A PROPOSED OFFERING OF AN ONLINE RESERVATION SYSTEM FOR DENTHUB DENTAL CLINIC

A Thesis Project Presented to the

Faculty of Datamex College of Saint Adeline, Inc.

In Partial Fulfillment of the Requirements for the

Degree of Bachelor of Science in Information Technology

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INTRODUCTION

Overview

The project, titled "An Online Appointment System for Denthub Dental Clinic", aims to design and develop a digital system that will help automate appointment scheduling, patient record management, and basic clinic operations. The system will replace the clinic's current manual and semi-digital processes that is accessible to authorized staff. Through this system, Denthub Dental Clinic will be able to manage appointments efficiently, reduce miscommunication, and improve overall service delivery to patients.

Denthub Dental Clinic currently relies on manual record-keeping, walk-in prioritization, phone calls, text messages, and social media messaging to manage patient appointments and records. Based on the conducted interview with the clinic's head dentist, this setup often results in misplaced patient records, duplicated files, and delays in service especially during peak hours and understaffed situations.

The absence of a structured appointment system makes it difficult to track patient laboratory cases such as dentures and prosthetics. Additionally, manual filing increases the risk of data loss, errors in patient identification, and inefficient retrieval of patient information. These challenges highlight the need for a secure, organized, and user-friendly online appointment and record management system that can support the clinic's daily operations and improve patient satisfaction.

In addition, the project aims to address issues related to manual record-keeping by providing a digital database for patient information. This will help reduce errors such as misplaced files, duplicated records, and difficulty in retrieving patient data during consultations. By automating these processes, the system intends to support faster access to accurate information and improve overall workflow within the clinic.

The overall goal of the project is to enhance the quality of service provided by Denthub Dental Clinic by ensuring smoother appointment management and better coordination among staff. Ultimately, the system is expected to improve patient satisfaction, support effective decision-making, and contribute to a more organized, secure, and efficient clinic environment.

Background Information

Manual appointment scheduling often leads to delays, miscommunication, and instances of double booking, which can negatively affect both clinic staff and patients. These issues may result in longer waiting times, inefficient use of clinic resources, and reduced patient satisfaction. Implementing an online appointment scheduling system can help address these problems by providing a more organized, accurate, and accessible way to manage appointments. As a result, the clinic's overall efficiency, service quality, and patient experience can be significantly improved.

Objectives

- To develop an online appointment scheduling system to reduce delays, miscommunication, and double bookings.

- To create a centralized digital database for secure and organized patient record management.

- To minimize errors caused by manual record-keeping, such as misplaced and duplicated records.

- To provide an efficient way to track patient laboratory cases, including dentures and prosthetics.

- To improve clinic workflow and operational efficiency through process automation.

- To enhance data security by restricting system access to authorized clinic staff.

- To improve overall service quality and patient satisfaction at Denthub Dental Clinic.

Goals

      The primary goal of the project is to design and develop an Online Appointment System for Denthub Dental Clinic that will improve the clinic's overall efficiency by automating appointment scheduling, patient record management, and basic clinic operations. The system aims to replace the clinic's existing manual and semi-digital processes with a secure, organized, and user-friendly digital solution. Ultimately, the project seeks to enhance service delivery, minimize operational errors, and improve patient satisfaction through better coordination and information management.

CLIENT INFORMATION

Business Name: Denthub Dental Clinic

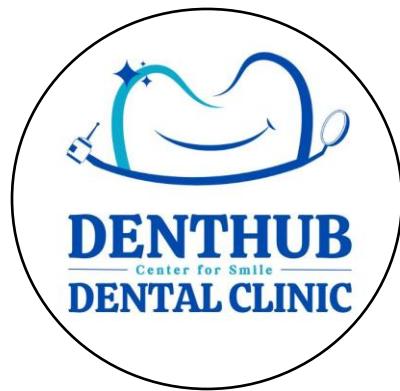**Head Dentist / Clinic Owner:** Mr. John Patrick A. Cinco RN, LPT, DMD

Position: Head Dentist

Clinic Address: Block 5, Lot 3 & 4, Sabalo Street, Sangandaan, Caloocan City, Philippines 1400

Contact Number: 0916 607 0999

Email Address: denthubcenter.sdc1@gmail.com

LOGO

INSIDE	INSIDE (1)	OUTSIDE

Denthub Dental Clinic is a privately owned healthcare facility operating within the dental and oral healthcare industry. The clinic offers a variety of dental services, including general dentistry, patient consultations, preventive dental care, and dental procedures such as dentures and prosthetics. Its primary objective is to provide quality dental services while ensuring patient comfort, safety, and satisfaction.

The clinic currently serves both walk-in and scheduled patients and relies on manual and semi-digital processes for appointment scheduling and patient record management. As a healthcare service provider, Denthub Dental Clinic requires accurate handling of patient information, efficient appointment coordination, and secure record management to maintain service quality and adhere to professional standards.

The proposed Online Appointment System for Denthub Dental Clinic aims to address these operational needs by introducing a more organized, efficient, and technology-driven solution. The system is intended to improve clinic workflow, reduce errors related to manual record-keeping, and enhance overall service delivery and patient satisfaction.

PROJECT SCOPE

The project focuses on the development and implementation of an online appointment system specifically designed for Denthub Dental Clinic. The system will be accessible through computers, laptops, and mobile devices used by clinic staff. It will cater only to internal clinic operations and basic patient appointment management. Advanced medical diagnostics and external integrations are not included in the scope.

The system will allow authorized clinic staff to create, view, update, and cancel patient appointments in an organized and efficient manner. It will include basic features such as managing dentist schedules, assigning appointment time slots, and recording essential patient information. The main goal of the system is to minimize manual scheduling errors, improve the efficiency of daily clinic operations, and help maintain better organization within the clinic.

Inclusions

- Includes user authentication and access control
- Supports appointment scheduling and management
- Manages patient records securely
- Provides an interactive dashboard module
- Generates automated reports
- Stores and protects system data

Exclusions

- Does not include online payment processing
- Does not support patient self-booking
- Does not cover mobile application development
- Does not provide SMS or email notification features

Assumptions

- The system will be accessed by authorized users only from Denthub Dental Clinic branches.
- Users have basic computer literacy to operate the system.
- All data entered into the system is accurate and properly verified by clinic staff.
- The system will support two Denthub Dental Clinic branches under a single database.
- Stable internet access is available in both clinic branches during system operation.

Constraints

- The project is subject to limited development time
- The budget may restrict certain system functionalities
- System features are limited to the approved project scope
- Hardware availability may vary across clinic branches
- System access depends on stable internet connectivity

The project will be done through a series of phases for system components by gathering requirements, analyzing, designing, development, testing and deployment. This allows the continous development and improvement of the system components and refine it based on feedbacks and testing results. The phased progress allows the project to adapt and change based on the systems requirements. By being flexible and adaptive is the ideal approach for this project as it improves the development efficiency of the system.
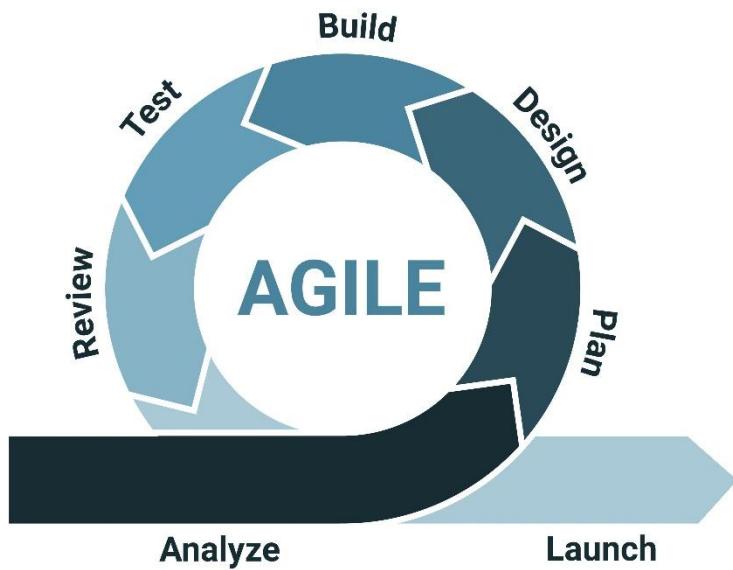
Agile

Figure 1. Methodology

This project will be built using the Agile methodology, which is all about staying flexible, working closely together, and improving the system step-by-step. Instead of trying to do everything at once, we're breaking the system down into smaller, manageable pieces. This allows us to constantly tweak features and shift priorities based on the feedback we get along the way.

For the clients, this means a much smoother and faster experience when they're entering their personal information. We've organized the project so that the Planning, Testing, Building, and Launching phases happen in short, focused bursts. By working in these smaller windows of time, we can make sure there's always room to handle last-minute changes, new requirements, or any specific suggestions that come up during development.

Key Activities and Milestones

1. Requirements Gathering and Analysis - The team identifies system goals, user needs, and constraints to clearly define what the system must accomplish.
   Milestone: Approved system requirements

2. System Design - The system structure, workflows, and interfaces are planned based on the gathered requirements.
   Milestone: Completed system design

3. Development - Team members develop their assigned system components and integrate them into the overall system.
   Milestone: Functional system modules

4. Testing - The system is tested to ensure all components work correctly and meet quality standards.
   Milestone: Verified and tested system

5. Deployment - The system is prepared and released for actual use.
   Milestone: Successfully deployed system

6. Evaluation and Improvement - Feedback is collected and used to enhance system performance and usability.
   Milestone: Refined and improved system version

PROJECT TEAM

Name	Role (s)	Task (s)
Araya, Reality M.	Project Manager	Makes sure the project runs smoothly and on time, talks with the client and manages the team.
Aguilar, Jordan B.	Database Manager & UI/UX Specialists	Design and manage the system database. & Design user-friendly and consistent system interfaces.
Boncales, Jeson L.	Software Developer	Develop and maintain the system and its modules.
Camba, James Ronald L.	Lead Developer	Develop and maintain the system and its modules.

Dela Cruz, Donnalyn F.	**Documentation**	Prepare all project documentation and reports.
Dolores, Khing Edsan M.	**System Analyst**	Analyzes and documents system requirements.
Galvez, Sean Andrew D.	**Documentation**	Prepare all project documentation and reports.
Guillermo, Novie B.	**Documentation**	Prepare all project documentation and reports.
Remoto, Rachel	**UI/UX Specialist**	Design user-friendly and consistent system interfaces.

Solidum, Jasmin E.	**Documentation**	Prepare all project documentation and reports.
Tabor, Aldrine G.	**Software Developer & Database Manager**	Develop and maintain the system and its modules. & Design and manage the system database.

Table 1. Project Team

PROJECT TIMELINE

Phase	Duration	Key Deliverables	Dependencies
Project Planning & Title Approval	Nov 15 – Dec 2025	Approved project title, project proposal, initial scope definition	None
Requirement Gathering	Jan 2026	Requirements specification document, list of system features	Approved project title and proposal
System Design	Jan – Mar 2026	System architecture design, database schema, wireframes	Completed and approved system requirements
System Development	Apr – Sept 2026	Functional system modules, source code, integrated features	Approved system design and wireframes
Testing & Debugging	Oct – Nov 2026	Test cases, bug reports, corrected and optimized system	Completed system development
Deployment & User Evaluation	Dec 2026 – Jan 2027	Deployed system, user feedback reports, evaluation results	Successfully tested and debugged system

Table 2. Project Timeline

PROJECT RESOURCES

The project resources will be classified into 4 categories which is Human Resources, Software Resources, Hardware Resources and Time & Financial Resources. These resources are the ones that the team will be used and utilized to develop, test, and execute the project.

A. HUMAN RESOURCES

- Project Manager - Monitors overall project development progress to keep it in check, manages plans and ensuring tasks are done on time

- Software Developer - Analyzes system requirments, designs logic and converts it into functional program codes and acts as a problem solver.

- System Analyst - Responsible for gathering and analyzing user requirements

- Database Manager - Maintains the data storage integrity, structure, accuracy and also manages backups and restore

- UI/UX Specialist - Creates design of wireframes and prototypr of the system interface including its theme and visual consistency

- Documentation - Prepares and maintains technical and user documentation

B. SOFTWARE RESOURCES

- Programming language (PHP) - Used for backend processing of the system

- Framework (React.js/Bootstrap) - Utilized for prototyping and development of a responsive, and user friendly pre-built interface

- Integrated Development Environment (Visual Studio Code) - Used to create working website by providing code editing, debugging, extensions and by the use of mainly HTML, CSS, and JS

- Database [MySQL(Neontech.com)] - Used for data storage for the system and its retrieval of data

- Hosting [FREE TRIAL(Render.com)] - Used to test and deploy the system online to be accessed through internet

- Version Control (Github) - Acts as a version tracking of the system and for collaboration with the team

C. HARDWARE RESOURCES

- MacOS-based Computers/Laptops – Used by Denthub Dental Clinic staff for system access and operation, and by the development team for system development, testing, and documentation.

- Internet Connectivity (Wi-Fi) – Required for accessing online resources, cloud services, repositories, and deployment platforms.

D. TIME AND FINANCIAL RESOURCES

- Project Duration - The project will be completed within the allotted academic term, following the approved project timeline and milestones.

- Expenses - Includes minimal expenses such as internet usage, optional hosting services, and documentation-related costs.

Estimated Project Budget

Budget Category	Estimated Cost (₱)	Description
Web Hosting & Domain	5,000	One-year domain registration and shared web hosting
Internet & Miscellaneous Expenses	5,000	Connectivity, documentation, and deployment-related costs
Contingency (Backup/Extra)	5,000	Unforeseen expenses and minor system enhancements
Total Estimated Budget	**15,000**	___

Table 3. Budget Allocaton

RISK MANAGEMENT

Potential Risk	Description	Mitigation Strategy
Time Constraints	The project may not follow the planned schedule due to academic responsibilities, limited development time, or unexpected delays	A detailed project timeline and task distribution will be followed. Progress monitoring and regular team coordination will be conducted to ensure deadlines are met
Hardware or System Failure	Development or deployment computers may crash or experience technical failures	Backup devices, cloud-based repositories, and regular system backups will be utilized to prevent work disruption and data loss
Data Security Risk	Unauthorized access to patient and appointment records may occur due to weak system security	User authentication and role-based access control will be implemented to restrict access to sensitive data
Data Loss	Patient and appointment records may be lost due to system errors or accidental deletion	Regular database backups and secure data storage procedures will be implemented to ensure data recovery
User Resistance	Clinic staff may have difficulty adapting to the new system due to limited technical skills	A user-friendly interface and basic system training will be provided to ensure smooth system adoption
Scheduling Conflicts	System errors may result in overlapping or duplicated appointments	Automated appointment scheduling will be implemented to allow only available time slots and prevent double bookings
Limited Technical Support	Lack of immediate technical support may delay issue resolution	A basic maintenance plan and documentation will be prepared to address common system issue
Incorrect Data Entry	Users may input incorrect or incomplete patient information	Input validation, required fields, and data verification procedures will be applied to minimize data entry errors

Table 4. Risk Management

COMMUNICATION PLAN

The project team will maintain regular communication through weekly meetings to discuss progress, address issues, and plan upcoming tasks. In addition, online messaging platforms will be used for real-time coordination, quick updates, and immediate clarification of concerns among team members. Regular status updates, including development progress, issues encountered, and upcoming activities, will also be shared with the clinic to ensure transparency, gather feedback, and align the system development with the clinic's operational needs.

PROJECT GOVERNANCE

Role	Responsibility
Project Adviser	Provides academic guidance, reviews deliverables, ensures compliance with institutional requirements, and approves major project milestones.
Project Client	Validates system requirements, provides feedback, participates in system review and User Acceptance Testing (UAT), and approves the final system.
Project Leader	Oversees project execution, assigns tasks, monitors progress, ensures deadlines are met, and acts as the main point of communication between the team, adviser, and client.
System Analyst	Gather and analyze system requirements, document processes, assist in system design, and ensure the system aligns with clinic operations.
Developers	Design, develop, test, and implement the web-based appointment system and its modules based on approved specifications.
Designers	Create user interface mockups, wireframes, and ensure the system is user-friendly and visually consistent.
Documentation Team	Prepares project documents, system documentation, user manuals, and final reports.
Clinic Staff (Users)	Participate in system evaluation, testing, and provide feedback during implementation and training.

Table 5. Project Governance

APPROVAL

This is to formally approve the project proposal entitled **"An Online Appointment System for Denthub Dental Clinic."** The proposed system is permitted to proceed for academic purposes as part of the Capstone 1 requirements. The clinic agrees to cooperate during the requirements gathering, development, and evaluation phases of the project.

Prepared by: Approved by:

Ms. Reality M. Araya   **Mr. John Patrick A. Cinco RN, LPT, DMD**

Project Manager   Head Dentist / Clinic Owner

                                                                        Denthub Dental Clinic
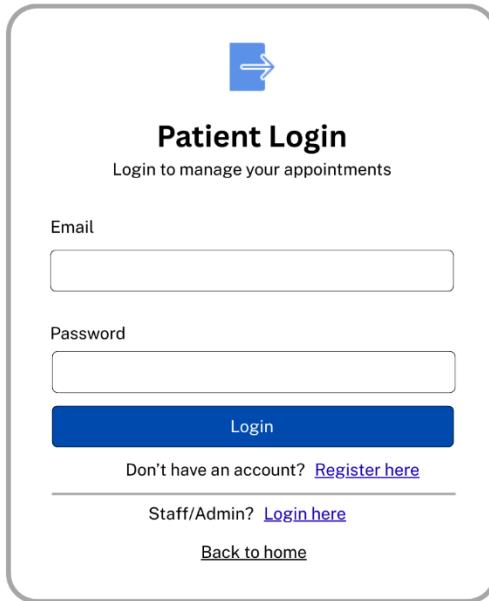
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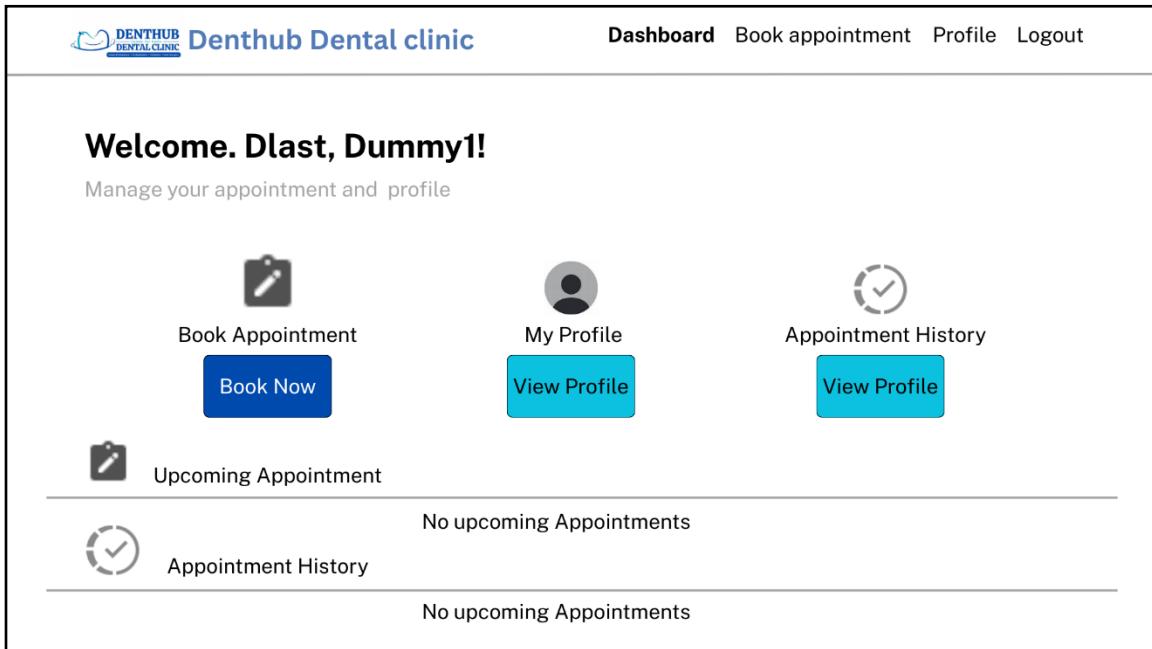
Date: _____   Date: _____

Wireframe

User

Denthub Denthub Dental clinic   Home   Services   Book appointment Contact   Dlast, Dummy1

Book an appointment

Service Type *

Select a service...

Dentist (Optional)

Select a service...

Prefferd Date *

mm/dd/yyyy

Prefferd Time *

Select a service...

Reason for Visit

Please describe your concern

Book Appontment

Denthub Denthub Dental clinic   **Dashboard** Book appointment Profile Logout

My Profile

Patient Number:

Name:

Middle Name:

Email:

Phone:

Birthdate:

Gender:

Address:

Bach to Dashboard

Denthub Dental clinic Home Services Book appointment Contact Dlast, Dummy1

Your Smile is Our Priority

📅 **Book an Appointment**

Our Services

Tooth Restoration   Wisdom Tooth Removal   Dental Cleaning

View All

Why Choose Us?

Expert Team   Expert Team   Safe & Clean   Patient Care

Admin

Admin Login
Access the clinic managemet system

Username or Email

Password

Login

Patient? Patient Login

Back to home

Denthub Dental clinic - Admin

Patient Management

| Search by name, patient, number, phone, or email... | Search |

Patient #	Name	Email	Phone	Birhtdate	Gender	Actions
		DSHDHDUSDHUD@gmail.com				View

Denthub Dental clinic - Admin

Reports

Start Date	End Date	
01/01/2026	01/08/2026	Generate Report

Total Appointment	Completed	Pending	Cancelled
0			

Daily Appointment Report

Date	Total Appointment	Completed	Cancelled
No data available for the selected date range.			