FACULTY OF INFORMATION SCIENCE

UNIVERSITI TEKNOLOGI MARA (UiTM)

BACHELOR OF INFORMATION SCIENCE (HONS)

INFORMATION SYSTEM MANAGEMENT (CDIM262)

ADVANCED WEB DESIGN DEVELOPMENT AND CONTENT MANAGEMENT

IMS566

GROUP PROJECT:

DENTAL CLINIC APPOINTMENT SYSTEM

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ACKNOWLEDGEMENT

We would like to first wish to thank Allah SWT, who has granted us the strength and the determination to undertake this task. This would not be possible without His blessings.

We would also like to say a word of thank you to **Dr. Muhammad Asyraf Bin Wahi Anuar**, who was our great teacher of immense support and guidance in the process of completing this work. His encouragement and condemnation were valuable in helping us to stay on track and enhance our understanding of the topic.

And we also wish to thank our classmates. We would like to express our gratitude for the way in which we were able to support each other by sharing information, discussing the project structure, and answering questions.

Thank You

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1.0 INTRODUCTION

Clinicsys functions as an online platform which helps dental clinics to make their dental appointment scheduling process more efficient through its modernized features. The system provides patients with a digital form system which allows them to book appointments while the system collects all necessary information through standardized data entry methods. Dental clinic administrators and staff members can use the system to run their operations because it provides them with advanced tools to track and handle appointment scheduling processes which need less effort than traditional methods of maintaining records and using phones and dealing with unorganized communication channels.

The platform provides essential functions which include patient record security, appointment schedule monitoring, dental provider coordination, and dental clinic availability management, all of which users access through a secure login system that uses role-based access controls. The user-friendly interface of Clinicsys enables patients and administrative staff and professionals to communicate with each other and share information throughout their entire appointment process. This system establishes better accountability because it creates a more systematic appointment system which helps dental institutions to deliver better service and operate their organizations.

2.0 GITHUB REPOSITORY LINK

The GitHub repository link for this project has been provided below:

https://github.com/fatihah890/CLINICSYSTEM.git

3.0 ENTITY RELATIONSHIP DIAGRAM (DENTAL CLINIC APPOINTMENT SYSTEM)

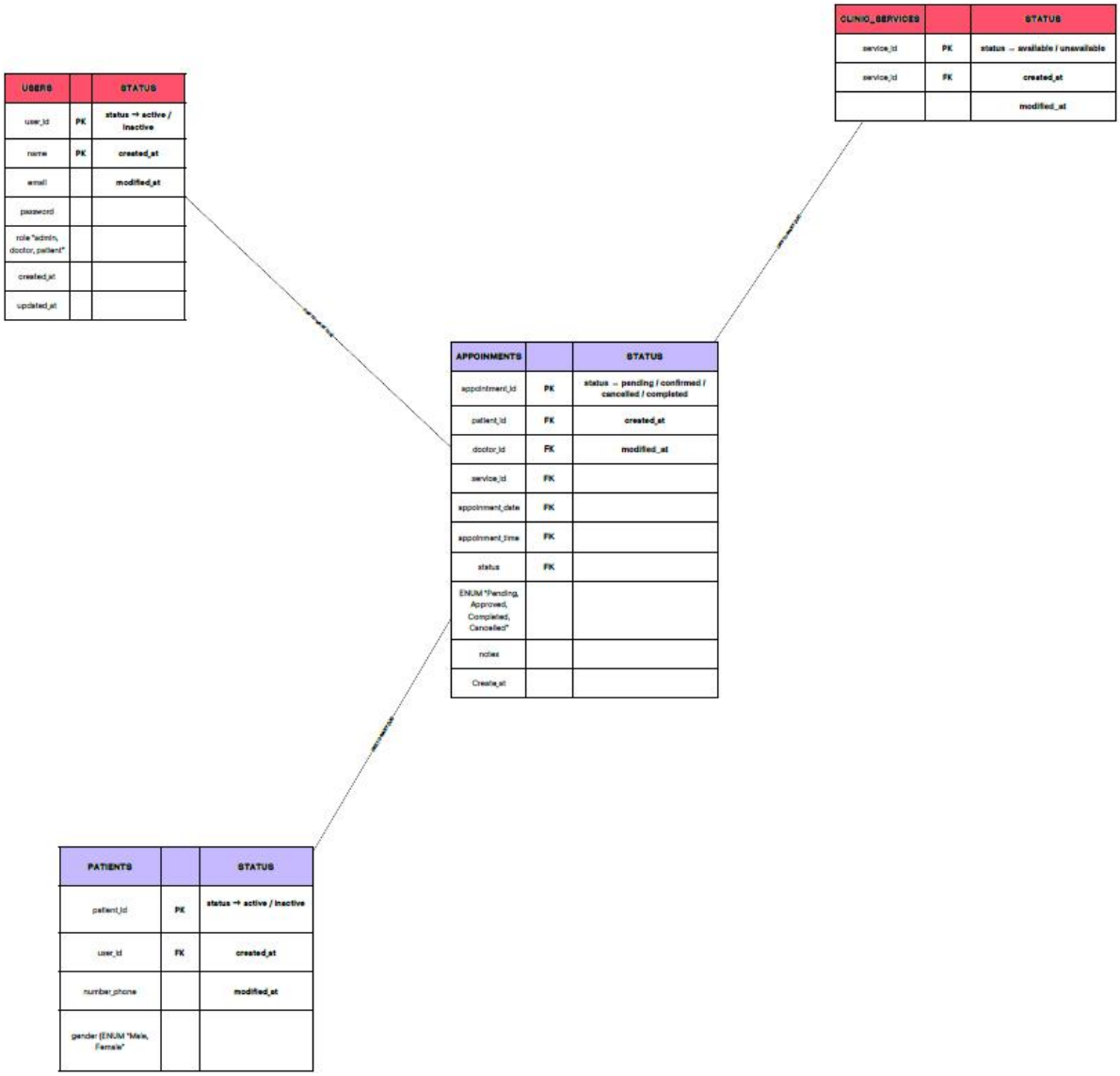


Figure 1: ERD Dental Clinic Appointment System

1) USERS Table

Since the system is a dental clinic management system, the primary table used to manage all the users of the system is the **USERS** table. It contains permission and the log in information of the admins, dentists and patients. The benefit of storing all the credentials in a single location is that we have consistency in gaining access control and a simplified method of user control.

The primary key is user_id of each user. We store such data as name, email, and passwords used to log in and the password is encrypted or hashed to be secure. The role column is important as it determines who has the authority to do what one is an administrator, a dentist or a mere patient.

Status column informs us about whether an account is active or not. This allows admins to disable access without losing any data and thus everything stays secure and history remains intact. Created and updated timestamps are created at the time of an account creation or an account update and are significant to audit and monitoring.

All in all, the **USERS** table provides us with a safe and scaled platform to operate all types of users and enable role-based access control throughout the entire system.

2) PATIENTS Table

The **PATIENTS** table is simply where we store all the juicy information about the patients who come to the dental clinic. In the meantime, the **USERS** table holds the generic login information and therefore we can keep all the information in one place and do not need to repeat one piece of information another. In so doing, we are not only observing good database normalization principles but also making the system a lot cleaner.

Each patient will be assigned a patient_id, which is the primary key and the user_id will be connected to the **USERS** table, with the user_id being a foreign key. In such a manner, we will have a clean one-to-one relationship: a patient is bound to a single user account. It will not store any redundant data but will allow us to store all that patient-specific information we require.

Some additional fields such as number_phone and gender are also available to us. These are the essential demographic and contact information that will allow arranging the appointments and making patients stay informed. The status column informs us whether a patient is active or not, as such we can maintain a record of all those who have visited the dental clinic without necessarily deleting the records.

Adding the created at and modified at timestamps will allow us to know when something was added or updated in a patient record. It is very handy to keep track of changes through time and audit information when required.

Overall, the **PATIENTS** table is an excellent way of maintaining patient data in a structured and safe way and ensuring that the entire system is efficient.

3) APPOINTMENTS Table

We learned that the **APPOINTMENTS** table is the main structure of the dental clinic management system, as it manages all the organization and coordination among patients, dentists and dental clinic services. It monitors all the necessary information concerning patient visits.

The appointments receive individual appointment_id which serve as the primary key. The table is also connected to patient_id, doctor_id and service_id as the foreign keys in that each appointment belongs to a particular patient, dentist and service. This installation can enforce integrity of data and ensure proper mapping of relationships.

The appointment date and appointment time columns inform us of the time of when the appointment will take place. Status field is used to monitor the status awaiting, confirmed, cancelled or complete, the system can efficiently control the workflow. Additional information can be recorded in the note's column as well, where special instructions or remarks can be logged.

The created_at and modified_at columns provide a comprehensive schedule of the creation and update times of appointments. Overall, the **APPOINTMENTS** table will allow us to plan the work efficiently, reduce the number of conflicts, and maintain the smooth functioning of the dental clinic.

4) CLINIC_SERVICES Table

The **CLINIC_SERVICES** table represents the various dental services offered by the dental clinic. This table ensures that services are standardized and consistently referenced across appointments and billing processes.

Each service is uniquely identified using service_id, which functions as the primary key. The service_name attribute describes the type of treatment or service provided, such as consultation, scaling, or tooth extraction. The status attribute indicates whether a service is currently available or unavailable, allowing the dental clinic to temporarily suspend certain services without deleting historical data.

The presence of created_at and modified_at timestamps supports administrative tracking and helps maintain accurate records of service updates. This table plays a key role in ensuring appointment consistency and supporting future system scalability when new services are introduced.

4.0 SYSTEM REQUIREMENTS

- **Local Development Environment:**
  - Laragon
- **Web Server:**
  - Apache
- **Database:**
  - MySQL
- **Frontend:**
  - CakePHP 5.3 and Bootstrap 5
- **Backend:**
  - PHP 8.1 or above
- **Browser:**
  - Google Chrome
- **Operating System:**
  - Windows 10 or above

5.0 INSTALLATION AND SETUP INSTRUCTIONS

- **Step 1: Install Laragon**
    1) Download Laragon from the official website: https://laragon.org/download
    2) Run the installer and complete the setup with default settings.
    3) Launch Laragon and click "Start All" to start Apache and phpMyAdmin.

- **Step 2: Set Up the Project Files**
    1) Open Laragon and click Menu → www → Open Folder
    2) Copy and paste your project folder into the c:\laragon\www directory
    3) Access the project in your browser via: http://localhost/clinicsys

- **Step 3: Set Up the Database**
    1) In Laragon, click Menu → Database → phpMyAdmin or open it manually via: http://localhost/phpmyadmin
    2) Log in using:
        - Username: root
        - Password: ' '
    3) Click "New" to create a new database.
    4) Navigate to the Import tab, select the provided file from Re-CRUD (.sql) and click go to import the database structure and data.

- **Step 4: Configure Database Connection**
    1) Open your code editor, VS Code.
        - Set the database credentials like this:
            - $host = 'localhost';
            - $user = 'root';
            - $pass = ' ';
            - $dbname='clinicsys'

- **Step 5: Launch the Web Application**
    1) Start your browser and go to: http://localhost/clinicsys
    2) You can now log in or register as a patient, admin or dental clinic staff and begin using the system.

6.0 FEATURES AND FUNCTIONALITIES

The Dental Clinic Appointment System offers all the functionality needed for a recently organized, database-driven system for managing and registering appointments. The main features are listed below:

1) Authentication System

- Login systems for different types of users:
    - **Patient** - to register, submit, and track appointments
    - **Admin** - to review, validate, and approve appointments
    - **Staff** - to review appointments
- Validation system to prevent unauthorized access and ensure login security.

2) Dental Clinic Appointment Submission

- Students can register for a detailed appointment form.
- Input fields include:
    - Personal information
    - Appointment date and time
    - Service type
- Validation ensures all input fields are filled correctly.

3) View and Manage Submissions

- Patients can:
    - View the status of submitted appointments.
    - Edit submitted appointments if they are still not approved.
    - Delete submitted appointments that are still not approved or have been rejected.
- Admins can:
    - View submitted appointments.
    - Validate submitted appointments.
    - Approve or reject submitted appointments.
- Staff can:
    - View approved appointments.

4) PDF Generation and Exportation

- The system gives the option to download the appointment slip in PDF format after registration.
- The PDF file can be printed and taken to the dental clinic to have a safeguard appointment.

5) **Search and Filtering**
    - Admins and Staff can quickly search based on:
        - Patients' names
        - Patients' email
        - Services
6) **Navigation and Role-Based Access**
    - An organized and clean navigation bar gives access to:
        - **Patients** - Appointments and status tracking
        - **Admins** - Approval panel
        - **Staff** - Tools to view appointments
    - Navigation is customized based on user roles:
        - Patients can only see appointment related functions.
        - Admins can use management tools for appointments
        - Staff can only see the appointments

7.0 USER INTERFACE OVERVIEW

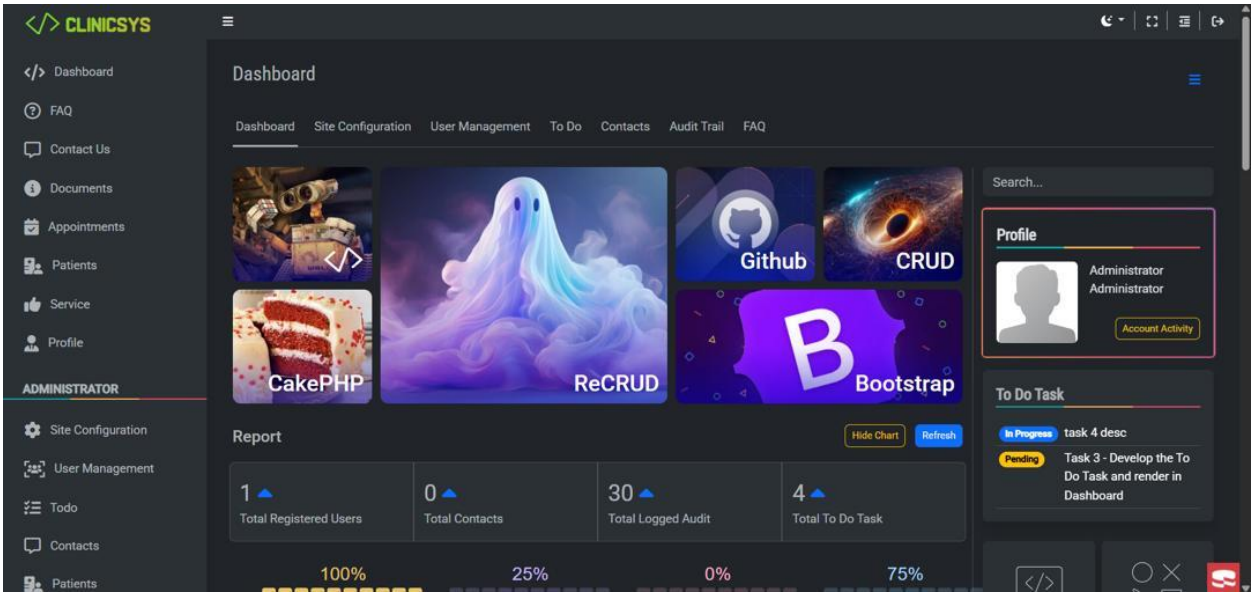


Figure 2: User Interface 1

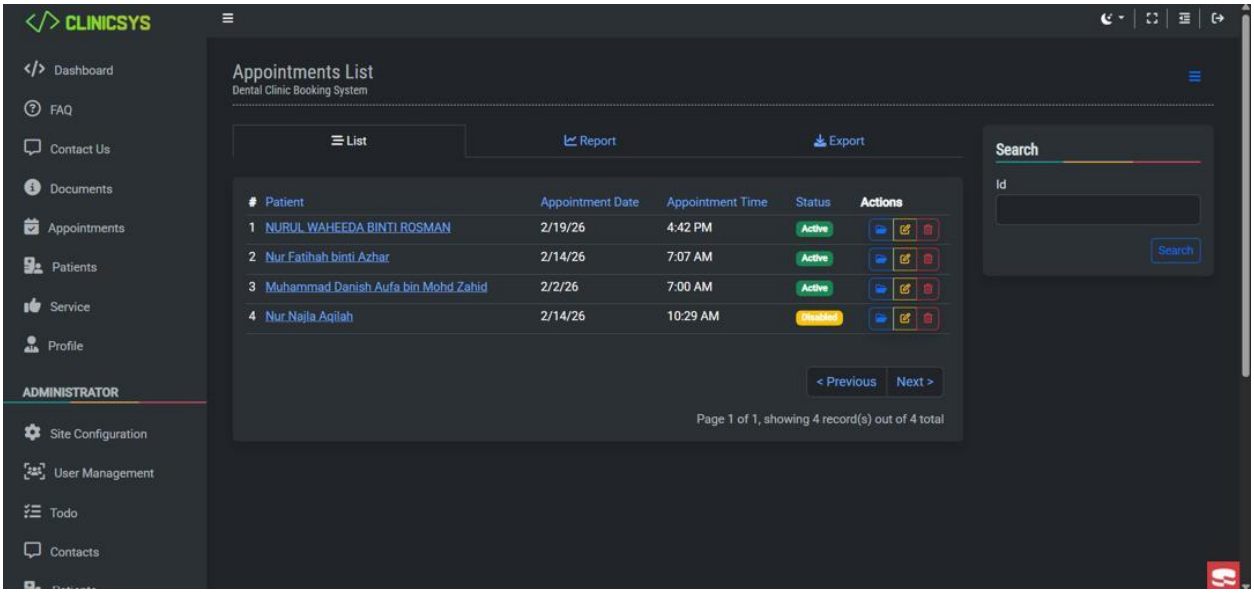


Figure 3: User Interface 2

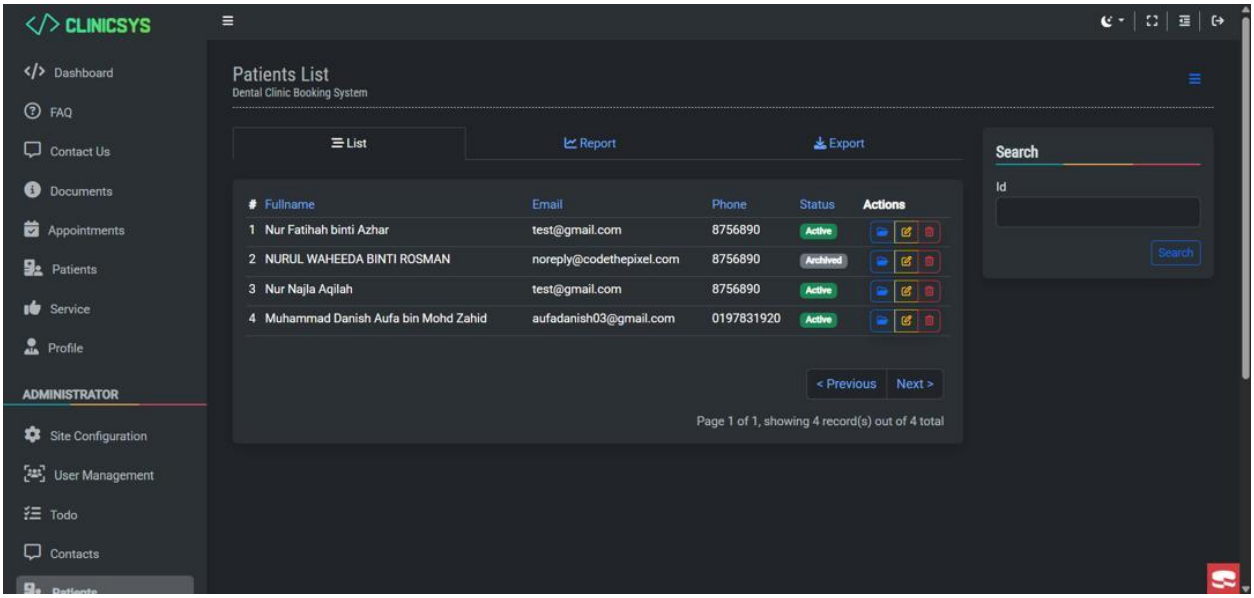


Figure 4: User Interface 3

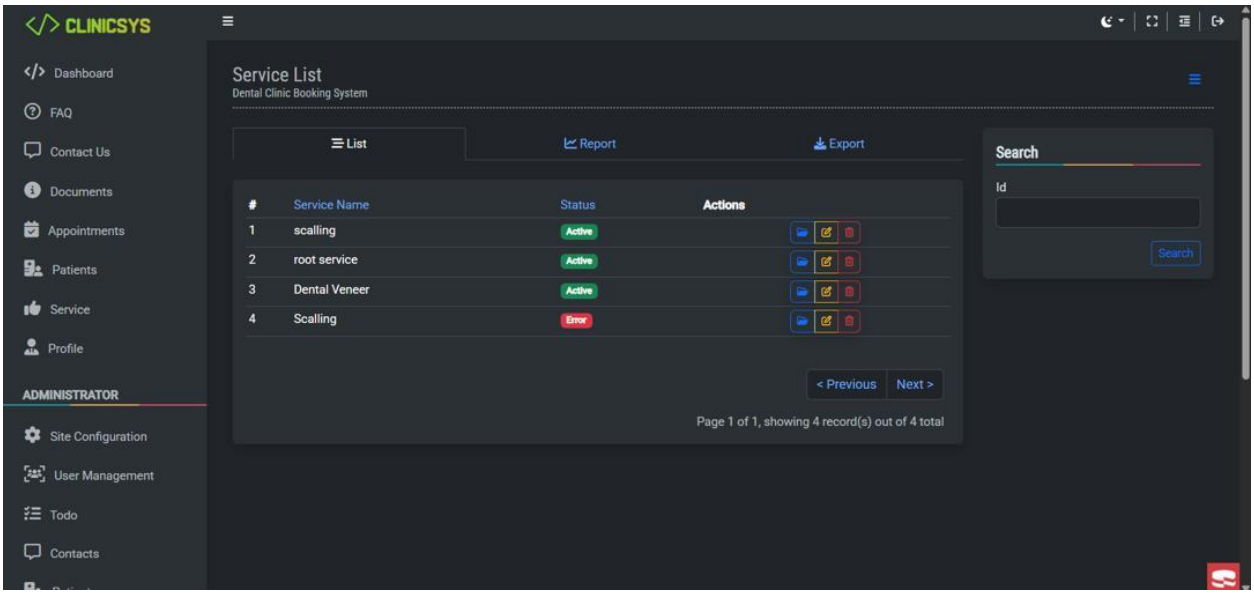


Figure 5: User Interface 4

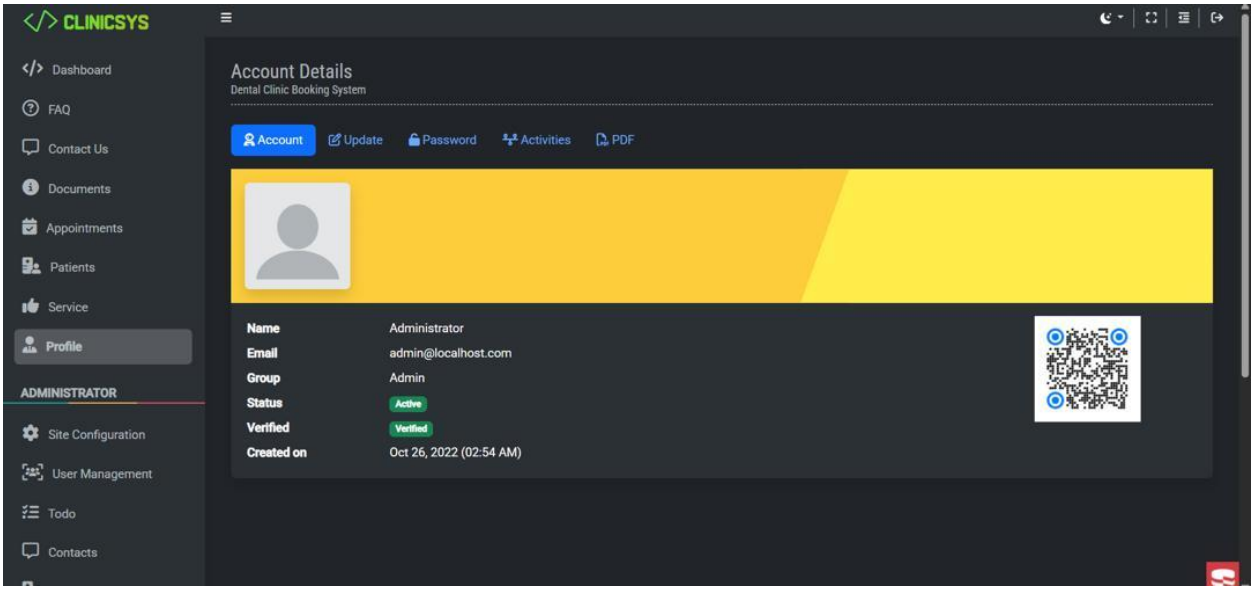


Figure 6: User Interface 5

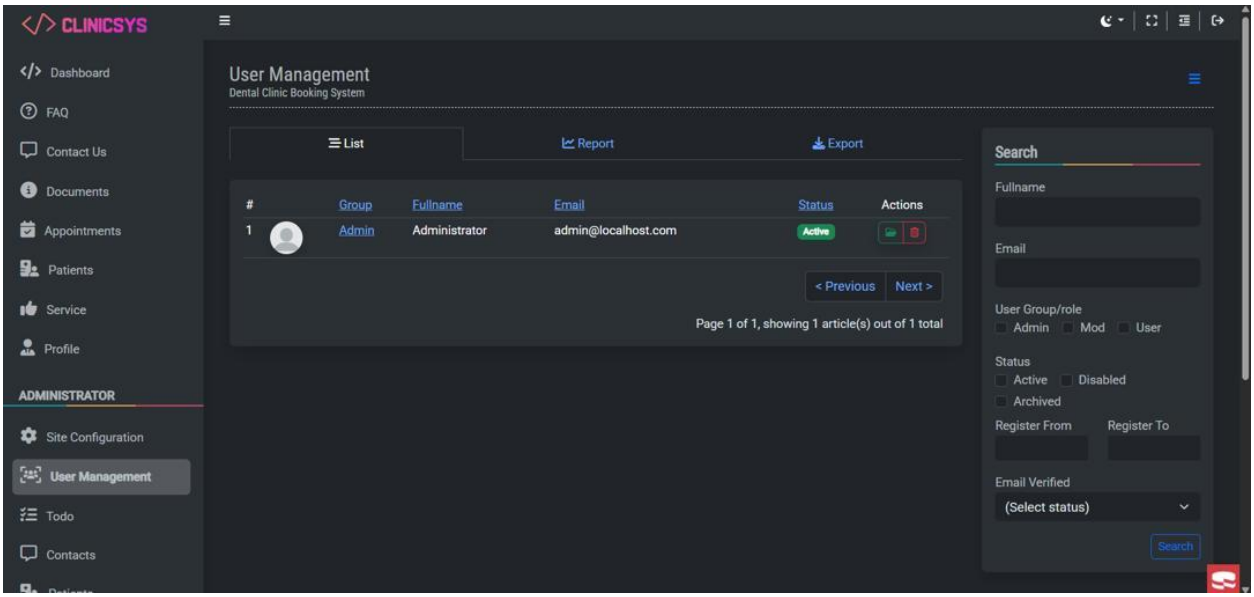


Figure 7: User Interface 6

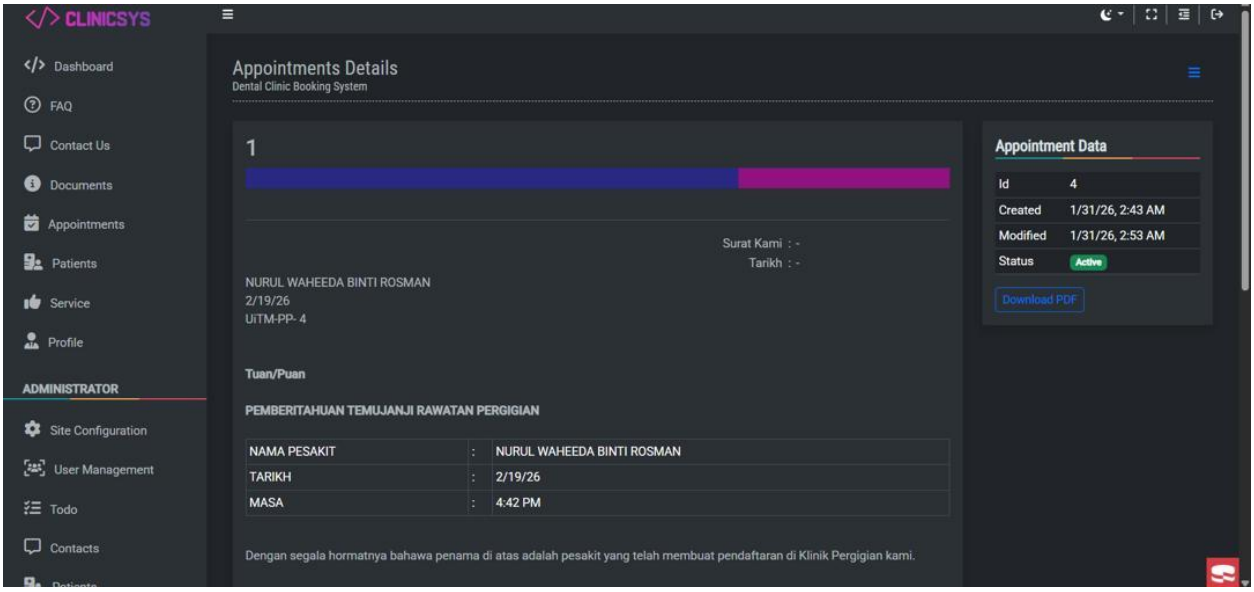


Figure 8: User Interface 7

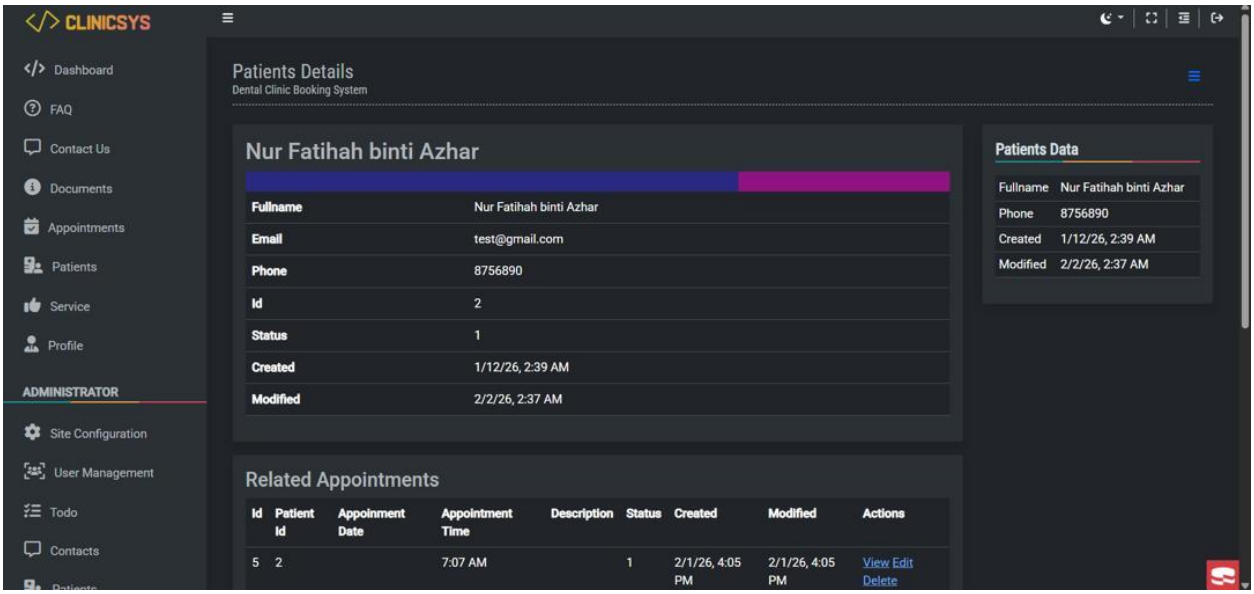


Figure 9: User Interface 8

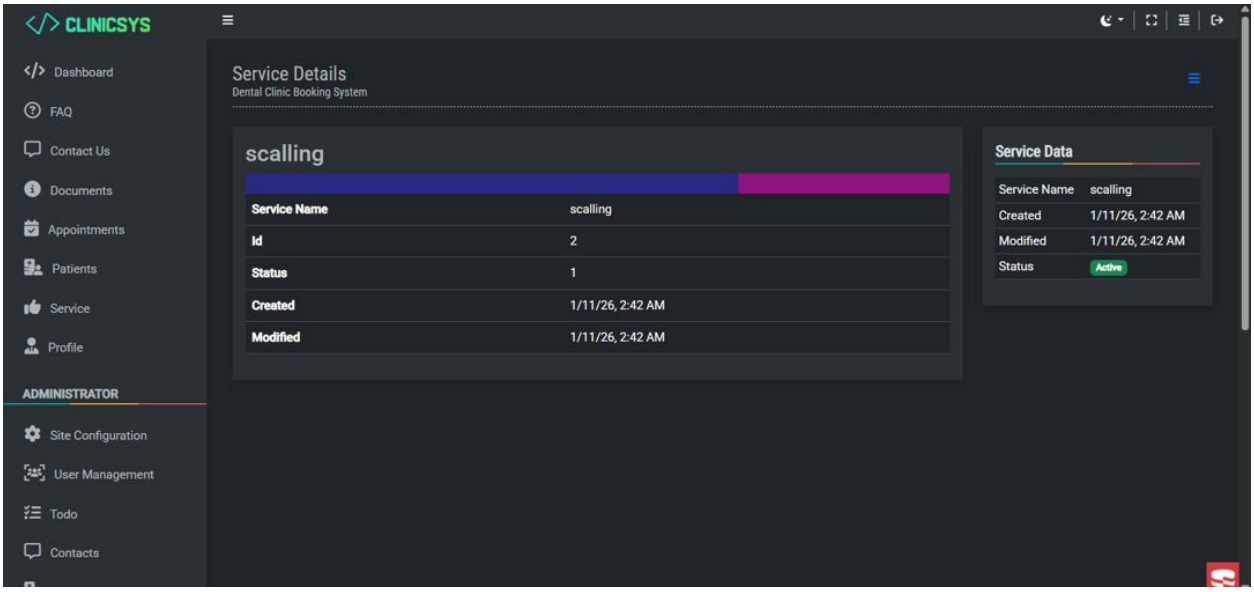
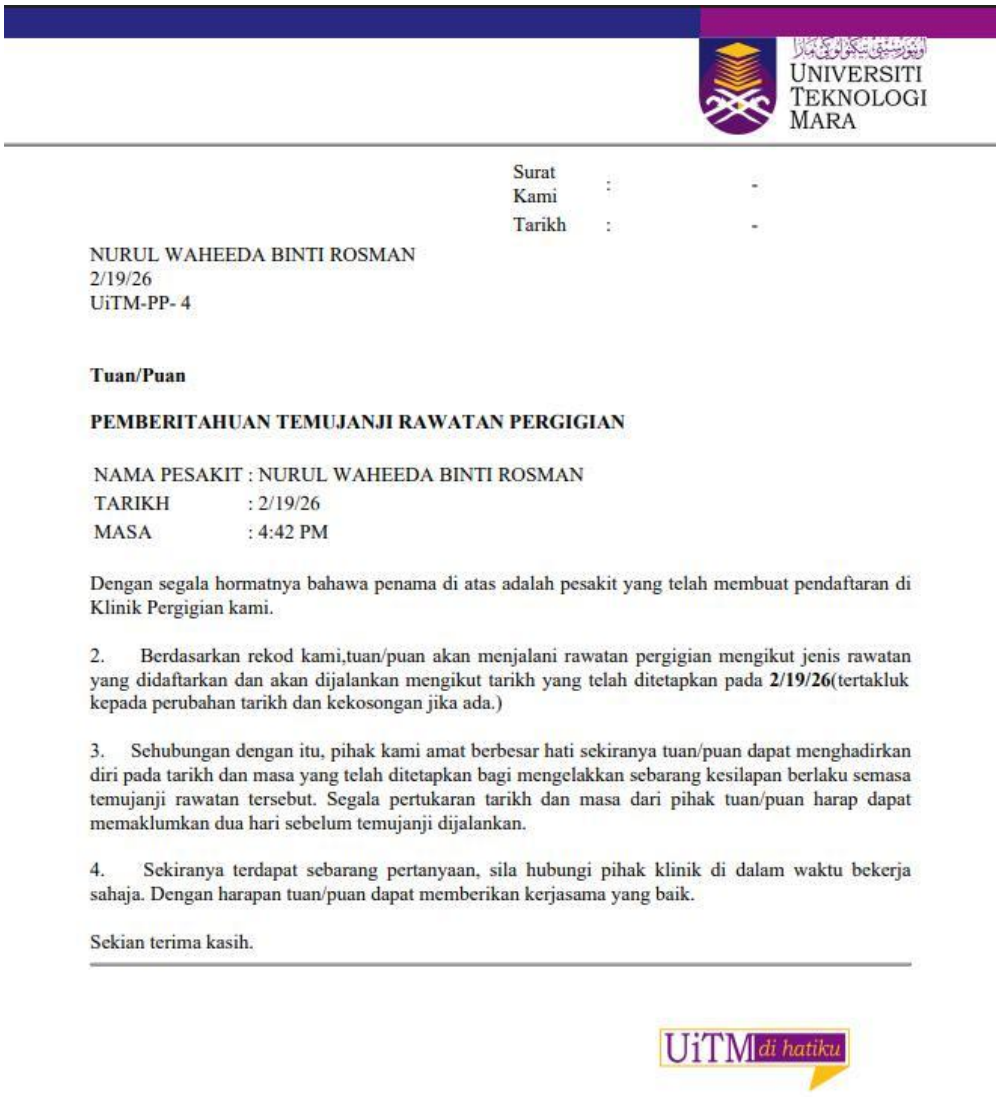


Figure 10: User Interface 9



UNIVERSITI TEKNOLOGI MARA

Surat Kami : -

Tarikh : -

NURUL WAHEEDA BINTI ROSMAN
2/19/26
UiTM-PP- 4

Tuan/Puan

PEMBERITAHUAN TEMUJANJI RAWATAN PERGIGIAN

NAMA PESAKIT : NURUL WAHEEDA BINTI ROSMAN
TARIKH : 2/19/26
MASA : 4:42 PM

Dengan segala hormatnya bahawa penama di atas adalah pesakit yang telah membuat pendaftaran di Klinik Pergigian kami.

2. Berdasarkan rekod kami,tuan/puan akan menjalani rawatan pergigian mengikut jenis rawatan yang didaftarkan dan akan dijalankan mengikut tarikh yang telah ditetapkan pada **2/19/26**(tertakluk kepada perubahan tarikh dan kekosongan jika ada.)

3. Sehubungan dengan itu, pihak kami amat berbesar hati sekiranya tuan/puan dapat menghadirkan diri pada tarikh dan masa yang telah ditetapkan bagi mengelakkan sebarang kesilapan berlaku semasa temujanji rawatan tersebut. Segala pertukaran tarikh dan masa dari pihak tuan/puan harap dapat memaklumkan dua hari sebelum temujanji dijalankan.

4. Sekiranya terdapat sebarang pertanyaan, sila hubungi pihak klinik di dalam waktu bekerja sahaja. Dengan harapan tuan/puan dapat memberikan kerjasama yang baik.

Sekian terima kasih.

UiTM di hatiku

Figure 11: User Interface 10

8.0 NAVIGATION GUIDE

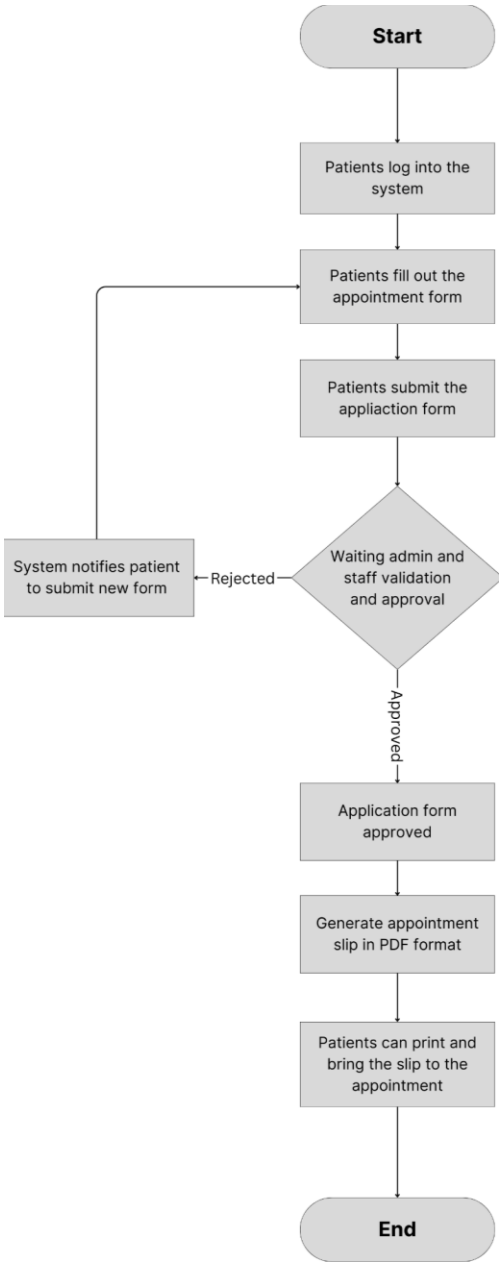
Clinicsys's user interface is characterized by logical architecture, sound navigational elements, and high securitization.

1) **Patient**
    - Schedule, view, and control private appointments
    - Access and update medical history and personal profile forms
    - View the status of appointments, dental clinic information, and visit summaries.
2) **Dental Clinic Staffs**
    - View and control the patient queue and personal appointment schedule
    - For future appointments, view patient profiles and medical histories.
    - Update the status of appointments (finished, in-progress, and cancelled)
3) **Administrator**
    - Organize and oversee all dental clinic scheduling and appointments.
    - Add, modify, and control the availability and profiles of dental providers
    - Access complete patient details, create reports, and manage system functions.

Navigation is handled via a sidebar that contains the relevant modules like Dashboard, FAQ, Contact Us, Documents, User Management, etc.

9.0 WORKFLOWS

This section describes the workflow of the Dental Clinic Appointment System, which is at the center of the system. It highlights the entire process of a patient registering for an appointment, as well as the process of admins and staff to handle and view the appointments.



10.0 DETAILED INSTRUCTIONS ON HOW TO USE EACH FEATURE

1) **Login/ Register:**
    - Open the Internhub system on your browser.
    - Choose your role and login with assigned credentials.
2) **Submit Internship Application by Students:**
    - Navigate to "Applications" → "New Application".
    - Fill in personal details, select the company, upload resume in PDF format, and submit
3) **View and Track Application:**
    - Click "Applications" → "View Applications".
    - Ensure that the current state is checked and, if they are authorized, the confirmation letter is downloaded.
4) **Company Management by Admin:**
    - Go to "Companies" → "Add company".
    - Input company info and select "Active/ Inactive" status.
5) **Add/ Edit patient by Admin:**
    - Navigate to "User Management" → "Patient".
    - Add or edit patient data including booking.
6) **Dental Clinic Staff Panel:**
    - Dental Clinic Staff can access "Applications" → "Booking".
    - View bookings to patients.
7) **Search & Filter:**
    - Use the search bar to find a booking for patients.
8) **PDF Download:**
    - After application approval, the booking was successful.

11.0 CONTACT INFORMATION

For any issues, technical support, or inquiries regarding the Dental Clinic Appointment System, patients may reach out to the project team using the email address provided below.

NAME	EMAIL ADDRESS
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NUR FATIHAH BINTI AZHAR	2024764861@student.uitm.edu.my
NUR NAJLAA AQILAH BINTI JULBAYANI	2024776275@student.uitm.edu.my

12.0 CONCLUSION

In conclusion, the Dental Clinic Appointment System built for IMS566 is a comprehensive and practical solution designed to update and streamline dental clinic operations. The system efficiently resolves typical inefficiencies in appointment scheduling, patient data management, and administrative coordination by switching from manual, paper-based techniques to a centralized digital platform. The combination of role-based access, secure user authentication, and a structured database guarantees that the fundamental requirements of patients, dental clinic employees, and administrators are satisfied with increased efficiency and dependability.

The system demonstrates advanced technical implementation through its use of contemporary web development frameworks including CakePHP and Bootstrap together with its structured MySQL database system. The system enhances operational transparency while creating better user experience through its dynamic appointment booking system, real-time status tracking feature, and PDF creation tool for appointment slips, which administrators can control. The entity-relationship diagram and simple system operations underline a careful design that stresses data quality, user experience, and scalable dental clinic administration.

The research results in a functional prototype that fulfills both practical needs and academic requirements. The system creates a foundation which improves dental clinic operations while delivering superior patient treatment through its three main functions that decrease administrative work and reduce scheduling issues and provide a unified system for all users. The system currently provides a complete solution for dental clinic appointment management which includes both security features and an easy-to-use interface and all essential functions.