SCHOOL OF INFORMATION SCIENCE,

COLLEGE OF COMPUTING, INFORMATICS AND MATHEMATICS

UNIVERSITI TEKNOLOGI MARA

BACHELOR OF INFORMATION SCIENCE (HONOURS) INFORMATION SYSTEMS MANAGEMENT (CDIM262)

ADVANCED WEB DESIGN DEVELOPMENT AND CONTENT MANAGEMENT (IMS566)

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CLASS:

CDIM2624B

PREPARED FOR:

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SUBMISSION DATE:

2 FEBRUARY 2026

"PENAWAR MEDICAL CLINIC SYSTEM DEVELOPMENT"

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FACULTY OF INFORMATION MANAGEMENT

UNIVERSITI TEKNOLOGI MARA (UiTM)

CAWANGAN PUNCAK PERDANA

ACKNOWLEDGEMENT

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We therefore want to express our gratitude and love to everyone who has helped us with this assignment. Although this task has required a lot of work, we would not have been able to complete it without the help and direction of a few extremely significant individuals. We are appreciative of Sir Muhammad Asyraf Bin Wahi Anuar assistance with this project. In addition to giving us advice, he gave us the crucial knowledge we required to completed our assignment.

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THANK YOU

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1.0 INTRODUCTION

The Penawar Clinic site is an online healthcare site that aims at ensuring patients get access to medical services with ease, speed and convenience. It is an online continuation of the clinic whereby users are able to access valuable data on the medical services offered, physicians, hours of operation, and facilities of the clinic. Having a clean design and well-structured layout, the patients can navigate the site easily and know the services that are offered by the clinic even before visiting it.

The convenience of the online booking of an appointment is one of the key objectives of the Penawar Clinic site. The site will give patients the opportunity to make appointments at any hour and regardless of their location without calling and walking into the clinic. This is particularly advantageous to busy people, adult workers, and patients who would want to pre-plan their visits. The ease of booking means that the users could fasten the process by choosing the date and the time they want to go easily within the shortest time possible.

Besides convenience, the Penawar Clinic site is concerned with the provision of a user experience that is seamless and dependable. It assists the clinic in minimizing waiting time in the clinic since the staff is able to handle the appointments more effectively. This can be achieved by coordinating the visits of patients online so as to streamline the workflow and offer more improved services to the patients once they come to the clinic.

The site is also effective in improving patient experience through availability of information. The platform allows patients to check booking and clinic news and other health information. This assists the patients in being informed and ready in advance to their visits, which leads to a more well-organized and less stressful healthcare visit.

On the whole, the Penawar Clinic site is created as an application of both booking an appointment and a full digital healthcare service solution. The website is designed with easy navigation, appointments, and effective, engaging content to enhance patient satisfaction, simplify clinic operations, and improve long-term patient engagement by simplifying the process of accessing healthcare and making it efficient and reliable.

2.0 ENTITY-RELATIONSHIP DIAGRAM (ERD)

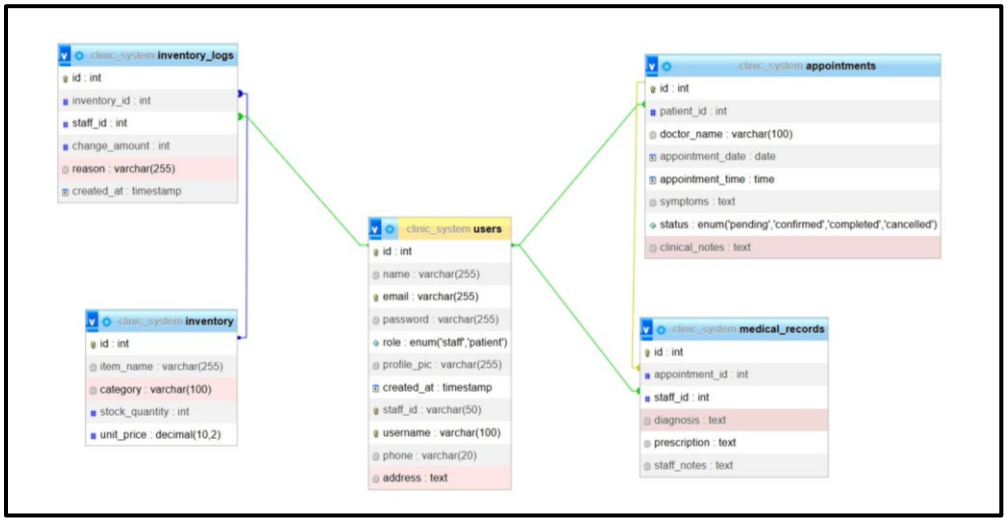

Figure 2.0 (a) ERD Diagram

The Penawar Clinic system is a relational database which is used to handle clinic operations in an effective and systematized way. This database functions as the central data storage platform by which all significant information of the clinic is linked and readily accessible. Users are one of the main component of the system, where the personal data of patients and the staff, such as personal information, logins, roles and contact data is stored. This enables the system to differentiate between patients and clinic personnel in addition to facilitating safe access and adequate role-based operations.

The other important institution is appointments, whereby it is employed to administer patients appointments at the clinic. Patient name, doctor name, date and time of appointment, symptoms and status of appointment are some of the details that are stored in this table. The system allows scheduling their appointments online to eliminate manual scheduling, prevent appointments, and is efficient in offering patients a chance to make, view, and monitor their appointments.

The medical records entity is significant in saving clinical data on each appointment. It captures diagnoses, prescriptions, and staff notes that are given to medical staff either within or after consultations. This is an entity that is associated with appointments and staff so that all medical records are attached to the appropriate visit and medical practitioner. It aids in ensuring the correct history of patients and facilitates the continuity of care.

Besides patient and appointment management, the system will also have an inventory entity where medical supplies and items that will be used in the clinic will be monitored. In this table, the names of items, their categories, stock levels, and price per unit are stored, and the staff members can keep track of the inventory and manage the clinic resources, thus effectively. The inventory logs entity is used to document any change in inventory, the staff who did it, the quantity of the change, the cause of the change and a time stamp.

On the whole, this properly organized database allows Penawar Clinic to organize patient data, schedules, medical records, and stocks. The system helps to eliminate data errors, conducts efficient clinic business operations, improves patient care, and offers a stable and orderly digital solution to manage clinics by connecting all entities with each other.

3.0 SYSTEM REQUIREMENT (SOFTWARE, VERSION COMPATIBILITY, DEPENDENCIES)

3.1 Server: Apache/2.4.54 (Win64)

The Penawar Clinic Management System is hosted on the Apache web server via the Laragon development environment. Apache serves as the primary engine that handles HTTP requests from patients and staff, ensuring that the PHP scripts and the database interact seamlessly to provide a reliable local hosting environment.

3.2 Scripting Language: PHP 8.1.10

PHP is the server-side scripting language used to develop the backend logic of the clinic system. It is responsible for processing sensitive operations such as user authentication (Login/Register), appointment scheduling, and the dynamic generation of medical records and inventory stock levels.

3.3 Security / Encryption: OpenSSL 3.0.5

The system utilizes OpenSSL to manage data encryption and secure communications. This dependency is critical for protecting patient confidentiality and securing medical data. Furthermore, PHP's built-in hashing algorithms are used in conjunction with these libraries to ensure that user passwords are encrypted before being stored in the database.

3.4 Database: MySQL 8.0.30 (via Laragon & HeidiSQL)

MySQL serves as the relational database management system (RDBMS) for storing all clinical data, including tables for users, appointments, and medical_records. While Laragon provides the database engine, HeidiSQL (or phpMyAdmin) is utilized to manage the schema, execute queries, and maintain data integrity between the clinic's inventory and patient history.

3.5 Browser Compatibility: Modern Web Browsers

The Penawar Clinic interface is optimized for modern web browsers including Google Chrome, Mozilla Firefox, Microsoft Edge, and Safari. By utilizing the Bootstrap 5 framework, the system ensures cross-browser compatibility and a responsive layout that adapts to various screen resolutions, providing a consistent user experience for both desktop and mobile users.

4.0 USER INTERFACE OVERVIEW

The user interface (UI) of the Clinic Management System is designed to be professional, clean, and responsive, utilizing a modern color palette of Penawar Red, Black, and White. The layout focuses on clear navigation for medical staff to manage clinical data efficiently. The system is built with the Bootstrap CSS framework, ensuring a consistent design that adapts to different screen sizes, specifically for staff using the control panel. The interface is divided into functional modules that handle patient records, inventory, and clinic analytics.

The system primarily supports two user roles: Staff and Patients. Staff users have access to a comprehensive dashboard and reporting tools to monitor clinic performance, while patients interact with registration and appointment features.

4.1 Login Page

The Login Page serves as the secure entry point for the system. Users must provide their credentials to access their respective roles, such as 'staff' or 'patient'. The system uses session management to verify user IDs and roles before granting access to sensitive clinical data.

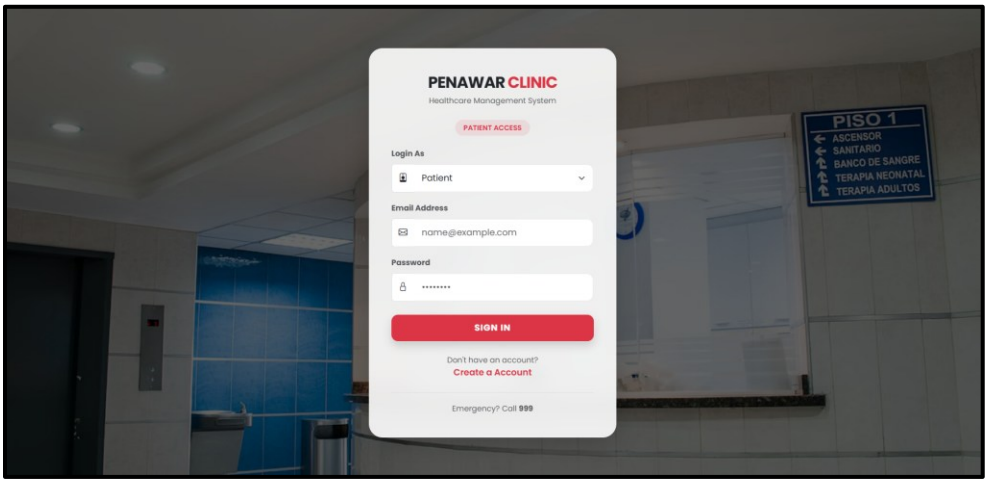

Figure 4.1 (a) Login Page.

4.2 Register Page

The Register Page allows new patients to join the clinic system. Users provide essential details including their name, email, phone number, and address, which are then stored in the database for future appointments. This page ensures every patient has a unique record linked to their health history.

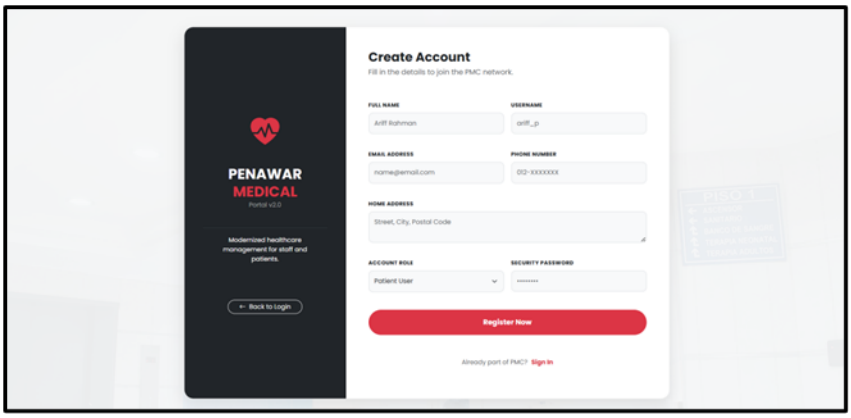

Figure 4.2 (a) Register Page.

4.3 Homepage (Patient)

After a successful login, patients are directed to their Homepage. This page acts as the main landing area, providing easy access to the system's main features, such as browsing available services, booking new appointments, or viewing their current appointment status.

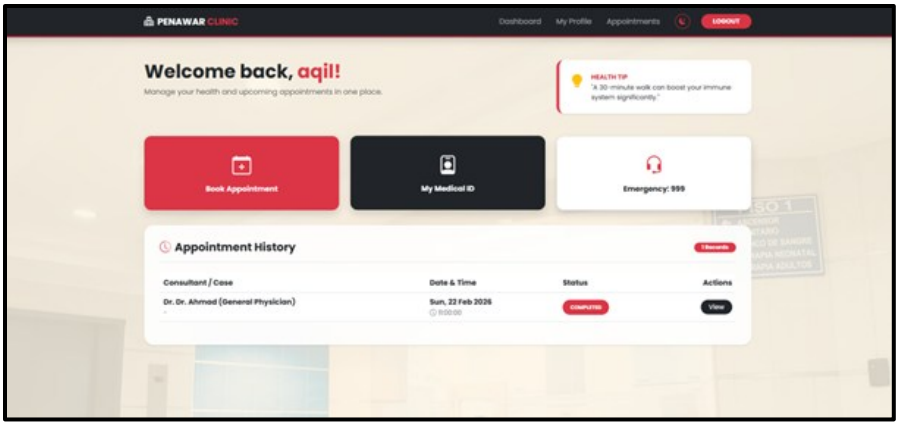

Figure 4.3 (a) Homepage for Patient

4.4 Book Appointment Page

The Book Appointment Page allows patients to schedule a visit with a specific doctor (e.g., Dr. Ahmad or Dr. Kim). Patients select an available date and time and are required to input their symptoms (e.g., "fatigue and fever"). This information is saved to the database with a 'pending' status for staff review.

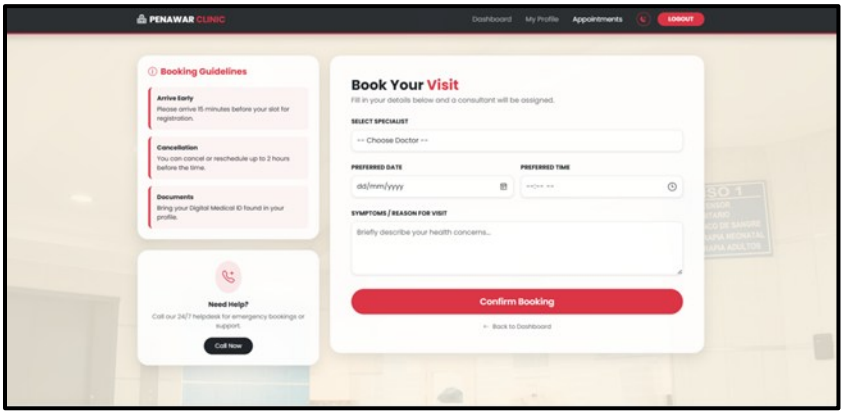

Figure 4.4 (a) Book Appointment Page

4.5 Patient Profile Page

This page is for patients to manage their personal data. Here, they can update their contact number or residential address. It also allows for password changes to ensure account security over time.

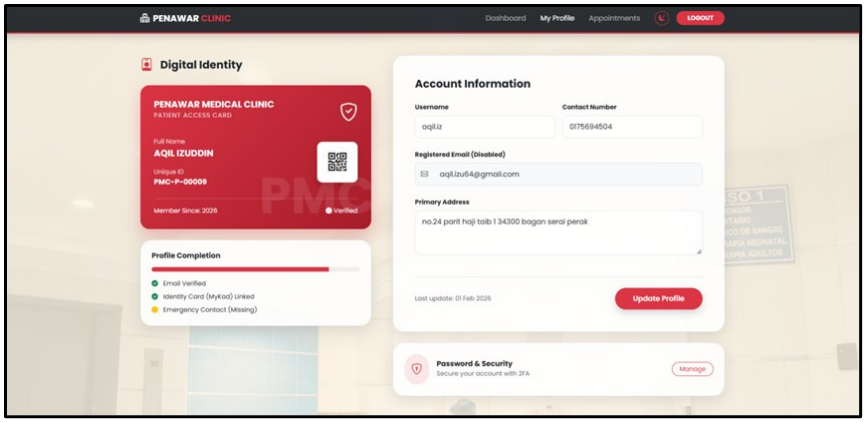

Figure 4.5 (a) Patient Profile Page.

4.6 Staff Dashboard (Homepage)

The main hub for clinic employees. It displays a sidebar navigation and a high-level summary of the clinic's status. It is optimized for efficiency, allowing staff to jump between inventory, patient records, and reports quickly.

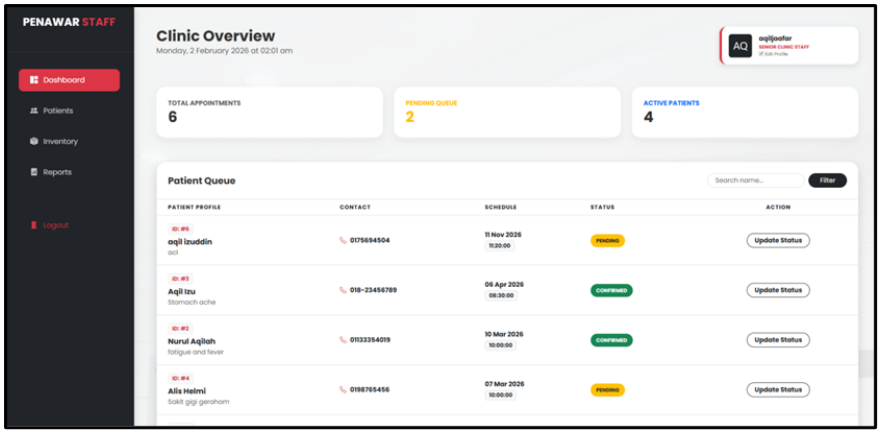

Figure 4.6 (a) Staff Dashboard Page

4.7 Manage Patients Page

A digital filing cabinet containing all registered patients. Staff can search for specific patients (like "Aqil Izu") to view their registration history, contact information, or to assist them with account updates.

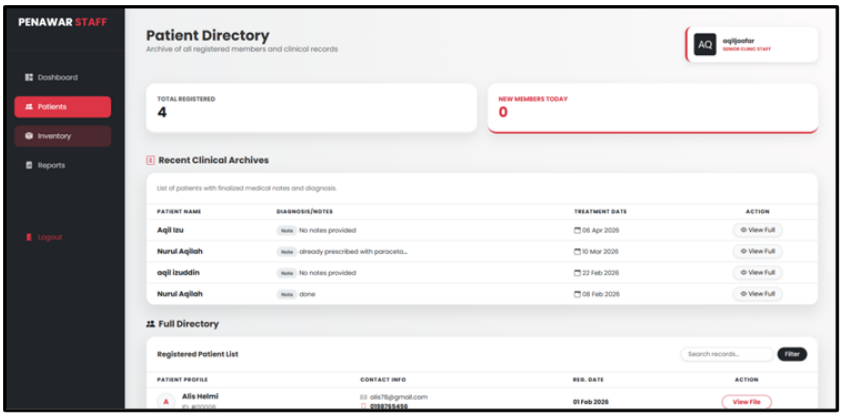

Figure 4.7 (a) Manage Patients Page.

4.8 Inventory Management Page

The supply control center. It lists all clinic assets from "Face Masks" to "Antibiotics." Staff can see current stock levels at a glance and identify which items are running low and need restocking to prevent shortages.

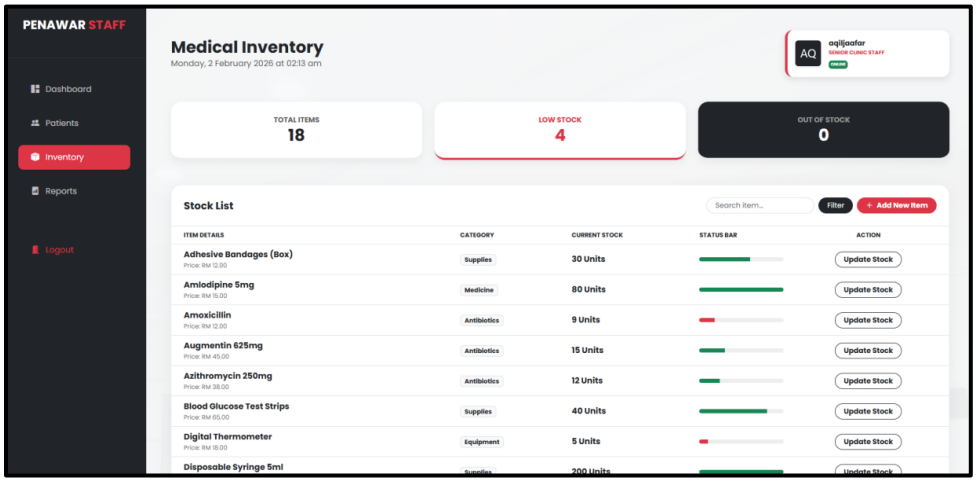

Figure 4.8 (a) Inventory Management Page.

4.9 Clinic Analytics Page (Reports)

The Clinic Analytics Page provides a strategic data visualization interface designed to support clinical decision-making and operational oversight. Utilizing the Chart.js library, the system aggregates real-time data from the appointments and users tables to generate interactive line charts for monthly visit trends, doughnut charts for physician workload distribution, and bar charts for peak operational hours. This analytical suite enables management to monitor key performance indicators such as total patient registration, cumulative appointment volume, and service cancellation rates within a professional, high-contrast dashboard, ensuring optimized resource allocation and efficient clinic growth tracking.

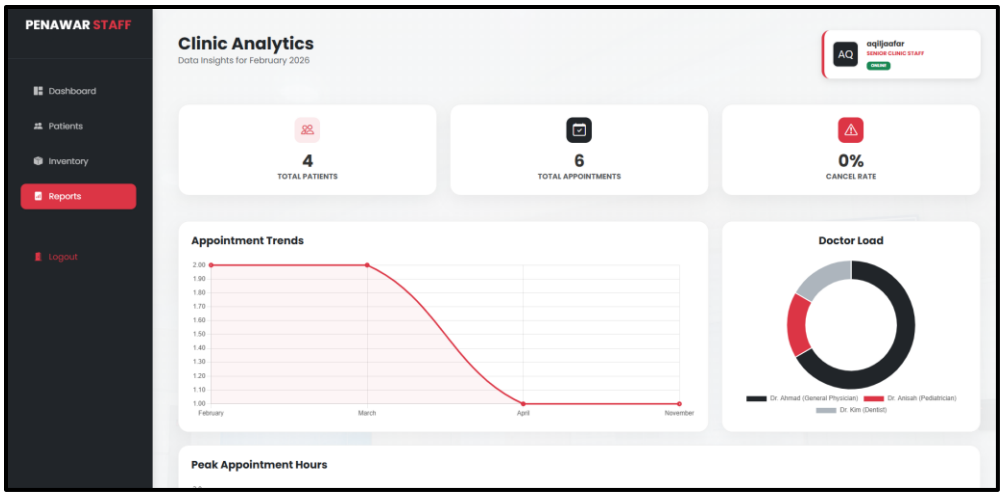

Figure 4.9 (a) Clinic Analytics Page

4.10 Appointment History Details (Medical Record)

The Appointment History View provides patients with a formalized digital summary of their specific clinical encounters, accessible by selecting the "View" action within their personal dashboard. This interface displays a structured medical record. A key administrative feature of this page is the "Print" button, which allows patients to generate a standardized, printer-friendly version of their appointment details including symptoms and scheduled times for their personal medical filing or official use.

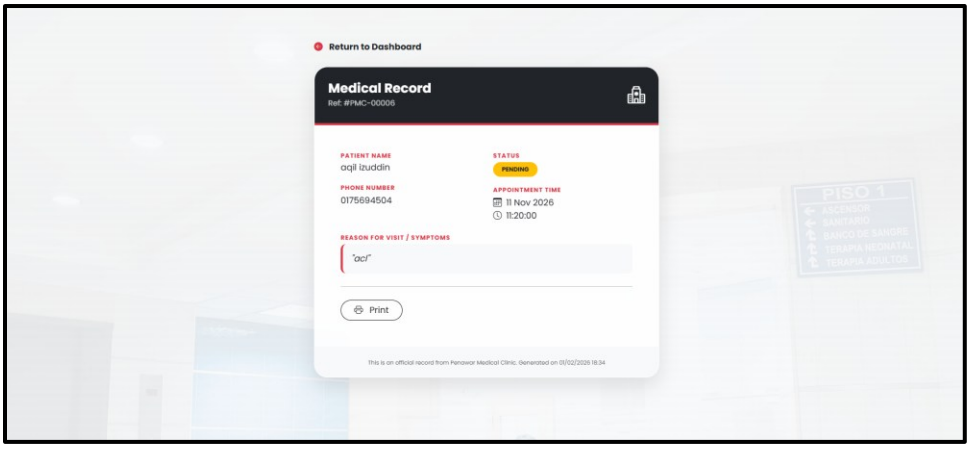

Figure 4.10 (a) Appointment History Detailed View with Print Feature.

5.0 FEATURES AND FUNCTIONALITIES

The Penawar Medical Clinic (PMC) System is an all-inclusive platform created to assist in the seamless and effective management of each aspect of clinic operations. With a focus on security, user convenience, and operational efficacy, it incorporates a number of features that benefit both patients and employees. The following is a more detailed explanation of each core feature and functionality, offering a better understanding of how the system supports the clinic's daily operations.

5.1 User Management & Security

The User Management & Security section ensures that only authorized users can access specific features based on their roles, making sure that sensitive data is protected while maintaining the ease of use for both patients and clinic staff. This includes several key features:

1) **Role-Based Registration:** The system distinguishes between Patients and Staff during the registration process. Staff members are required to enter a unique "Staff ID" (such as PMC-STAFF-XX) when registering. This ID links their account to their specific role, ensuring that they can access different sections of the system compared to regular patients. This creates a system where roles are clearly defined, improving both security and functionality.

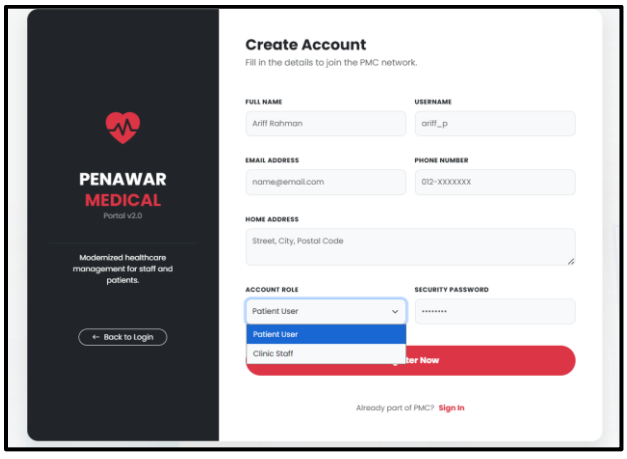

Figure 5.1 (a) Role distinguishes in Register Page

2) **Plain-Text Authentication**: At present, the system stores user passwords in plain text for simplicity. This method is easier to implement but poses a security risk. For future versions, the clinic may consider implementing more secure password storage techniques, such as hashing, to enhance data protection and meet best practices for password security.

	id	name	email	password	role	profile_pic
Edit Copy Delete	1	Nurul Aqilah	qyha517@gmail.com	1234	patient	NULL
Edit Copy Delete	2	Ahmad Izuddin	izuddin11@gmail.com	7777	staff	NULL
Edit Copy Delete	4	Nur Anisah	anisah56@gmail.com	2222	staff	staff_4_1769941595.JPG
Edit Copy Delete	6	Aqil Izu	aqil77@gmail.com	6565	patient	NULL
Edit Copy Delete	7	Kim Taehyung	kim67@gmail.com	9999	staff	staff_7_1769943714.avif
Edit Copy Delete	8	Alis Helmi	alis78@gmail.com	8888	patient	NULL

Figure 5.1 (b) Plain-Text Passwords in database

3) **Session-Based Security**: Each user is logged into the system with a session that is checked on every page, except for the login and registration pages. This ensures that users are only able to view or interact with information relevant to their role. For example, a patient can only see their own appointments and medical records, while staff can access the medical records and other data for all patients they manage.

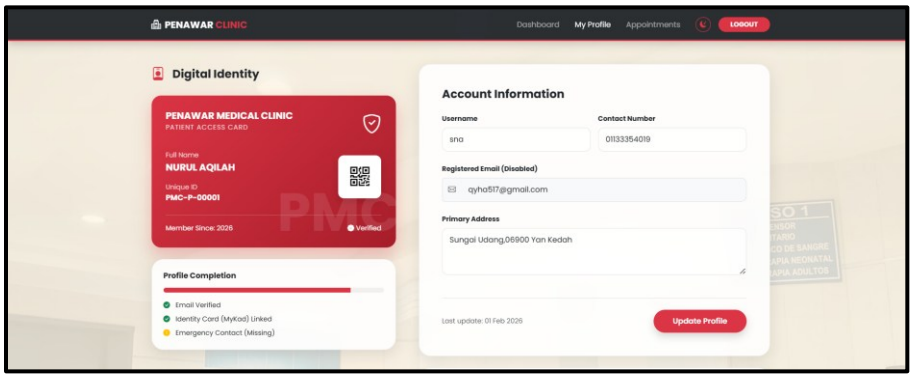

Figure 5.1 (c) Session-Based User

5.2 Patient Features (Self-Service Portal)

The Patient Features section gives patients direct access to their medical information, appointments, and other essential services. This empowers patients to manage their own care with ease and flexibility, while also reducing the administrative burden on clinic staff. The functionalities in this section include:

1) **Personal Dashboard:** Upon logging into the system, each patient has access to a personalized dashboard. This dashboard provides a quick overview of upcoming and past appointments. Patients can easily see when their next visit is scheduled and can review past visit history to stay informed about their health journey.

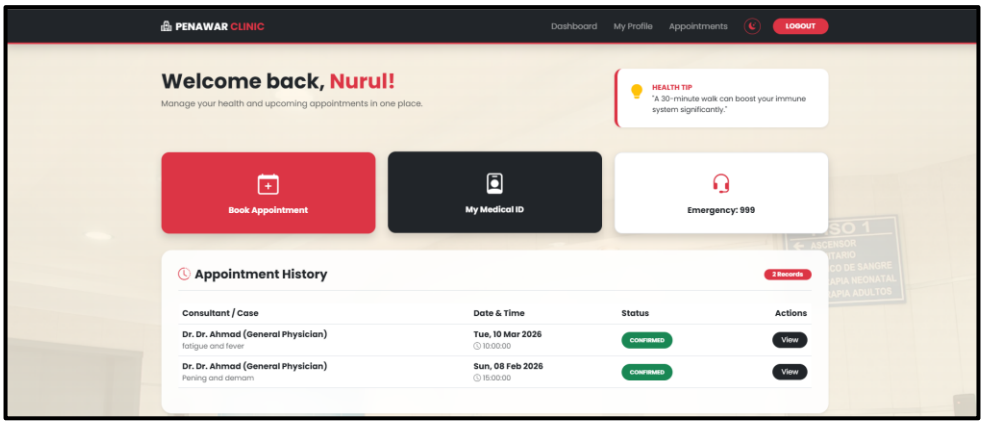

Figure 5.2 (a) Patient Personal Dashboard

2) **Detailed Case Tracking:** This feature allows patients to view key information about their visits, including reported symptoms, appointment status, and the scheduled time. It helps patients track their health by providing a summary of past visits, including any diagnoses or treatments. Patients can also print this information for their records or to share with other healthcare providers.

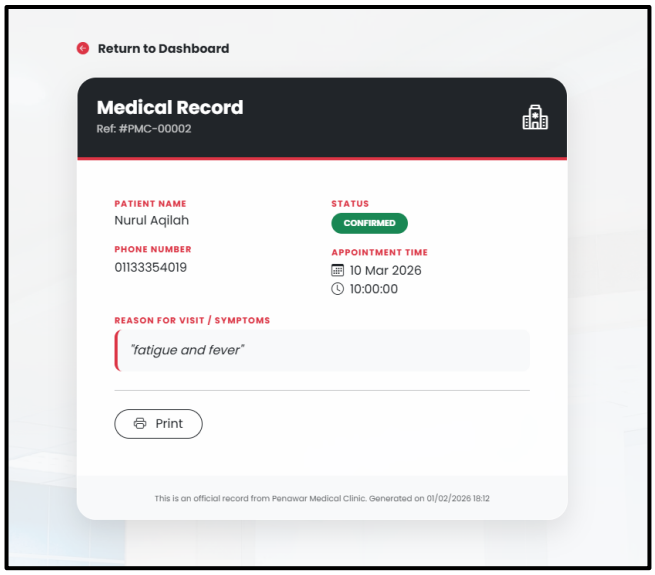

Figure 5.2 (b) View Details page

3) **Appointment Rescheduling:** Patients who need to change their appointment time can easily do so via this feature. The system allows them to request a new date and time for their visit. However, the new appointment request will be marked as "pending" until staff review and confirm it. This ensures that changes are controlled and tracked within the clinic's workflow.

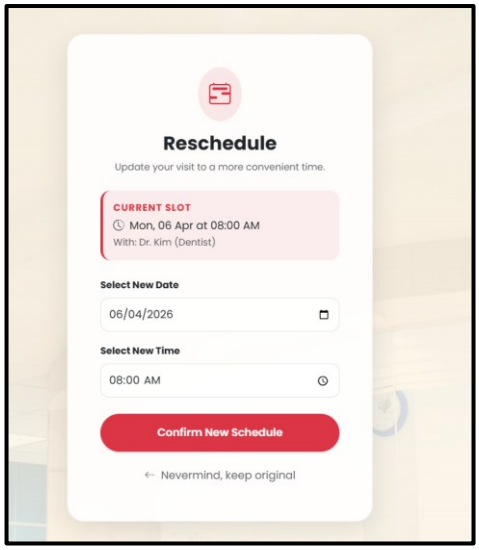

Figure 5.2 (c) Reschedule Page

4) **Printable Records:** Patients can print their medical records and appointment details directly from the system. This is a highly useful feature for patients who may want to keep personal copies of their records or share them with other healthcare providers, streamlining communication between different health services.

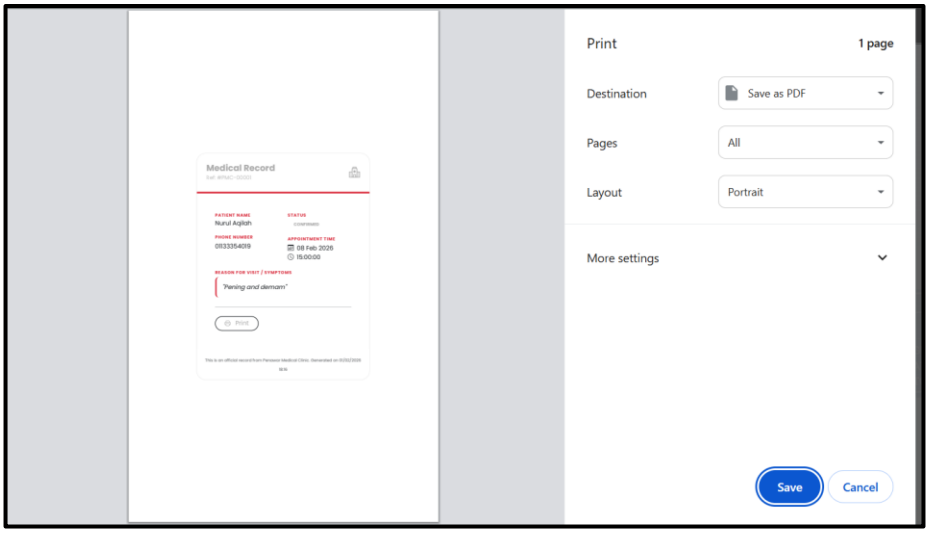

Figure 5.2 (d) Printable Medical Record

5.3 Staff & Clinical Operations

The **Staff & Clinical Operations** module is designed to streamline the day-to-day tasks of clinic staff, including administrative management, clinical record-keeping, and professional profile management. Some important features are:

1) **Administrative Dashboard:** The staff dashboard offers a real-time overview of key statistics related to the clinic's operations. This includes the total number of scheduled appointments, pending appointment requests, and the total number of registered patients. The dashboard also features a search bar to allow staff to quickly find patients based on their name or phone number, improving staff efficiency in managing patient information.

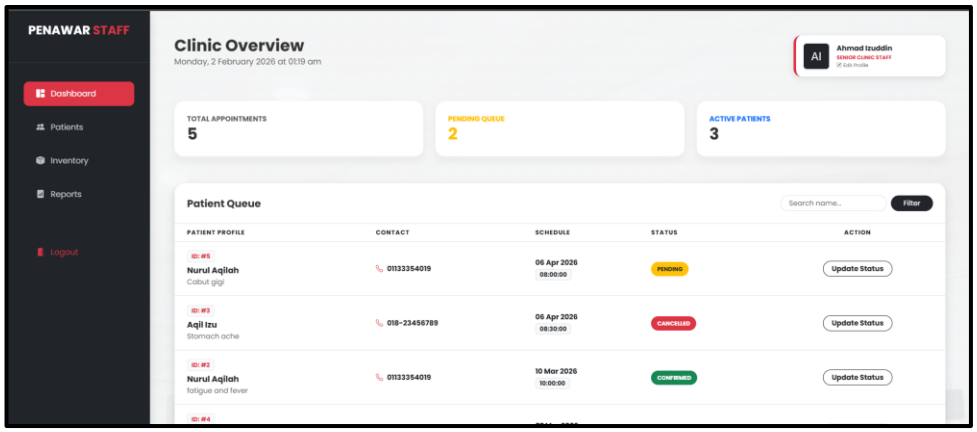

Figure 5.3 (a) Staff Dashboard Page

2) **Clinical Record Management:** This feature allows staff to add and update medical records for patients. Doctors and other staff can input critical information, including diagnoses and prescribed medications, into the system. If the patient has visited before, the system will automatically check if there is an existing record. If there is, it will update that record; if not, a new record is created. This ensures that patient data remains accurate and up to date.

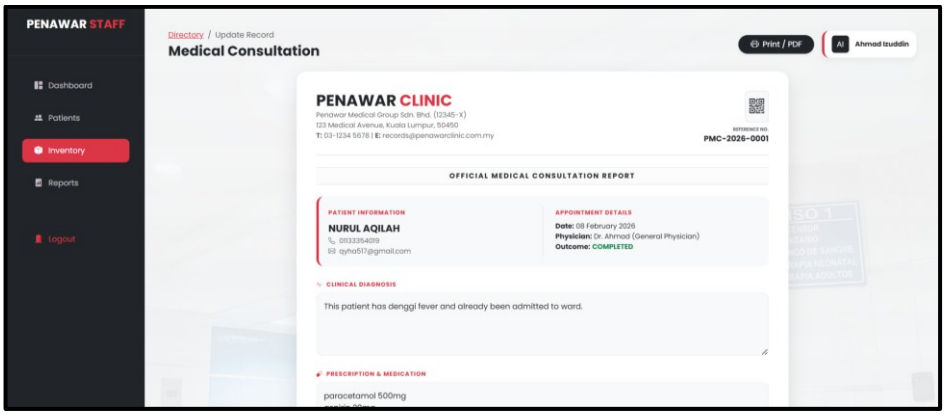

Figure 5.3 (b) Patient Medical Record

3) **Professional Profile Management:** Each staff member can maintain and update their personal information, including their phone number, address, and other details. Additionally, staff can upload an avatar, which is helpful for personalization and helps other users (patients and staff alike) to easily recognize them within the

system. This feature improves user engagement and creates a more personalized experience.

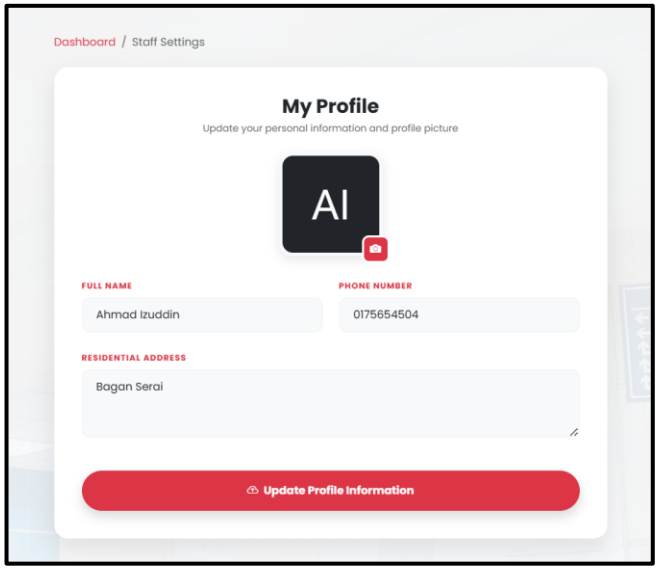

Figure 5.3 (c) Staff Profile Page

5.4 Data Analytics & Reporting

The **Data Analytics & Reporting** module provides powerful tools for clinic management to analyze various performance metrics and operational data. The system includes visual reports that help administrators understand key clinic trends, making it easier to make informed decisions. Features include:

1) **Growth Visualization**: This feature includes a line chart that displays the trend of patient visits over a defined period, typically over months or years. This allows the clinic to assess whether its patient base is growing, stable, or shrinking. It also helps clinic management identify peak periods when more resources may be needed.

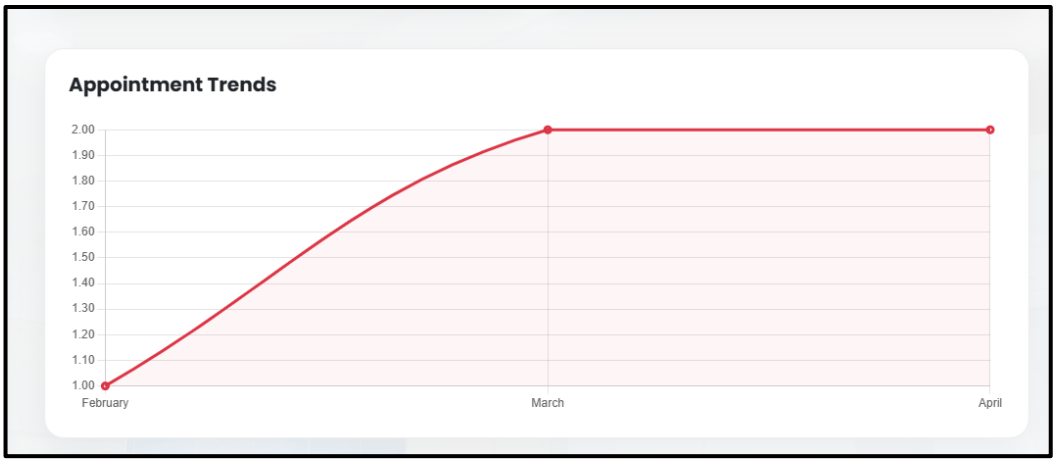

Figure 5.4 (a) Patients visit periods graph

2) **Case Distribution**: A doughnut chart is used to display the distribution of cases among doctors. This visualization helps administrators understand how much work each doctor has and whether the workload is balanced across staff. It also aids in decision-making for staff scheduling and ensuring that no doctor is overburdened.

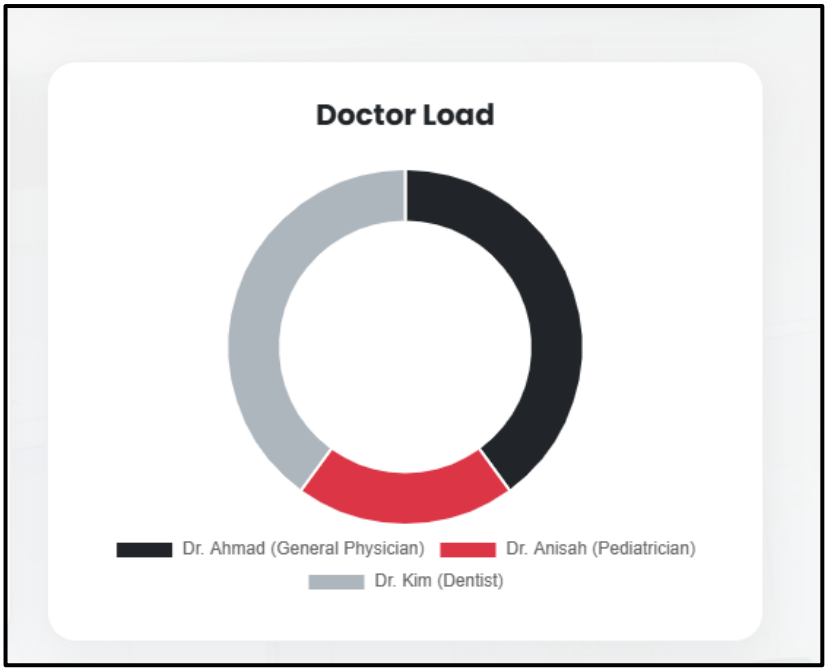

Figure 5.4 (b) Distribution of cases chart

3) **Efficiency Metrics**: The system identifies the clinic's "Peak Hours," or the times when appointments are most frequent. This data is useful for managing staffing levels, as it allows the clinic to anticipate high-demand periods and schedule more staff accordingly, thus improving service efficiency and patient satisfaction.

Figure 5.4 (c) Peak Hours Appointment Graph

4) **Patient Demographics**: This feature provides a summary of the total number of unique patients registered in the system. It helps administrators understand the clinic's customer base, which is vital for planning future marketing efforts, identifying trends in patient demographics, and improving services to meet patient needs.

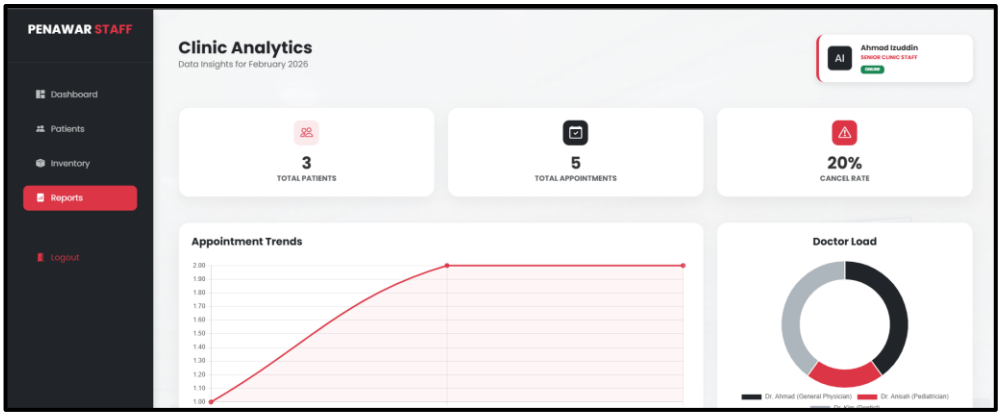

Figure 5.4 (d) Summary of Patients Registered

5.5 Backend & Database Logic

The **Backend & Database Logic** section is responsible for ensuring the system runs smoothly and that data is organized in a way that supports efficient clinic operations. Key functionalities include:

1) **Status Lifecycle**: Appointments in the system are tracked through a predefined lifecycle. This starts when an appointment is created as "pending," followed by "confirmed" once the staff has approved it, and finally "completed" or "cancelled" when the appointment concludes. This clear lifecycle helps both patients and staff track the status of each appointment and ensures that the system reflects the current state of each scheduled visit.

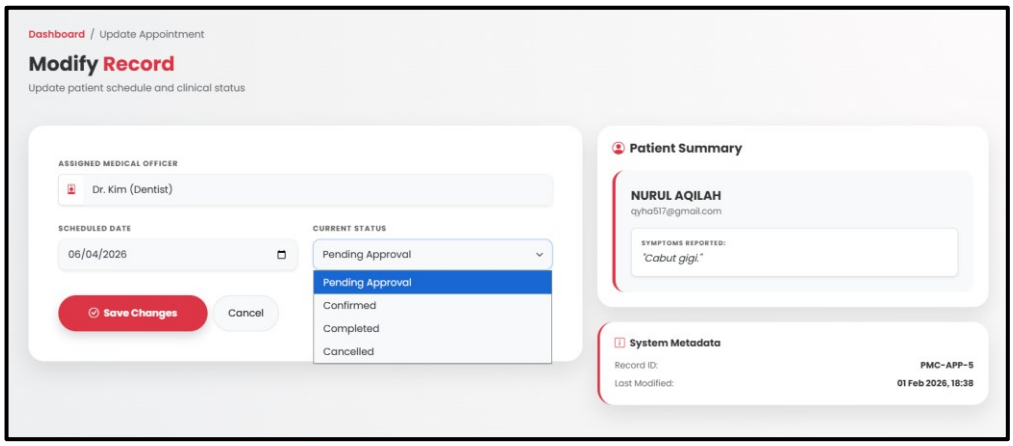

Figure 5.5 (a) Patients Status Lifecycle

2) **Automated Data Integrity**: The system uses database constraints like ON DELETE CASCADE to maintain data integrity. For example, if a patient is removed from the system, all of their associated appointments, medical records, and other data are automatically deleted. This prevents the database from becoming cluttered with outdated or irrelevant information and ensures that only active patient data is retained.

3) **Inventory Tracking**: The backend system also includes a comprehensive inventory management feature. It tracks medical supplies and equipment, logging when items are used or restocked. This ensures that the clinic always has an up-to-date record of available medical supplies, preventing shortages and ensuring smooth operations.

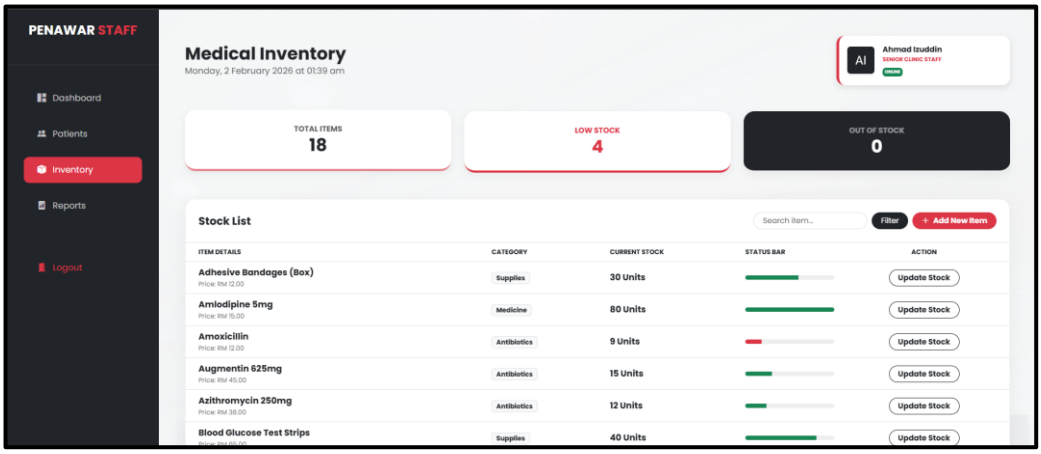

Figure 5.5 (b) Inventory Tracking System

To sum up, the Penawar Medical Clinic System provides a wide range of features intended to make managing clinic operations easier and more efficient. The solution guarantees both patient happiness and operational efficiency by offering self-service choices for patients, real-time tracking for staff, comprehensive reporting capabilities, and effective backend operations. Although the system is secure and operational, it may be made even more reliable with future enhancements, particularly in the area of password security. The PMC System's ultimate goal is to simplify, streamline, and improve staff and patient management.

6.0 WORKFLOW OF FORM (CRUD CYCLE)

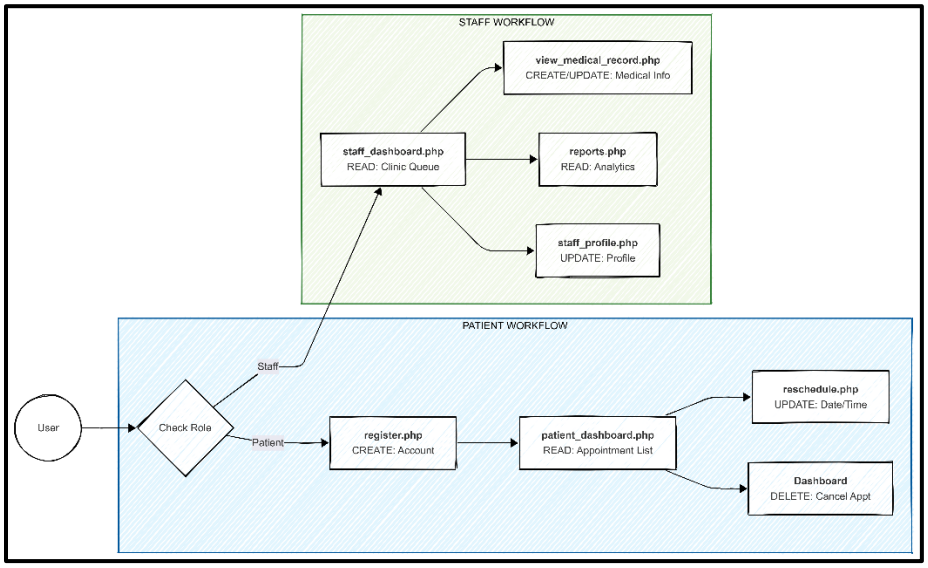

Figure 6.0 Penawar Medical Clinic CRUD Workflow

The Penawar Medical Clinic (PMC) System has been designed to make the clinic run like a well-oiled machine, with each part of the workflow designed to keep both patients and staff engaged and informed. By integrating the powerful CRUD (Create, Read, Update, Delete) system into daily operations, the clinic is able to provide a seamless and efficient experience, making healthcare management smoother for everyone involved.

For patients, the journey starts with the Create action when they first register through the register.php page. This is their entry point into the system, where they can input their personal details and health history, creating their unique profile. It's simple, but essential, it’s the foundation that allows patients to access the full range of features the system offers. Once they’re in, they can quickly move to the Read phase through their patient_dashboard.php. This dashboard acts like a personal health hub, displaying all their appointments past, present, and future so they can easily keep track of their healthcare without having to dig through piles of paperwork or make constant calls to the clinic. Everything they need to know is right there, at their fingertips.

Sometimes life happens, and appointments need to be changed. That's where the Update functionality comes in. With just a few clicks on the reschedule.php page, patients can choose a new date and time for their appointment. The system automatically marks the change as

"pending," so the staff can review and approve it. This level of flexibility takes the pressure off patients, giving them the freedom to adjust their schedules without having to wait on hold or deal with multiple phone calls. If they need to cancel an appointment, it's just as easy. With a quick Delete action on their dashboard, the appointment is wiped from the schedule, ensuring everything stays up-to-date, and that other patients can take that newly freed-up spot.

For clinic staff, the workflow works a bit differently, but it's just as smooth. It all begins with the Create and Update actions in the view_medical_record.php page. When a new patient walks in, staff can easily create a fresh medical record, entering details like symptoms, diagnosis, and treatment plans. If the patient returns for a follow-up, the record is updated, capturing new details and ensuring that the patient's health history remains accurate. This is vital for providing personalized, continuous care that patients can rely on.

The Read function is crucial here as well. Through the staff_dashboard.php, staff can instantly see what's going on in the clinic—whether it's the current queue of patients, upcoming appointments, or any pending tasks that need attention. This real-time snapshot helps everyone stay on track and manage their workload efficiently. But it doesn't stop there. With the reports.php page, staff can dive deeper into the clinic's performance, accessing detailed analytics on everything from patient visit trends to doctor workloads. This helps the clinic make smarter decisions about staffing, scheduling, and overall resource management, ensuring things run smoothly. Staff can also keep their personal information up to date through the Update feature on staff_profile.php. Whether it's a change in contact information or a new professional certification, this keeps everyone's details accurate, which is key for communication and maintaining a smooth operation behind the scenes.

Overall, the PMC System ensures that all aspects of patient and staff management are integrated into one seamless workflow. By allowing patients to create their profiles, read and update their appointments, and cancel visits when needed, it empowers them to take control of their healthcare experience. For staff, the system streamlines everything from managing patient records to accessing real-time clinic data, making it easy to stay organized and focused on delivering great care. This carefully designed CRUD workflow not only makes daily tasks more manageable, but it also improves the quality of service and boosts patient satisfaction, all while helping the clinic run more efficiently.

7.0 TEAM ROLES AND CONTRIBUTIONS

The Penawar Medical Clinic system was developed through teamwork. Each team member's primary contributions and specialized duties are listed in the following table:

MEMBERS	MEMBER'S ROLE	RESPONSIBILITIES
 MUHAMMAD AQIL IZUDDIN BIN JAAFAR	Team Leader and System Developer	Aqil led the team by ensuring clear communication, assigning tasks, and meeting project deadlines. As the System Developer, he was responsible for the backend functionality, and establishing the overall architecture of the application. Additionally, he played a key role in coordinating the writing of the final project report.
 MUHAMMAD AFIQ SYAHMI BIN KHAIRUL AZLI	Web Designer	Afiq designed and developed the user interface of the web application. Using HTML, CSS, and JavaScript, he created a visually appealing and intuitive layout, ensuring an optimal user experience. Afiq also contributed his expertise to the final report, focusing on the user interface design sections.

 MUHAMMAD AIMAN HAKIM BIN MOHD HANAFIAH	Database Manager	Aiman managed the database, ensuring smooth data flow, integrity, and optimal performance. He worked on database design and implementation, as well as query optimization to enhance system speed and reliability. Aiman also helped compile and refine the project report.
 NUR ALIS BINTI HELMI	Quality Assurance	Alis was in charge of testing the web application. She identified bugs, suggested improvements, and verified that the system met the expected quality standards. She also contributed significantly to compiling the documentation for the final report.
 ANISAH BINTI ANUAR	Project Coordinator	Anisah worked as the Project Coordinator, facilitating team communication and ensuring that all team members were aligned with the project's goals and timelines.She also contributed to compiling the final report and documenting the project's outcomes.

Table 7.0 Team Roles and Responsibilities

8.0 CONTACT INFORMATION (SUPPORT)

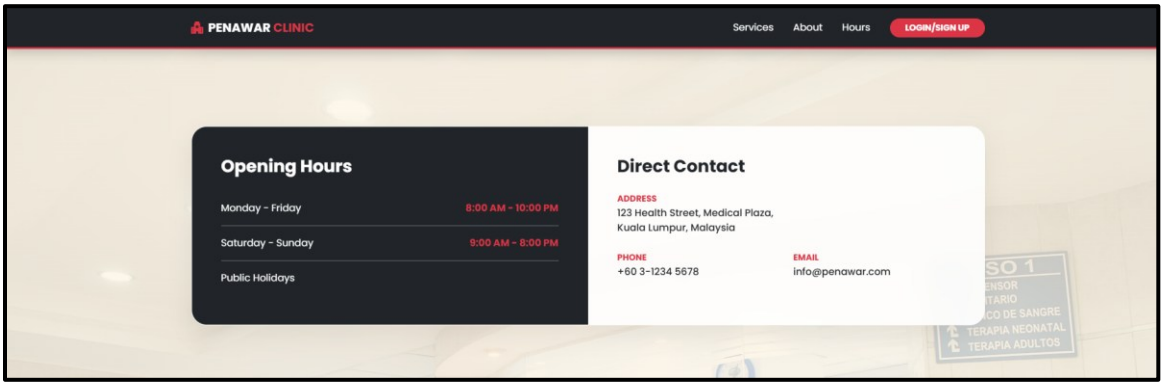

Figure 8.0 (a) Contact Information of Penawar Medical Clinic

The Contact Information (Support) section of our Penawar Medical Clinic website is designed to ensure that our patients can easily reach out to us whenever they need assistance. It provides clear and concise details for effective communication. The clinic's address is listed as 123 Health Street, Medical Plaza, Kuala Lumpur, Malaysia, so patients can easily locate us for in-person consultations or visits. For immediate support, we offer a direct phone number, +60 3-1234 5678, which allows patients to quickly get in touch for scheduling appointments, asking medical questions, or addressing urgent concerns. We also provide an email address, info@penawar.com, for those who prefer to communicate via email for non-urgent matters, allowing us to address their inquiries at our earliest convenience.

Additionally, the Opening Hours section clearly outlines when we are available, with operating hours from 8:00 AM to 10:00 PM Monday to Friday, and 9:00 AM to 8:00 PM on weekends. This helps patients understand the best times to contact us or visit, reducing any confusion about our availability. In summary, this section is a vital part of our website, ensuring that patients can easily access the information they need to connect with us and receive the care they deserve.

9.0 CONCLUSION AND REFLECTION

The development of the Penawar Medical Clinic (PMC) System serves as a definitive testament to the transformative power of integrating advanced web technologies with essential healthcare services. By systematically applying the CRUD framework, the project has successfully transitioned a traditional clinical workflow into a high-performance digital ecosystem that prioritizes data integrity, user accessibility, and operational agility. This system does not merely store information; it orchestrates a complex interplay between patient autonomy and administrative precision, ultimately reducing the friction inherent in medical scheduling and record management. The project successfully meets its core objectives of streamlining clinic operations and enhancing the user experience, proving that a well-architected digital solution can significantly diminish the administrative burden on medical professionals while simultaneously empowering patients. As the healthcare industry continues to move toward a more digitized future, the PMC System stands as a scalable and robust prototype for modern clinical management.

Reflecting on the development process, this project has been a profound journey through the intersection of technical architecture and human-centric design. The transition from a conceptual framework to a fully functional, role-based management system highlighted the critical importance of secure session handling and relational database integrity. We discovered that the true challenge of web development lies not just in writing code, but in ensuring that the digital logic reflects the nuanced needs of real-world users balancing the cold efficiency of a database with the empathetic requirements of a medical environment. This experience has deepened our collective understanding of Full-Stack development, specifically the synergy required between PHP logic and MySQL schemas to create a stable, cascading data environment.

Ultimately, the project has reinforced our belief that effective information systems are those that simplify complexity, fostering a more connected and efficient healthcare landscape for both the healer and the healed.

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