dental clinic management system website application provides users with flexible payment options, enabling them to make payments conveniently and securely for services rendered. Users experience a seamless payment process with reliable transaction</i></p>



	<i>processing and receive confirmation of completed transactions in a timely manner. The integration of various payment methods enhances user satisfaction and contributes to the overall effectiveness of the system.</i>
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#### 24.Integration with Digital Signature Solutions

UC Name	UC028
Summary	<i>This use case integrates the system with digital signature solutions to facilitate the electronic signing of consent forms, treatment plans, and other patient-related documents.</i>
Dependency	<i>None</i>
Actors	<i>Primary actor - Users (Dentists, Dental assistants, Receptionists, Staff that will interact with the software, Clients)</i>
Preconditions	<i>The dental clinic management system website application is deployed and operational.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: The user logs in to the system.</i></li> <li>● <i>Step 2: The system presents the required documents for digital signing.</i></li> <li>● <i>Step 3: Users digitally sign the documents using integrated solutions.</i></li> <li>● <i>Step 4: The system securely captures and stores the digital signatures.</i></li> <li>● <i>Step 5: Signed documents are saved in the patient's records.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: Users encounter an error with digital signature integration.</i></li> <li>● <i>Step 2: The system provides troubleshooting steps</i></li> </ul>

	<i>to resolve the issue.</i>
Non functional requirements	<ul style="list-style-type: none"> <li>• <i>Security: Digital signatures should be encrypted and securely stored.</i></li> <li>• <i>Compliance: The system must comply with legal and regulatory requirements for electronic signatures.</i></li> </ul>
Postconditions	<i>Documents are signed electronically and stored securely.</i>

## 25. View Employee Info

UC Name	<i>UC030</i>
Summary	<i>This use case involves the creation of a webpage dedicated to providing information about each team member, including their past experiences and qualifications.</i>
Dependency	<i>None</i>
Actors	<i>Primary Actor: Patient Secondary Actor: Team Members</i>
Preconditions	<i>The user has access to the internet and a web browser. The "Meet the Team" page exists and is accessible on the website.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The user navigates to the "Meet the Team" page on the website.</i></li> <li>• <i>Step 2: The page displays information about each team member, including: Name and photo, Job title,</i></li> </ul>

	<p><i>Brief biography or description of their experience and skills, Contact information (e.g., email address)</i></p> <ul style="list-style-type: none"> <li>• <i>Step 3: The user can browse through the profiles of different team members.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1; If the Website Administrator encounters technical issues or limitations while updating the "Meet the Team" page, they may seek assistance from technical support or attempt the action again after resolving the issue.</i></li> <li>• <i>Step 2: In case of changes in team composition or updates to team members' information, the Website Administrator regularly revises the "Meet the Team" page to ensure accuracy and relevance.</i></li> </ul>
Non functional requirements	<p><i>The "Meet the Team" page should have a visually appealing layout and design for enhanced user experience.</i></p> <p><i>Page load times should be optimized to ensure quick access to information for website visitors.</i></p> <p><i>Information presented on the page should be concise, well-organized, and easy to navigate.</i></p>
Postconditions	<p><i>The "Meet the Team" page is updated with information about each team member's past experiences and qualifications.</i></p> <p><i>Website visitors can access and review the "Meet the Team" page to learn about the team members.</i></p>

## 28. Calculating Debt

UC Name	UC031
Summary	<i>This use case involves enabling users to access and view their debt with the dental clinic, including details about their purchases(bills).</i>
Dependency	<i>This use case may depend on UC008 (Database management)</i>
Actors	<i>Primary Actor: Finance worker</i>

Preconditions	<p><i>Users are registered or have accounts within the dental clinic system.</i></p> <p><i>Debt information for users are accurately recorded and stored in the dental clinic system.</i></p> <p><i>Users have appropriate permissions to access their debt information.</i></p>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: The patient logs in to the system.</i></li> <li>● <i>Step 2: The system verifies the patient's identity.</i></li> <li>● <i>Step 3: The system displays if the patient has any debts.</i></li> <li>● <i>Step 4: If there are any outstanding debts (unpaid services), the system calculates the total amount owed and displays it to the patient.</i></li> <li>● <i>Step 6: The patient can view the details of their outstanding debts</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: The patient logs in to the system.</i></li> <li>● <i>Step 2: The system verifies the patient's identity.</i></li> <li>● <i>Step 3: The system encounters an error while retrieving the patient's debt.</i></li> <li>● <i>Step 4: The system displays an error message to the patient.</i></li> </ul>
Non functional requirements	<p><i>The system should be secure and protect patient data confidentiality.</i></p> <p><i>The system should be responsive and display information quickly.</i></p>
Postconditions	<i>The patient is aware of any outstanding debts.</i>

## 29. Before & After Gallery

UC Name	UC032
Summary	<i>This describes a Before &amp; After Gallery feature for a dental service provider's website. The gallery showcases patient smile transformations achieved through various procedures.</i>

Dependency	<i>This feature depends on a system for managing patient information (e.g., before and after photos, procedures performed). UC016 (patient management)</i>
Actors	<i>Primary Actor: Patient</i>
Preconditions	<i>The website administrator has access to a database of patient photos and treatment details. Patients have consented to having their before and after photos displayed.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The website administrator accesses the Before &amp; After Gallery section of the Content Management System (CMS).</i></li> <li>• <i>Step 2: The administrator selects the type of transformation to showcase (e.g., full smile reconstruction, smile enhancement, dental implants).</i></li> <li>• <i>Step 3: The system displays a list of patients who have undergone the selected procedure and have consented to having their photos displayed.</i></li> <li>• <i>Step 4: The administrator selects a patient and uploads their before and after photos.</i></li> <li>• <i>Step 5: The system displays the before and after photos side-by-side, along with a brief description of the treatment performed (optional).</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If no patients have consented to having their photos displayed for a particular procedure, the system displays a message informing the user.</i></li> </ul>
Non functional requirements	<i>The gallery should be user-friendly and easy to navigate for website visitors.</i> <i>The photos should be high quality and clearly show the transformation.</i> <i>The system should be secure and protect patient privacy.</i>
Postconditions	<i>The Before &amp; After Gallery is updated with new patient transformations.</i>

### 30. Emergency appointments

UC Name	UC033
Summary	<i>This describes a process for scheduling emergency dental appointments.</i>
Dependency	<i>This process depends on use case UC002 that can handle urgent appointments and dentist availability.</i>
Actors	<i>Primary Actor: Patient Secondary Actor: Dental Office Staff</i>
Preconditions	<i>The customer experiences a qualifying dental emergency (e.g., broken tooth, bleeding). The dental office has a system for managing appointments and identifying availability for emergency slots.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The customer contacts the dental office by phone or online emergency booking system (if available).</i></li> <li>• <i>Step 2: The customer explains the nature of their dental emergency to the dental office staff.</i></li> <li>• <i>Step 3: The staff verifies the customer's information and assesses the urgency of the situation.</i></li> <li>• <i>Step 4: The staff checks for available emergency appointments and schedules the customer for the soonest possible slot.</i></li> <li>• <i>Step 5: The staff confirms the appointment details (date, time, dentist) with the customer.</i></li> <li>• <i>Step 6: The system to react in a different way like a pop-up when the emergency button is pressed</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If no emergency appointments are available, the staff:</i></li> <li>• <i>Step 2: Explains the situation to the customer and offers options such as waiting for a cancellation or referral to another provider.</i></li> <li>• <i>Step 3: Provides the customer with self-care advice while they wait for an appointment.</i></li> </ul>

Non functional requirements	<i>The process should be as fast and efficient as possible to minimize wait times for emergency patients. The dental office staff should be trained to handle emergency situations calmly and professionally.</i>
Postconditions	<i>The customer has an emergency dental appointment scheduled or receives alternative guidance. The dental office schedule is updated to reflect the emergency appointment.</i>

### 31. Informational blogs

UC Name	<i>UC034</i>
Summary	<i>The sentence describes an informational blog aimed at educating customers about dental health, not emergency situations.</i>
Dependency	<i>This use case may depend on UC029 (website advertisement).</i>

Actors	<i>Primary Actor: HR Secondary Actor: Users</i>
Preconditions	<i>The administrators have the knowledge and expertise on dental topics. The platform is functional and accessible to readers.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Administrators create blog posts on the following topics such as causes of short teeth, solutions for missing front teeth, teeth straightening process etc</i></li> <li>• <i>Step 2: The blog platform publishes the content.</i></li> <li>• <i>Step 3: Users can access and read the blog posts for information.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If there are delays in drafting or reviewing the informational blogs, the System Administrator may communicate updates or expected publication dates to users to manage expectations.</i></li> <li>• <i>Step 2: In case of technical issues or errors in publishing the blogs on the website, the System Administrator may troubleshoot the problem or seek assistance from technical support to ensure the timely availability of the content to users.</i></li> </ul>
Non functional requirements	<i>The informational blogs should be written in clear and understandable language, catering to users with varying levels of dental knowledge. The website's navigation should be user-friendly, allowing users to easily find and access the informational blogs section.</i>
Postconditions	<i>Users gain knowledge about dental health topics.</i>

### 32. Donations

UC Name	<i>UC035</i>
Summary	<i>This use case involves the dedication of a sector within the system for donations to diverse causes, contributions from</i>



	<i>employees, and provisions for discounts and complimentary services for individuals facing challenges.</i>
Dependency	<i>This use case depends on UC038 (financial monthly report).</i>
Actors	<i>Primary Actor: User who will donate.</i>
Preconditions	<i>There must be a defined set of causes eligible for support.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The clinic chooses a cause to support.</i></li> <li>• <i>Step 2: The clinic specifies the amount.</i></li> <li>• <i>Step 3: System processes the donation or contribution.</i></li> <li>• <i>Step 4: System notifies the organization administrator of the dedication.</i></li> <li>• <i>Step 5: (Optional) System notifies the recipient of the dedication (depending on the cause/challenge).</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Donor may be ineligible to make a dedication (e.g., insufficient account balance).</i></li> <li>• <i>Step 2: The chosen cause/challenge may not be currently supported.</i></li> <li>• <i>Step 3: System error occurs during processing.</i></li> </ul>
Non functional requirements	<i>System should be secure for handling financial transactions.</i> <i>System should be responsive and easy to use.</i> <i>The dedication process should be transparent and auditable.</i>
Postconditions	<i>The chosen cause or challenge receives the dedicated funds or benefits the recipient with a discount.</i> <i>The dedication is recorded in the system for future reference.</i>

33. The system must grant free admission to visitors aged two or under.

UC Name	<i>UC037</i>
Summary	<i>This use case involves the system granting free admission to visitors who are aged two or under.</i>

Dependency	<i>This may depend on UC008 (database) and UC017 (patient management).</i>
Actors	<i>Primary Actor: Visitor Secondary Actor: System Administrator</i>
Preconditions	<i>The event or venue has implemented an admission system. Visitors' ages can be accurately determined at the time of admission. Admission policies regarding free admission for children aged two or under are established and communicated to staff and visitors.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Visitors arrive at the event or venue.</i></li> <li>• <i>Step 2: The admission system or staff inquire about the age of each visitor.</i></li> <li>• <i>Step 3: If a visitor is aged two or under, the system grants them free admission.</i></li> <li>• <i>Step 4: For visitors older than two years, the system applies the regular admission fee.</i></li> <li>• <i>Step 5: Visitors receive their tickets or passes and are granted entry accordingly.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If there are discrepancies or uncertainties about a visitor's age, the admission system or staff may request identification or additional verification to determine eligibility for free admission.</i></li> <li>• <i>Step 2: In the absence of a functioning admission system, staff manually verify visitors' ages and apply appropriate admission fees.</i></li> </ul>
Non functional requirements	<i>The admission system should accurately determine visitors' ages to apply the appropriate admission fee. Admission procedures should be efficient to minimize wait times for visitors, including those eligible for free admission. Staff should be trained to handle inquiries about free admission eligibility and provide assistance as needed.</i>
Postconditions	<i>Visitors aged two or under are admitted to the event or venue free of charge. Visitors receive their tickets or passes and can proceed with</i>

	<p><i>their visit.</i></p> <p><i>The admission process proceeds smoothly without significant delays or issues.</i></p>
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#### 34. Monthly financial report

UC Name	UC038
Summary	<i>The system shall generate a comprehensive monthly financial report for the clinic summarizing gross income, expenses, taxes, and other relevant financial data.</i>
Dependency	<i>This requirement depends on the existence of a financial data storage system within the application UC008 (database management).</i>
Actors	<i>Primary Actor: Clinic Administrator</i>
Preconditions	<p><i>The current month must be closed (i.e., all transactions for the month are finalized).</i></p> <p><i>Financial data for the month must be accessible within the system.</i></p>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: The Clinic Administrator initiates the report generation process by selecting the "Generate Monthly Financial Report" option within the system.</i></li> <li>• <i>Step 2: The system retrieves relevant financial data for the month, including gross income, expenses (categorized), taxes paid, and any other pertinent financial information.</i></li> <li>• <i>Step 3: The system generates a report that summarizes the retrieved data in a clear and organized format. This may include tables, charts, and key financial metrics.</i></li> <li>• <i>Step 4; The report is presented to the Clinic Administrator for review and download/printing (optional).</i></li> </ul>

Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If the current month is not closed, the system displays an error message informing the administrator and prompting them to close the month before generating the report.</i></li> <li>• <i>Step 2: If there is an issue accessing financial data, the system displays an error message indicating a system error and recommends contacting technical support.</i></li> </ul>
Non functional requirements	<p><i>The report generation process should be efficient and complete within a reasonable timeframe.</i></p> <p><i>The report should be presented in a user-friendly format that is easy to understand and interpret.</i></p> <p><i>The system should allow for exporting the report in various formats (e.g., PDF, CSV) for further analysis or sharing.</i></p>
Postconditions	<p><i>A comprehensive monthly financial report is available for the Clinic Administrator to review and use for financial analysis and decision-making.</i></p> <p><i>The system remains operational after report generation is complete.</i></p>

### 35.Report dental procedures

UC Name	UC000
Summary	<i>Allows dentists to report and document completed dental procedures for individual patients, ensuring accurate and up-to-date patient medical records.</i>
Dependency	<i>Requires an active patient record and an existing appointment in the system.</i>

Actors	<i>Primary actor - Dentist</i>
Preconditions	<p><i>The dentist is logged into the system.</i></p> <p><i>The patient record and appointment exist and are accessible in the system.</i></p> <p><i>The system is operational and accessible by users.</i></p>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Dentist selects the patient's record from the appointment list.</i></li> <li>• <i>Step 2: Dentist inputs details of the completed dental procedures, including type, date, and outcomes.</i></li> <li>• <i>Step 3: System saves the reported procedures to the patient's medical history.</i></li> <li>• <i>Step 4: System generates a report summarizing the procedures for record-keeping and future reference.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: Dentist searches for the patient's record manually if not found in the appointment list.</i></li> <li>• <i>Step 2: Dentist inputs details of the completed dental procedures.</i></li> <li>• <i>Step 3: System verifies the patient record and saves the procedures.</i></li> <li>• <i>Step 4: If the patient record is not found, the dentist is prompted to create a new patient record with the necessary information.</i></li> </ul>
Non functional requirements	<p><i>Usability: The interface for reporting procedures should be intuitive and allow quick input of procedure details with minimal clicks.</i></p> <p><i>Security: Only authorized dentists can access and report procedures. Data should be encrypted to ensure patient confidentiality.</i></p> <p><i>Performance: The system should save reported procedures promptly without noticeable delays, even under high usage.</i></p> <p><i>Reliability: The system should accurately save procedure data without loss, ensuring data integrity and</i></p>

	<i>availability at all times.</i>
Postconditions	<i>The procedures are successfully recorded in the patient's medical history. A summary report of the procedures is generated and saved, accessible for future reference by authorized personnel.</i>

### 36.Release wages

UC Name	<i>UC000</i>
Summary	<i>Allows HR workers to release wages to employees, ensuring timely and accurate payroll processing and communication.</i>
Dependency	<i>Requires an up-to-date payroll system and employee records.</i>
Actors	<i>Primary actor - HR Worker</i>
Preconditions	<i>The HR worker is logged into the system. Employee records are updated with the necessary payment information. The payroll system is operational and accessible.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: HR worker selects the payroll period.</i></li> <li>• <i>Step 2: HR worker verifies the list of employees and their respective wages, including any adjustments or bonuses.</i></li> <li>• <i>Step 3: System processes the wages and updates the payroll records.</i></li> <li>• <i>Step 4: System notifies employees of the wage release via email or system notification, providing details of their payment.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: HR worker identifies discrepancies in the payroll data.</i></li> <li>• <i>Step 2: HR worker manually adjusts the wage</i></li> </ul>

	<p><i>details and resolves any issues.</i></p> <ul style="list-style-type: none"> <li>• <i>Step 3: System processes the corrected wages and updates the payroll records.</i></li> <li>• <i>Step 4: Employees are notified of the wage release, including any adjustments or corrections made.</i></li> </ul>
Non functional requirements	<p><i>Usability: The wage release interface should be straightforward, allowing HR workers to manage payroll efficiently with clear instructions.</i></p> <p><i>Security: Access to wage release functionalities should be restricted to authorized HR personnel. Data must be encrypted to protect financial information.</i></p> <p><i>Performance: The system should handle payroll processing for all employees quickly and without errors, even during peak periods.</i></p> <p><i>Reliability: The system must ensure accurate wage calculations and release, with robust backup and recovery options in case of failures.</i></p>
Postconditions	<p><i>Employees' wages are released and recorded in the payroll system.</i></p> <p><i>Employees receive notifications regarding their wage release, including payment details and any relevant notes.</i></p>

### 37. Review feedback

UC Name	UC000
Summary	<i>Allows HR workers to review feedback provided by patients and staff, facilitating continuous improvement and addressing concerns effectively.</i>
Dependency	
Actors	<i>Primary actor - HR Worker</i>
Preconditions	<i>The HR worker is logged into the system.</i>

	<p><i>Feedback data is available and accessible in the system.</i></p> <p><i>The system is operational and accessible.</i></p>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: HR worker navigates to the feedback review section.</i></li> <li>• <i>Step 2: HR worker filters feedback by date, type, or source (patient/staff) to focus on specific entries.</i></li> <li>• <i>Step 3: System displays the relevant feedback entries in an organized manner.</i></li> <li>• <i>Step 4: HR worker reads and categorizes the feedback for follow-up actions, noting any critical issues or patterns.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>tep 1: HR worker searches for specific feedback using keywords or advanced search options.</i></li> <li>• <i>Step 2: System retrieves and displays matching feedback entries based on the search criteria.</i></li> <li>• <i>Step 3: HR worker reads and categorizes the feedback for follow-up actions, documenting any necessary responses or interventions.</i></li> </ul>
Non functional requirements	<p><i>Usability: The feedback review interface should be user-friendly, with easy navigation, filtering, and search options.</i></p> <p><i>Security: Feedback data should be protected to ensure privacy and confidentiality. Access should be restricted to authorized HR personnel.</i></p> <p><i>Performance: The system should quickly retrieve and display feedback without noticeable delays, even when handling large volumes of data.</i></p> <p><i>Reliability: The system should accurately store and retrieve feedback data, ensuring no loss or corruption, and providing consistent access for authorized users.</i></p>
Postconditions	<p><i>HR worker successfully reviews and categorizes the feedback.</i></p> <p><i>Follow-up actions are documented and assigned if necessary, ensuring that concerns are addressed</i></p>



	<i>promptly and effectively.</i>
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### 38. Make payment

UC Name	UC000
Summary	<i>This use case enables patients to make payments for their dental treatments, ensuring secure and efficient transaction processing.</i>
Dependency	
Actors	<i>Primary actor - Patient</i>
Preconditions	<i>The patient is logged into the system (if online payment).</i> <i>The patient has an outstanding balance or bill for dental services rendered.</i> <i>The payment gateway system is operational and accessible.</i> <i>The system is operational and accessible by users.</i>
Description of the Main Sequence	<ul style="list-style-type: none"> <li>● <i>Step 1: Patient navigates to the payment section of their account.</i></li> <li>● <i>Step 2: Patient views the outstanding balance and payment details.</i></li> <li>● <i>Step 3: Patient selects the preferred payment method (e.g., credit card, debit card, online banking).</i></li> <li>● <i>Step 4: Patient enters the necessary payment details (e.g., card number, expiration date, CVV).</i></li> <li>● <i>Step 5: System processes the payment through the integrated payment gateway.</i></li> <li>● <i>Step 6: Payment gateway confirms the transaction and sends a confirmation to the system.</i></li> <li>● <i>Step 7: System updates the patient's account to reflect the payment and generates a receipt.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• <i>Step 8: Patient receives a payment confirmation and receipt via email or system notification.</i></li> </ul>
Description of the Alternative Sequence	<ul style="list-style-type: none"> <li>• <i>Step 1: If the payment gateway is unavailable, the system notifies the patient and prompts them to try again later.</i></li> <li>• <i>Step 2: If the patient's payment details are incorrect or invalid, the system prompts the patient to re-enter the details.</i></li> <li>• <i>Step 3: If the payment fails due to insufficient funds, the system notifies the patient and requests an alternative payment method.</i></li> <li>• <i>Step 4: If the patient opts to make a payment in person, the system records the payment as pending until it is processed by the clinic staff.</i></li> </ul>
Non functional requirements	<p><i>Usability: The payment interface should be user-friendly and easy to navigate, providing clear instructions and feedback to the patient.</i></p> <p><i>Security: The system must use strong encryption methods to protect payment details, ensuring the confidentiality and integrity of financial transactions.</i></p> <p><i>Performance: The system should process payments promptly, with minimal delays, and handle multiple transactions simultaneously without degradation in performance.</i></p> <p><i>Reliability: The system should ensure high availability and reliability of the payment functionality, with robust error handling and recovery mechanisms.</i></p>
Postconditions	<p><i>The patient's payment is processed, and the outstanding balance is updated in the system.</i></p> <p><i>A receipt is generated and sent to the patient, confirming the successful payment.</i></p> <p><i>The system logs the transaction for auditing and record-keeping purposes.</i></p>

