## DEVELOPMENT OF WEB-BASED E-HEALTHCARE SYSTEM USING PHP



**UNIVERSITI TEKNIKAL MALAYSIA MELAKA** 

## DEVELOPMENT OF WEB-BASED E-HEALTHCARE SYSTEM USING PHP

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This report is submitted in partial fulfilment of the requirements for the degree of Bachelor of Computer Engineering Technology (Computer Systems) with Honours

Faculty of Electronics and Computer Technology and Engineering Universiti Teknikal Malaysia Melaka

2025



4. Sila tandakan (✓):

Tarikh: 23/01/2025

#### UNIVERSITI TEKNIKAL MALAYSIA MELAKA

FAKULTI TEKNOLOGI DAN KEJURUTERAAN ELEKTRONIK DAN KOMPUTER

## BORANG PENGESAHAN STATUS LAPORAN PROJEK SARJANA MUDA II

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SYSTEM USING PHP

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#### **DECLARATION**

I declare that this project report entitled <u>Development of Web-Based E-Healthcare System</u>

<u>Using PHP</u> is the result of my own research except as cited in the references. The project report has not been accepted for any degree and is not concurrently submitted in candidature of any other degree.

Signature :

Student Name : NURUL IZZATI BINTI NASHARUDIN

Date : 23/01/2025

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### **APPROVAL**

I hereby declare that I have checked this project report and in my opinion, this project report is adequate in terms of scope and quality for the award of the degree of Bachelor of Computer Engineering Technology (Computer Systems) with Honours.

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Co-Supervisor :	
Name (if any)	
Date :	

#### **DEDICATION**

I dedicate this project to my parents, whose enduring support and belief in me have been the foundation of my achievements. Your love and encouragement have inspired me to strive for excellence and persevere through challenges.

To my friends and supervisor, thank you for your continuous guidance and encouragement.

Your insights and companionship have been invaluable throughout this journey, and I am deeply grateful for your unwavering support.

اونیورسینی نیکنیکل ملیسیا ملاك

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#### **ABSTRACT**

This project is about creating an online booking system for clinical consultations using mainly PHP, CSS and HTML. The goal is to make it easier for patients to schedule appointments according to their preferred choice of doctor, day and time. With this system, users can book, change, or cancel their appointments from home without any hassle. The platform is designed to be simple and easy to use, ensuring that patient information is kept safe and that appointment availability is updated in real time. It also includes helpful features current number of patient in-line and patient profiles. This online booking system will help clinics manage their appointments better and allow patients to take charge of their healthcare, leading to improved health outcomes and greater satisfaction.

The primary function of this website is to allow patients to book clinical consultations conveniently through an online platform. Additionally, patients can easily reschedule or cancel their appointments if needed, providing flexibility and reducing administrative burdens for clinics. The system also supports clinics by organizing appointments effectively, reducing overbooking, and providing insights into patient schedules.

By implementing this system, the project aims to create a more efficient and user-friendly booking concept, reducing unnecessary delays and improving overall patient satisfaction.

#### **ABSTRAK**

Projek ini adalah tentang membangunkan sistem tempahan atas talian untuk konsultasi klinikal menggunakan terutamanya PHP, CSS, dan HTML. Matlamatnya adalah untuk memudahkan pesakit menjadualkan temu janji mengikut pilihan doktor, hari, dan waktu yang diinginkan. Dengan sistem ini, pengguna boleh membuat, menukar, atau membatalkan temu janji mereka dari rumah tanpa sebarang kesulitan. Platform ini direka agar mudah digunakan dan mesra pengguna, memastikan maklumat pesakit kekal selamat dan ketersediaan temu janji dikemas kini secara masa nyata. Ia juga merangkumi ciri-ciri berguna seperti bilangan semasa pesakit dalam barisan, dan profil pesakit. Sistem tempahan ini akan membantu klinik menguruskan temu janji dengan lebih baik serta membolehkan pesakit mengawal penjagaan kesihatan mereka, membawa kepada hasil kesihatan yang lebih baik dan kepuasan yang lebih tinggi.

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Fungsi utama laman web ini adalah untuk membolehkan pesakit menempah konsultasi klinikal dengan mudah melalui platform atas talian. Selain itu, pesakit juga boleh menjadualkan semula atau membatalkan temu janji mereka jika diperlukan, memberikan fleksibiliti dan mengurangkan beban pentadbiran bagi pihak klinik. Sistem ini turut membantu klinik dengan mengatur temu janji secara efektif, mengelakkan tempahan berlebihan, dan memberikan pandangan yang jelas tentang jadual pesakit.

Dengan melaksanakan sistem ini, projek ini bertujuan untuk mewujudkan konsep tempahan yang lebih cekap dan mesra pengguna, mengurangkan kelewatan yang tidak perlu serta meningkatkan kepuasan pesakit secara keseluruhan.

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First and foremost, I would like to express my deepest gratitude to my beloved parents for their unconditional love, endless prayers, and unwavering support throughout my academic journey. Their belief in my abilities has been my constant source of motivation, providing me with the strength to persevere through every challenge. My family, including my brother and my little brother, has been my pillar of strength, offering emotional and moral support that has been invaluable.

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My heartfelt appreciation goes to my supervisor, Ts. Niza Binti Mohd Idris for her invaluable guidance, patience, and expertise throughout this project. Her constructive feedback and encouragement have been instrumental in shaping the success of this work. Additionally, I

would like to extend my gratitude to Universiti Teknologi Melaka Malaysia (UTeM) for its resources and support, which have significantly contributed to the completion of my studies.

Lastly, I want to take a moment to acknowledge myself—for believing in my capabilities, for working tirelessly, and for persevering through every obstacle. This achievement is a testament to the hard work, dedication, and determination I have put forth.



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## LIST OF SYMBOLS



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## LIST OF ABBREVIATIONS



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#### **CHAPTER 1**

#### **INTRODUCTION**

#### 1.1 Background

Web-based technology offers a range of online services that cater to nearly every business, significantly reducing duties, expenses, and labor costs. This article delves into the concept of a web-based infrastructure designed to facilitate various medical and hospital procedures through Web and networking technology. Such a platform would support the implementation of online medical administration capabilities, streamlining tasks like managing doctor schedules, administering patients, and maintaining accessible patient information across the facility. By leveraging customized application programming, we developed a web application to efficiently manage, communicate, store, and update patient data online, addressing numerous time-consuming and cumbersome tasks[1]. The process typically involves long waiting times and repetitive paperwork which can be particularly burdensome for individuals with demanding schedules. This inefficiency not only frustrates patients but also places a strain on healthcare providers who must manage the administrative load alongside their clinical responsibilities. In response to the increasing demand for more convenient and safe healthcare solutions, this project aims to develop a simple website for online medical booking. The primary goal of this project is to make medical appointments easier and straightforward for patients [3]. This platform offers a more adaptable, effective, and patient-centered approach, with the goal of revolutionizing the conventional healthcare experience.

Healthcare today faces challenges that make it harder for patients to access services and for clinics to manage their operations efficiently. Patients often struggle to book appointments due to limited clinic hours, personal constraints, or difficulties in contacting clinics. On the other hand, manual processes for tasks like patient registration, appointment scheduling, and billing lead to delays, errors, and inefficiencies. These issues can affect the quality of healthcare and create unnecessary frustration for both patients and healthcare providers.

This project aims to solve these problems by developing a Web-Based E-Health Care System. The system allows patients to register, view doctor schedules, and book appointments online from anywhere, anytime. It also provides features for doctors to manage their schedules and an admin dashboard to oversee the entire system. By automating key processes, the system reduces errors, saves time, and improves the overall efficiency of healthcare services.

Built using PHP, MySQL, and CSS, the platform is simple, responsive, and user-friendly. PHP ensures seamless server-side functionality, MySQL handles large amounts of structured data efficiently, and CSS enhances the interface for better user experience. This system not

only makes healthcare more accessible for patients but also simplifies clinic management, ensuring smoother and more effective operations.

#### 1.2 Addressing Global Warming Through Online Consultation Project

A web-based e-healthcare system can contribute to addressing global warming by reducing the environmental impact of traditional healthcare processes. By offering online appointment booking and virtual consultations, the system minimizes the need for physical travel, which reduces carbon emissions from vehicles. Additionally, it decreases the use of paper for records and scheduling by digitizing these processes, contributing to less deforestation and waste. By adopting sustainable, technology-driven solutions like this, healthcare facilities can play a role in promoting environmental sustainability while improving accessibility and efficiency for patients.

#### 1.3 Problem Statement

In traditional healthcare systems, patients are required to visit clinics or medical centers regularly for checkups and consultations, which is often inefficient and time-consuming. During peak times, clinics can become overcrowded, forcing patients to wait long hours for consultations, which is particularly inconvenient and stressful when they are unwell. The current method of scheduling appointments and registering patients is tedious and outdated. Typically, patients either visit the hospital to fill out registration forms and wait to be called

or attempt to book appointments over the phone, often waiting for responses on prearranged dates.

Healthcare professionals, such as doctors and nurses, often work under immense pressure when the number of patients exceeds what they can manage comfortably, leading to decreased efficiency and potential burnout. These issues highlight the need for a more efficient system to reduce waiting times, ease the burden on healthcare workers, and provide better service to patients. To address these challenges and improve the quality, accessibility, and efficiency of healthcare, a web-based system where patients can conveniently book appointments should be developed. Below are the main problems with continuing to rely on traditional appointment booking methods.:

- 1. **Limited Accessibility for Patients:** Patients often face challenges in booking appointments due to clinic hours, personal constraints or difficulty in contacting the clinic. This lack of accessibility can prevent timely medical attention, particularly for patients with busy schedules or mobility issues.
- Manual Administrative Tasks: The reliance on manual processes for tasks such as
  patient registration, appointment scheduling, and billing leads to inefficiencies, errors,
  and delays in service delivery.

3. **Inefficient Appointment Scheduling:** Traditional appointment scheduling methods often involve manual processes, which potentially lead to double bookings, errors, and long waiting times.

#### 1.4 Project Objective

The primary objective of this project is to enhance the quality, accessibility, and efficiency of healthcare services. It is therefore imperative that an integrated computerized healthcare management system be developed. Many kinds of different approaches have been proposed to address these issues and streamline the waiting period, such as online patient registration and appointment scheduling, among other things.

Specifically, the objectives are as follows:

- 1. To design a simple e-healthcare system for online booking appointments.
- 2. To manage databases for efficient storage of patient data.
- 3. To provide a convenient platform for patients to find doctors and schedule appointments anytime, anywhere.

#### 1.5 Scope of Project

In order to meet the project's objectives, a modern and simple e-healthcare system with sophisticated features and functionality must be designed and developed. By addressing the shortcomings of current health care services and offering end users a methodical means of consultation, the goal is to develop a holistic solution. These are the main elements that the project will cover:

#### 1. Software Development

- Develop a user-friendly and straightfoward software interface for the doctors, nurses and patients.
- Use PHP for server-side scripting and database interaction.
- Utilize CSS and HTML for front-end design and responsiveness.
- Implement a MySQL database for storing patient, doctor, and appointment data securel

#### 2. Appointment Management

- Create an appointment scheduling system that allows patients to book, reschedule, or cancel appointments with ease.
- Allow patients to register, log in, and manage their profiles.
- Provide real-time access to appointment availability and schedules for selected doctors.

The scope of this project is to develop an Online Appointment Booking System using PHP, CSS, and HTML, designed to simplify the scheduling process for both patients and clinics. The system will allow patients to book, reschedule, or cancel appointments easily and view real-time availability. Admins can manage schedules, patient records, and appointment statuses efficiently. A secure MySQL database will ensure data confidentiality, while a responsive design will make the system accessible across devices. While the current scope focuses on core booking functionalities, future enhancements may include payment integration and telemedicine features.

#### **CHAPTER 2**

#### LITERATURE REVIEW

#### 2.1 Introduction

Healthcare services have greatly improved with the help of technology, especially when it comes to scheduling appointments. Traditional methods, like booking appointments in person or over the phone, can be frustrating and inefficient. Patients often deal with long waiting times, double bookings, and missed appointments, which can make the whole experience stressful. For clinics, managing appointments manually can be time-consuming and prone to mistakes. To solve these issues, researchers and developers have worked on creating digital solutions like online booking systems and mobile apps. These systems are designed to make things easier for both patients and healthcare providers by saving time, reducing errors, and improving overall experience.

In recent years, many studies have explored how online and mobile appointment systems can make healthcare more accessible and convenient. Researchers have looked at different features, like easy-to-use interfaces, real-time updates, and automated reminders, which help patients manage their appointments better. Some studies also focus on keeping patient data secure and meeting healthcare privacy rules. Features like patient profiles and doctoral availability tracking are often highlighted as essential for a good booking system. This

review will look at what has already been done in this field, the challenges faced, and how these systems can continue to improve healthcare services for everyone involved.

#### 2.2 Understanding [Global/Current Issue] in the Literature

Digital healthcare solutions are helping to address major global problems like poor access to care, inefficient processes, and low patient involvement. Traditional ways of booking appointments, such as in-person visits or phone calls, are not keeping up with modern needs. These outdated methods often lead to missed appointments, overcrowding in clinics, and extra work for staff. Studies show that these issues are even worse in rural or underdeveloped areas where healthcare services are harder to access. Online booking systems aim to solve these problems by making it easier for patients to schedule appointments while also helping clinics work more efficiently.

Recent studies focus on making these systems secure, easy to use, and capable of handling a large number of users. Features like real-time updates, automated reminders, and links to medical records are seen as important for improving healthcare services. However, challenges such as keeping patient data safe, getting people to use the system, and handling technical issues still exist. Understanding these issues through research helps in developing better solutions to improve healthcare services around the world.

## 2.3 Development of E-Healthcare Management System using PHP, JavaScript and Cascading Style Sheets

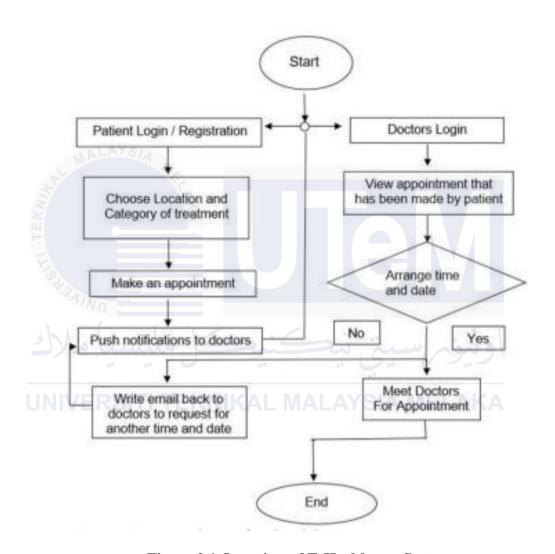


Figure 2.1 Overview of E-Healthcare System

Figure 2.1 shows healthcare management system flowchart. The patient first signs up with the system. The patient can schedule a new appointment by selecting the therapy type and location after logging into their account. It notifies doctors via pushing notifications after scheduling an appointment. The doctor can then simply log in to the account using the email address and password that the administrator sent . The patient's appointment is viewed by the doctor. The patient's requested time can be scheduled by the doctor based on their

availability. In the event that the doctor is unavailable, they will reschedule the appointment to accommodate their schedule and send the patient a confirmation email. If a doctor appointment is available, the patient can review the confirmation.

#### 2.3.1 Designing Webpage

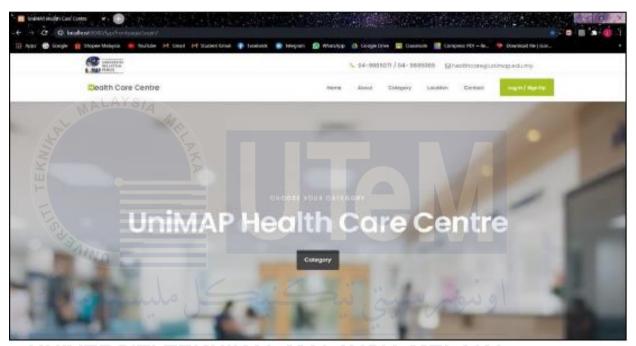


Figure 2.2 Homepage Health Care Centre

The webpage is designed to be displayed at the localhost phpMyAdmin when the interface is created using the phpMyAdmin server[2]. Different kinds of animations and effects are designed into the webpage using the Cascading Style Sheets (CSS) programming language. This will present a positive image to the consumer and encourage frequent use. The entire appointment system can be shown as a webpage once it has been designed. Connecting the PHP and JavaScript code to the planned webpage creates a whole system. The homepage of the E-Healthcare Management System is seen in Figure 2.2.

#### 2.4 A Doctor Appointment Application System

#### 2.4.1 Block Diagram

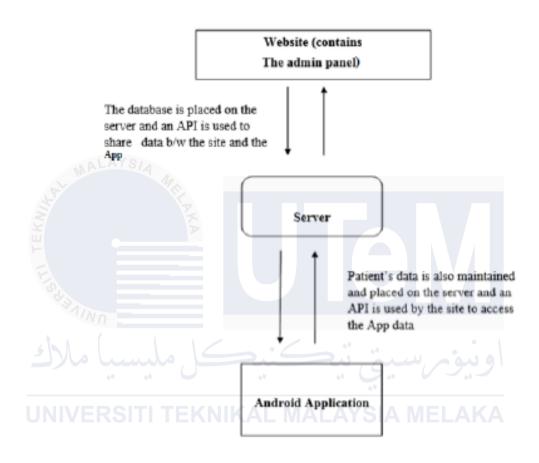


Figure 2.3 Block diagram of the appointment application

Initially, the user will download and install the application on their mobile device. The application's block diagram is displayed in Figure 2.3. Until the user removes or uninstalls it, this program will stay installed on the device indefinitely. Once the installation is complete, the splash screen with the application's logo will show up when the user clicks on the app icon, as seen below[3].

#### 2.4.2 Selecting Day and Time For Appointment



Figure 2.4 The selected day & time slot

When the "book appointment" button is clicked, a calendar with several slots that are open appear on the screen. The patient must choose a day and time and email a request for an appointment. In accordance, the central database is updated. If the appointment is successfully entered into the database, the user will receive a notice message stating that it has been added.

## 2.4.3 Software Development Tools

These are the software tools used during the development process of making an Android Studio application.

- Android studio 2.1.1 and SDK plug-in
- JDK 6
- Android 6.0 (Marshmallow) installed packages.



# 2.5 NUCare: A Framework for Mobile and Web Application For Online Consultation In One University In Manila

## 2.5.1 System Architecture

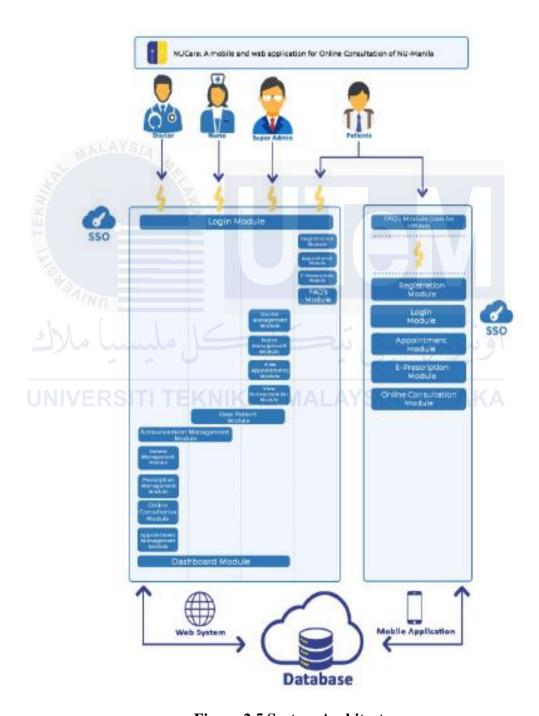


Figure 2.5 System Architecture

Figure 2.5 depicts the architecture of the system. For both mobile and web applications, it provides the essential modules, including dashboard, FAQ chatbot, appointment management, announcement management, prescription management, laboratory referral management, medical certificate management, patient management, view patient, and user management. Other modules include registration, announcement, appointment, e-prescription, and medical certificate[4].



### 2.5.2 Booking An Appointment



**Figure 2.6 Selecting Types of Appointment** 

Patients may set up a virtual or online consultation session for the time and day of their choice using Microsoft booking.

#### 2.5.3 Announcements

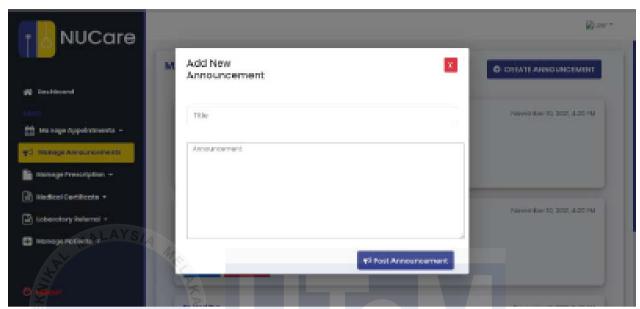


Figure 2.7 Announcements (Doctors/Nurse)

This module can be managed by the physicians and nurses. They can choose to write a notice that will be distributed to the patients. They may consist of only text, pictures, or post links. It is possible to amend and remove the released announcements.

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#### 2.5.4 Chatbot

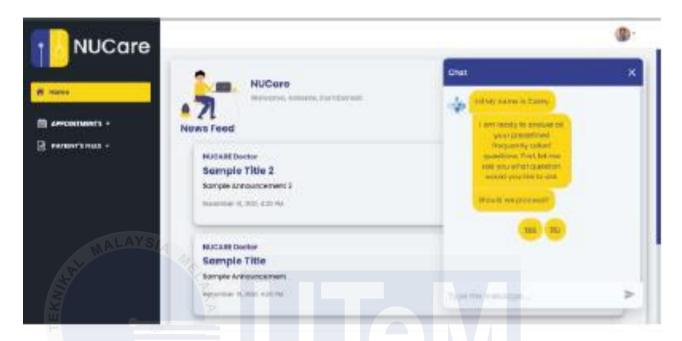


Figure 2.8 NU Care Chatbot

Patients can ask pre-programmed questions through this chatbot.

# 2.6 Java-Powered Digital Healthcare Management: Innovating Medical

Administration Systems AL WALAYSIA MELAKA

#### 2.6.1 Software Tools

The following is the list of software tools used.[1]

- JSP
- Servlets
- Java Script
- SQL
- Java
- Minimum 40GB hard drive

# 2.7 Online Hospital Appointment Booking

#### 2.7.1 Software Tools

The following is the list of software tools used for frontend.

- HTML (Hypertext Markup Language)
- CSS (Cascading Style Sheets)
- JavaScript

The following is the list of software tools used for backend.

- PHP
- MySQL

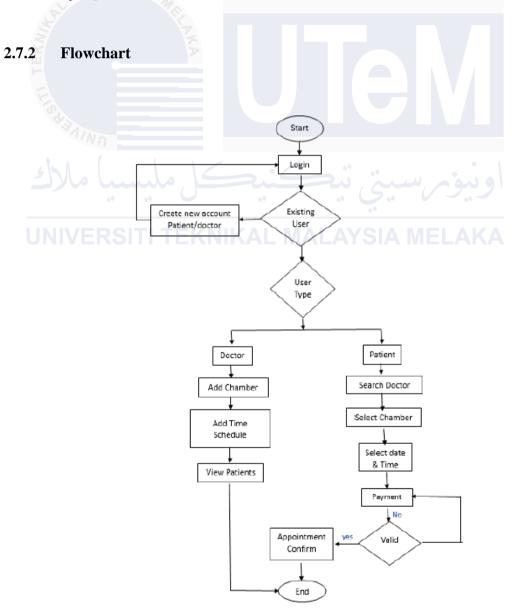


Figure 2.9 Flowchart

The flowchart above visually represents the sequential steps involved in the appointment booking process. It begins with the user logging into the system, followed by the creation of an account if the user is new. Once logged in, patients can search for available doctors, view their profiles, and select a preferred appointment date and time. After confirming the appointment, the system sends notifications to both the patient and the doctor, ensuring effective communication. Additionally, the flowchart illustrates the administrative functions, where the admin can manage doctor and patient data, oversee appointments, and maintain the overall system integrity. This structured approach enhances user experience and streamlines the appointment scheduling process, making healthcare more accessible and efficient[5].

#### 2.7.3 Design Interface

The frontend design is highly user-friendly and straightforward. Upon launching the application, a registration window appears, prompting the user to register for the first time. After successful registration, the user can log into the application and schedule appointments based on their needs and preferences. All booked appointments are managed by the admin, who is also responsible for registering doctors. Admins have the ability to access patient records, review feedback, and address any issues that may arise. On the backend, a server functions as a database to store various types of data, including registration information, doctor details, and patient records. This data is organized in a database and can be shared between the website and the server using APIs.

# 2.8 Development of These Categorization System Search Engine Using PHP and MvSQL

#### 2.8.1 PHP

PHP is commonly used alongside MySQL as a database application. When a web visitor requests a web page containing a PHP script, the web server processes the file using its PHP plug-in before sending a response to the visitor's browser. Specific PHP commands are used to connect to the MySQL database and retrieve the content associated with the requested web page. MySQL sends the requested data to the PHP script, which stores it in one or more PHP variables. Finally, PHP generates the HTML content and sends it back to the web server, which delivers it to the web browser as a response to the initial request[6].

#### 2.8.2 MySQL

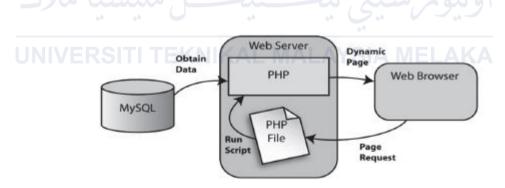


Figure 2.10 PHP and MySQL data

A database is a structured collection of information where interconnected data is stored and can be accessed for various applications within an organization. MySQL, a Relational Database Management System (RDBMS), allows users to efficiently store, search, sort, and retrieve data. Known for its speed and reliability, MySQL ensures data security by allowing access only to authorized users while supporting multiple simultaneous users for fast data access.

MySQL uses Structured Query Language (SQL), the standard language for managing and querying databases. In this study, MySQL is used to create a search menu for theses and dissertations, integrated with PHP for implementation on an OPAC website. The MySQL database runs on the XAMPP Control Panel alongside the Apache web server. The web server handles HTTP and HTTPS requests, responding with HTML documents. Apache, part of the XAMPP package, is used in this project due to its ease of installation and simple configuration process.

# 2.9 Designing an Application of Online Bookstore Website based on PHP

# 2.9.1 PHP Technology

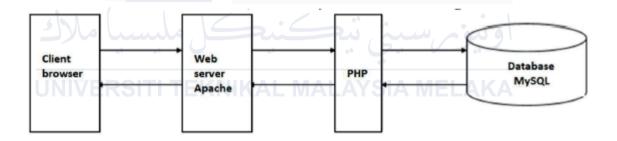


Figure 2.11 Program working process

#### 2.9.2 Database Design

fieldname	Datatype	primary key	nul1	default
Id	INT(10)	Y	N	null
username	VARCHAR(20)	N	N	null
gender	VARCHAR(2)	N	Y	null
password	VARCHAR(20)	N	N	null
Tel	VARCHAR(20)	N	Y	null
Role	VARCHAR(20)	N	Y	null
Email	VARCHAR(50)	N	Y	null

Figure 2.12 The user database table

The image represents a database table schema, defining the structure of a table named "users." It specifies the data type, primary key status, null constraint, and default values for each field in the table. The table has seven columns: Id (an integer primary key), username, gender, password, Tel, Role, and Email. The gender, Tel, Role, and Email fields are nullable, meaning they can be left empty, while the rest are required fields. All fields have a null default value[7].

#### 2.10 Project Clinik

#### 2.10.1 Development Methodology

The project utilized a developmental research design, which is particularly effective in creating and assessing new systems. This approach allowed the researchers to follow a structured Software Development Life Cycle (SDLC), encompassing stages such as planning, requirements definition, design, development, testing, and maintenance.

#### 2.10.2 Defining the Stage of Requirements

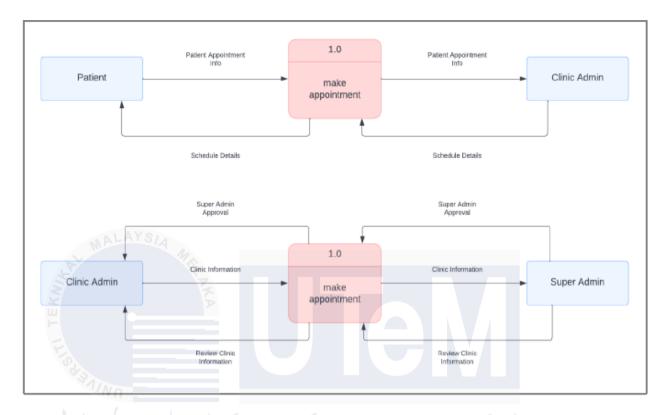


Figure 2.13 Data Flow Diagram – Context Level

The gathering, comprehension, and documentation of the business requirements required for Project Clinik's development constitute the defining requirements stage of the Software Development Life Cycle (SDLC)[8]. The researchers used a variety of strategies, including making processes and diagrams, to completely understand the importance of the project. The data flow diagram (DFD), which is seen in Figure 2.13, was one of the diagrams used to illustrate the data flow between external parties and the system's activities and data storage. With the use of these techniques, the researchers were able to comprehend exactly what was needed for Project Clinik to be developed successfully and meet the needs of the target audience.

#### 2.10.3 Design and Prototyping Stage

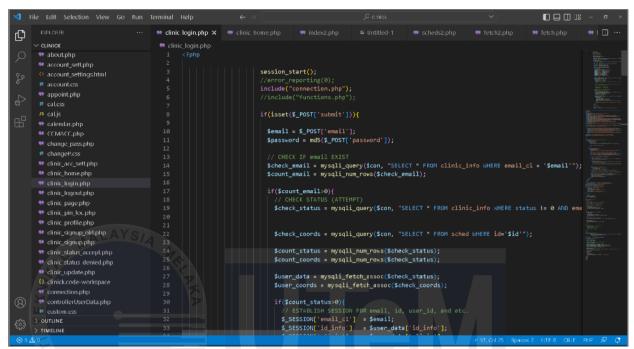


Figure 2.14 Integrated Development Environment – Visual Studio Code

During the design and prototyping phase, the researchers carried out activities to create and develop the system. Several integrated development environments (IDEs), such as Visual Studio Code and XAMPP, were used in this process. Figure 2.14 illustrates the Visual Studio Code IDE.

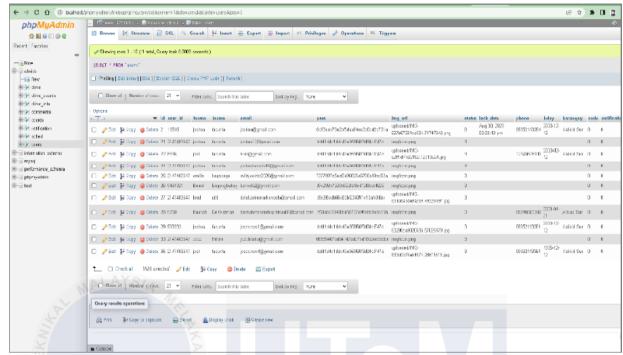


Figure 2.15 MySQL Interface – PHP My Admin

During the design and prototyping phase, the researchers focused on building and developing the actual system. The study utilized several integrated development environments (IDEs), such as XAMPP and Visual Studio Code. Figure 2.16 depicts the MySQL admin interface.

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#### 2.11 Doctor Finder and Appointment Booking Website

#### 2.11.1 Design Interface

The front-end design is highly user-friendly and easy to navigate[9]. When the application is launched, a registration window appears, requiring users to register for the first time. Once registered, users can log in and book appointments based on their needs and preferences. All appointments are managed by the admin, who is also responsible for registering doctors. Admins have the authority to view patient records, review feedback, and resolve any issues.

At the back-end, a server functions as a database to store all the necessary data, including user registration details, doctor information, and patient records. This data is organized in the database and can be shared between the website and the server using APIs.

#### 2.11.2 Development Tools

- Python
- Django
- HTML
- Java Script
- CSS

# UteM

### 2.11.3 Implementation

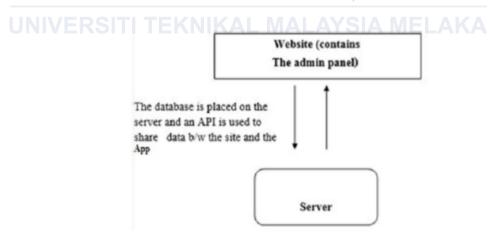


Figure 1: appointment application

Figure 2.16 Appointment application

To access the system, the user must visit the website using the provided URL. The process is outlined in the block diagram. Upon visiting the website for the first time, the user needs to register by providing required information such as username, email ID, and other

mandatory fields. After successful registration, the user will receive a username and password for future logins.

To book an appointment, the user must log in to the website and navigate to the appointment booking page. On this page, they need to fill in details such as the patient's name, mobile number, symptoms or issues, the department they need to visit, and the preferred appointment date. Once all the details are entered, the user can click the "Confirm" button to finalize the appointment. The data is saved in the database upon confirmation.

After successfully booking an appointment with the desired doctor and date, the user can use the GPS navigation system to locate the hospital or doctor's address. Once the process is complete, the user can easily log out of their account. The signup and logout processes are illustrated in the corresponding figures.

#### 2.12 Web Based Hospital Management System

#### 2.12.1 Implementation

Patients can use the system to create an account, schedule doctor appointments, and view their appointment history. Through this module, patients can select a doctor based on specialization and availability, book appointments, and pay consultation fees online once they receive a prescription. Payments can be made securely, eliminating the need to carry cash, and an electronic receipt is sent to the patient's registered email for reference or reimbursement purposes.

To register, patients must provide details such as their first name, last name, contact information, email ID, password, and gender on the registration page, which is available

directly on the home page. After clicking the "Register" button, the patient is directed to their dashboard, where they can book an appointment by selecting a doctor, date, and time. The consultancy fee is displayed, and once the "Create New Entry" button is clicked, an acknowledgment confirms the successful booking. Patients can then log in to view their dashboard, where they can access appointment details, including the doctor's name, consultation fee, appointment date, time, and status.

For patients who have already registered, they can log in using their credentials instead of registering again. After successful login, they are redirected to their dashboard to perform actions like scheduling new appointments or reviewing their history.

The platform also ensures security with a login authentication system, allowing only authorized users to access or modify data. In case of any issues with payments or bookings, patients can contact customer support through the platform for assistance[10].

Doctors have a separate module managed by the admin, who provides login credentials to access their accounts. Doctors can log in, switch to their dashboard, and view appointments made by patients. They can also provide prescriptions by recording details such as the disease, allergies, and medicines prescribed. Doctors can update appointments, treat patients, and store prescriptions online, which patients can later access.

To streamline managing large numbers of appointments, a search bar in the navigation menu allows doctors to quickly find patients by their phone numbers. After completing their tasks, doctors can log out of their accounts. This system enables doctors to efficiently view appointments, treat patients, and manage their schedules in real-time.

# 2.13 Comparison of Previous Related Projects

To better understand the significance and uniqueness of this project, a comparison with previous related projects is essential. This comparison highlights the features, technologies, and limitations of existing systems while identifying gaps that this project aims to address. By analyzing similar systems, we can gain insights into common challenges and best practices, ensuring this project builds upon past efforts while offering improvements in accessibility, efficiency, and user experience. The table below provides an overview of the similarities and differences between this project and other related works.

No	Title	Language	Advantages	Disadvantages
[1]	Java-	- JavaScript	Java	Java
	Powered_Digit	- SQL	Platform independence	Applications can be slower
	al_Healthcare_	- JSP	JSP	JSP
	Management_i	- Java	Can be used across	May have performance issues
	nnovating_Me	ک ملسیا ہ	different web browsers.	SQL
	dical_Administ		SQL	Handling very large datasets and
	ration_Systems	ERSITI TEKN	Providing flexibility in	ensuring high performance can be
			database selection	challenging
[2]	Development	- phpMyAdm	PHP	РНР
	of E-	in	Easy to learn and use.	May have performance issues with
	Healthcare	- CSS	Compatible with various	high-traffic sites.
	Management	- JavaScript	databases, including	JavaScript
	System using	- PHP	MySQL.	Can slow down page load times
	PHP,	- Notepad++	JavaScript	and performance.
	Javascript and		Versatile for both front-	MySQL
	Cascading		end and back-end	May not scale well for extremely
	Style Sheets		development.	large datasets.
			CSS	
			Provides control over	
			design and layout.	
			MySQL	

			Open-source and free to	
			use.	
[3]	Mr Doc A	- Near Field	Android	Android
	Doctor	Communica	Open source	Potential security vulnerabilities.
	Appointment	tion (NFC)	User-friendly interface	Android Studio
	Application	- HTML	Android Studio	Complex initial setup.
	System	- PHP	Pre-designed code	PHP
	N	- Android	templates.	May be slower than other server-
	75,	- Android	PHP	side languages.
	IK	Studio 🗲	Efficient for dynamic	HTML
	F		web pages.	Requires CSS for design and
	150		HTML	layout
	N. S.	Nn -	Provides clear web	MySQL
	1213		content structure.	Lacks some advanced features of
	عالاك	عل مليسيا ه	MySQL	other databases.
			Free and open source.	
[4]	NUCare A	HTML	Java – WAI – AVIS IA	Java
	Framework for	- Java	Platform independence.	Slower than languages like C++.
	Mobile and	- CSS	HTML	HTML
	Web		Works well with CSS and	Relies on CSS for design.
	Application for		JavaScript.	CSS
	Online		CSS	Time-consuming to fix issues
	Consultation in		Adapts to different	
	One University		devices.	
	in Manila			
[5]	Online	- PHP	PHP	PHP
	Hospital	- MySQL	Efficient for dynamic	May be slower than other server-
	Appointment	- JavaScript	web pages.	side languages.
	Booking	- CSS	MySQL	MySQL
		- HTML	Open-source and free.	

				Scalable for	or sma	all to large	May not scale well for extremely
				databases.		S	large datasets.
				JavaScrip	t		JavaScript
				Versatile		oth front-	Can slow down page load times
				end an		back-end	and performance.
				developme			CSS
				CSS			Time-consuming to fix issues
				Adapts	to	different	HTML
				devices.			Requires CSS for design and
				HTML			layout
	N		SIA	Works we	ll with	n CSS and	
	12		TI.	JavaScript			
[6]	Development	_	PHP S	PHP			PHP
	of These	-	MySQL	Efficient	for	dynamic	May be slower than other server-
	Categorization	_	HTML	web pages	•		side languages.
	System Search	/NO	XAMPP	MySQL			MySQL
	Engine Using			Open-sour	ce an	d free.	May not scale well for extremely
	PHP and		کل ملب	Scalable for small to large		all to large	large datasets.
	Mysql			databases.		••••	HTML
	UNIV		TI TEKN	HTML		AYSIA	Requires CSS for design and
				Works we	ll with	n CSS and	layout
				JavaScript			
				XAMPP			XAMPP
				Comprehe	nsive	(Apache,	Might conflict or overwrite
				PHP, MySQL).			existing configurations if Apache,
				Easy Setu	p.		MySQL or PHP is aready installed
[7]	Design an	-	Apache	Apache			Apache
	Application of	-	MySQL	Free to	use a	and open	MySQL
	Online	-	Phython	source			May not scale well for extremely
	Bookstore	-	PHP	MySQL			large datasets.
	Website based			Open-sour	ce an	d free.	Phython
	on PHP						

			Scalable for small to large databases.  Phython  Has a simple and readable syntax, making it beginner-friendly.  PHP  Efficient for dynamic web pages.	Slower than compiled languages like C++ or Java due to its interpreted nature.  PHP  May be slower than other serverside languages.
[8]	Project Clinik  UNIV	- XAMPP - MySQL - Visual Studio Code - PHP	XAMPP Comprehensive (Apache, PHP, MySQL). Easy Setup. MySQL Open-source and free. Scalable for small to large databases. Visual Studio Code Runs on Windows, macOS, and Linux. PHP Efficient for dynamic web pages.	XAMPP Might conflict or overwrite existing configurations if Apache, MySQL or PHP is aready installed. MySQL May not scale well for extremely large datasets. Visual Studio Code PHP May be slower than other server-side languages.
[9]	Doctor Finder and Appointment Booking Website	<ul><li>Python</li><li>Django</li><li>HTML</li><li>Java script</li><li>CSS</li></ul>	Python  Has a simple and readable syntax, making it beginner-friendly  Django  Built-in admin interface allows quick management of database records	interpreted nature. <b>Django</b> Performance Overhead

		<u> </u>	1112 1	D . CCC . 1 . 1]
			without additional	
			coding.	layout
			HTML	JavaScript
			Works well with CSS and	Can slow down page load times
			JavaScript.	and performance.
			JavaScript	CSS
			Versatile for both front-	Time-consuming to fix issues
			end and back-end	
			development.	
			CSS	
	L N	ALAYSIA	Adapts to different	
	T.A.	THE PARTY OF THE P	devices.	
	EKA	× ×		
[10]	Web Based	- HTML	HTML	HTML
	Hospital	- CSS	Works well with CSS and	Requires CSS for design and
	Management	JavaScript	JavaScript.	layout
	System	- PHP	CSS	CSS
	عالاك	- XAMPP	Adapts to different	Time-consuming to fix issues
			devices.	JavaScript —
	UNIV	ERSITI TEKN	JavaScript	Can slow down page load times
			Versatile for both front-	and performance.
			end and back-end	РНР
			development.	May be slower than other server-
			РНР	side languages
			Efficient for dynamic	XAMPP
			web pages.	Might conflict or overwrite
			XAMPP	existing configurations if Apache,
			Comprehensive (Apache,	MySQL or PHP is aready installed
			PHP, MySQL).	
			Easy Setup.	

Table 2.1 Comparison of previous related project

#### 2.14 Summary

In summary, the literature highlights the growing importance of technology in improving efficiency and convenience in various fields, including healthcare. Web-based systems have transformed traditional processes by allowing tasks such as patient registration, appointment booking, and data management to be done online. This not only reduces waiting times and manual effort but also enhances accessibility for users.

Furthermore, studies emphasize the need for user-friendly designs, secure data handling, and seamless integration of advanced features like online payments, GPS navigation, and appointment tracking. Challenges such as system performance, scalability, and ensuring privacy must also be addressed.

Overall, the insights from the literature show that adopting modern web technologies can significantly improve user experience, simplify complex tasks, and create a more connected and efficient environment. However, careful planning and continuous improvement are essential to meet user needs and ensure the success of such systems.

#### **CHAPTER 3**

#### **METHODOLOGY**

#### 3.1 Introduction

Developing an online platform for medical appointment booking requires a clear and organized approach to ensure the project meets its goals effectively. This section explains the step-by-step process used to design, build, and implement a secure and easy-to-use system. The process is divided into key stages: understanding the requirements, designing the system, building it, testing it, and finally deploying it. Each stage is carefully planned to ensure the project runs smoothly and achieves its purpose.

The tools and technologies used include XAMPP, which helps manage the server and database, MySQL for storing and managing data, and PHP for creating the system's backend. These tools were chosen because they are reliable, easy to work with, and fit the needs of the project. The following sections will explain each stage of the process in detail, showing how they were carried out to successfully create the online appointment booking platform..

#### 3.2 Selecting and Evaluating Tools for Sustainable Development

Choosing the right tools and technologies is a critical step in ensuring sustainable development for the online appointment booking system. The tools selected must not only meet the current requirements but also allow for future scalability, reliability, and maintainability. For this project, PHP was chosen as the primary server-side scripting

language due to its flexibility, ease of integration with web technologies, and widespread use in web development. MySQL was selected for database management because it is a robust and efficient relational database system that ensures secure and scalable data storage. The XAMPP platform, which includes Apache, MySQL, PHP, and Perl, was used as the local development environment for its simplicity and ability to streamline server and database interactions during development. Additionally, CSS and HTML were used for creating an intuitive and responsive user interface, ensuring positive user experience across devices. These tools were evaluated based on factors such as compatibility, ease of use, cost-effectiveness, and long-term sustainability. By selecting these proven technologies, the project ensures that the developed system will be reliable, secure, and capable of adapting to future demands, aligning with the principles of sustainable development.

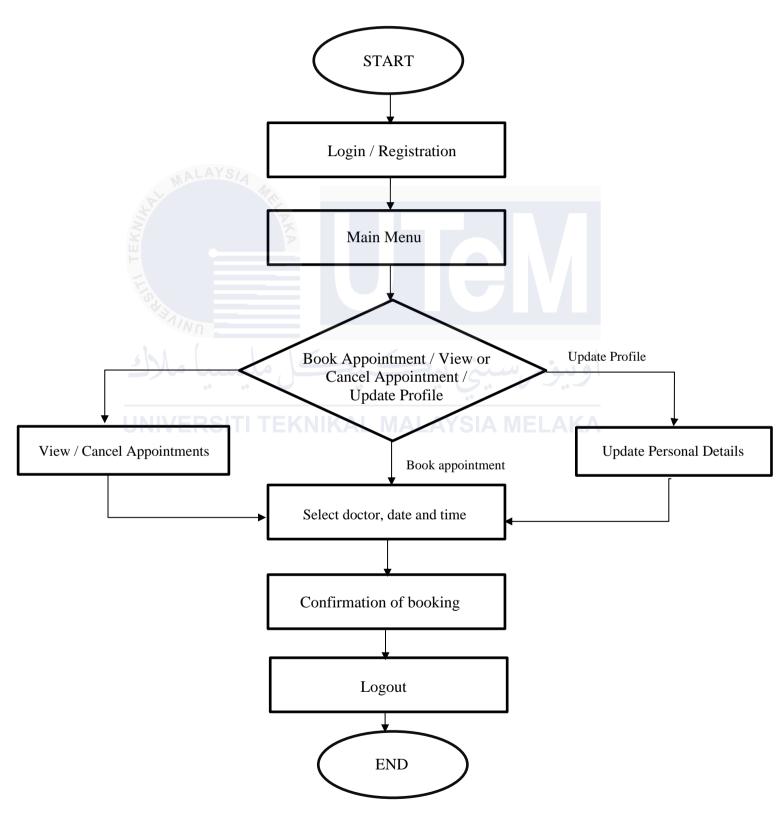
#### 3.3 Methodology

This project focuses on building a web-based infrastructure using XAMPP and PHP to enable patients to book doctors appointments online in. Its architecture features a reliable PHP backend for dynamic functionality, complemented by an intuitive frontend built using HTML, CSS, and JavaScript. MySQL is used for database management, offering secure data handling and efficient client-server communication.

The system's workflow, from user registration to choosing available doctors and selecting preferable date and time is outlined in a detailed flowchart. This flowchart also illustrates the seamless interaction between the frontend, backend, and database. Meticulous testing and regular updates and monitoring are incorporated to maintain the security, functionality, and usability of the system, making it a practical solution for online medical consultations.

#### 3.4 Elaboration of Process Flow

#### 3.4.1 Flowchart



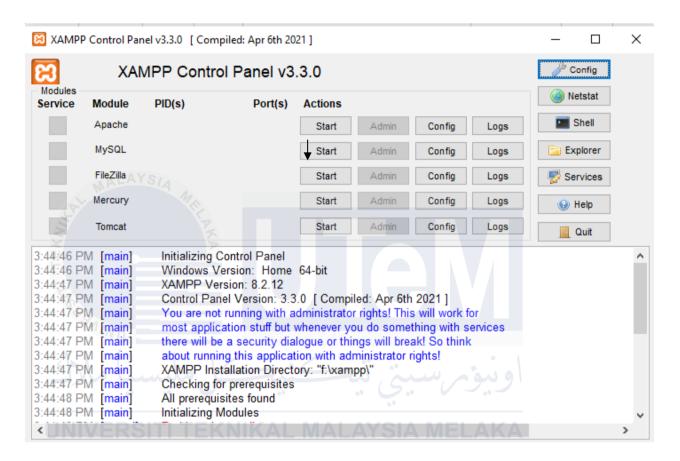
The flowchart explains how the online appointment booking system works from start to finish. It begins with the user accessing the website and either logging in or registering as a new patient. Once logged in, the user can choose to book, view, or cancel an appointment, or update their profile. For booking an appointment, the user selects a doctor, date, and time, and the system checks availability in the database. If the slot is available, the booking is confirmed and saved in the database.

The system also allows users to view their existing appointments and cancel them if needed. All changes are updated in real-time to ensure accuracy. Additionally, patients can update their personal details, which are securely stored in the database. Throughout the process, the frontend (user interface), backend (PHP scripts), and database (MySQL) work together to manage user requests and data securely and efficiently. The flowchart highlights the smooth communication between these components and ensures users have a clear and hassle-free experience.

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#### 3.5 Software Requirement

#### 3.5.1 XAMPP



**Figure 3.1 XAMPP Control Panel** 

XAMPP is a free, open-source software package that provides a local development environment for creating and testing web applications. It includes Apache (a web server), MySQL (a database system), and PHP (a server-side scripting language), making it a complete toolkit for building dynamic websites. In this project, XAMPP serves as the foundation for developing and running the online appointment booking system. Apache handles the user requests, MySQL manages the storage and retrieval of data, and PHP processes backend operations, ensuring seamless communication between the system's components. This setup enables efficient development and testing in a controlled environment before deploying the platform online.

#### 3.5.2 Visual Studio Code

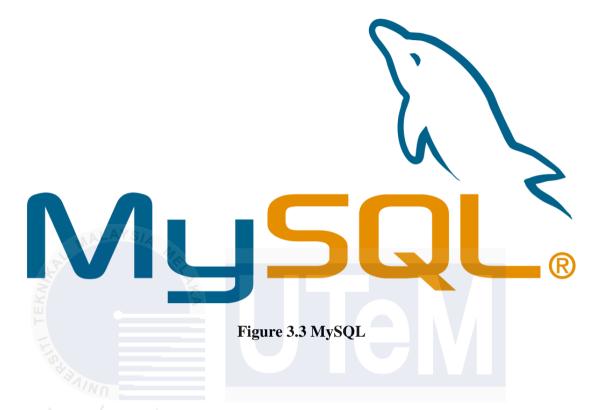


Figure 3.2 Visual Studio Code

Visual Studio Code (VS Code) is a free, lightweight, and powerful code editor used by developers to write and edit code. It supports many programming languages, including PHP, HTML, CSS, and JavaScript, making it perfect for web development projects like the online appointment booking system. VS Code has helpful features like syntax highlighting, error detection, and code suggestions, which make coding easier and faster.

In this project, Visual Studio Code is used to write and organize the code for the platform. Its built-in tools and extensions, such as a live server and database management plugins, allow developers to test the website in real-time and connect smoothly with the database. This makes VS Code an essential tool for building and maintaining the project efficiently.

#### 3.5.3 **MySQL**



The online medical consultation platform relies heavily on MySQL to facilitate the effective storage and administration of patient data, medications, medical certificates, and medical records. It provides strong data management features that guarantee the security and integrity of data. The relational database structure of MySQL makes complicated searches and transactions possible, which makes it easier to retrieve and update patient data. Because of its interaction with XAMPP, setting up, testing, and maintaining databases are made simple and offers a more efficient development environment. Our program can manage numerous concurrent users and enormous datasets thanks to the use of MySQL, which also serves as a scalable and dependable backend for our healthcare services.

#### 3.5.4 PHP



PHP (Hypertext Preprocessor) is a popular scripting language used to build dynamic and interactive websites. It works on the server side, meaning it runs on the web server and processes data before sending the final content to the user's browser. PHP is widely used because it is free, open-source, and easy to integrate with databases like MySQL, which makes it ideal for creating web applications such as the online booking system.

In this project, PHP plays an important role in handling the backend functionality. It processes user inputs, such as booking details or login credentials, and communicates with the MySQL database to store or retrieve information. For example, when a patient books an appointment, PHP ensures the booking data is saved correctly in the database and displays confirmation to the user. It also manages tasks like verifying login information and generating dynamic content like available appointment slots.

Overall, PHP helps make the online booking system efficient and interactive. Its ability to connect with databases, handle complex logic, and deliver results in real time ensures the system runs smoothly and provides great user experience.

#### 3.6 Summary

To sum up, the methodology chapter outlines the clear and organized steps taken to create the online booking system for consultations. It explains how the project was designed, developed, and tested using tools like PHP, MySQL, CSS, and other technologies. Each phase of the process—from gathering requirements to system deployment—was carefully planned to ensure the system is reliable, user-friendly, and meets the needs of both patients and administrators.

By following this structured approach, we were able to create a platform that is easy to use and efficient in managing bookings. The tools and techniques chosen played a big role in making the system functional and secure. This methodology not only highlights the efforts behind the project but also provides a solid foundation for future improvements or expansions.

#### **CHAPTER 4**

#### RESULTS AND DISCUSSIONS

#### 4.1 Introduction

The project Development of a Web-Based E-Healthcare System Using PHP is designed to provide an efficient and user-friendly platform for managing appointments between patients and doctors. This system includes three main roles: Admin, Doctor, and Patient, each with specific functionalities to ensure smooth operation and effective communication.

The system is built using PHP, HTML, and CSS. PHP handles the backend operations, such as database connectivity and dynamic content management, while HTML structures the web pages, and CSS enhances the user interface with styling for a visually appealing and responsive design.

#### 4.2 Results

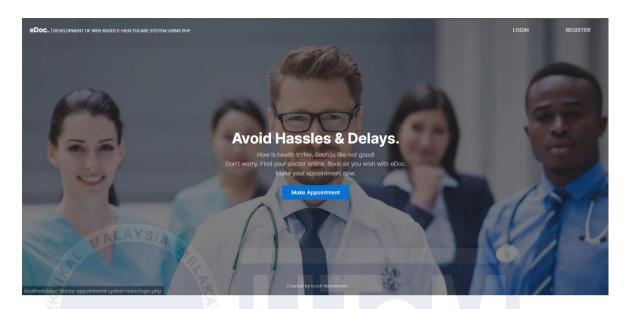


Figure 4.1 Front cover of the website

Figure 4.1 above showcases the home page of the eDoc online healthcare system, designed for users to book doctor appointments conveniently. The interface features a clean and user-friendly layout with a welcoming banner that emphasizes the ease of avoiding delays and hassles in healthcare appointments. The central message, "Avoid Hassles & Delays," encourages users to take control of their healthcare needs. The "Make Appointment" button is prominently displayed to guide users toward initiating the booking process. Additionally, the login and registration options at the top right corner provide easy access for returning and new users. The background image of healthcare professionals adds a sense of reliability and professionalism to the system. This design reflects the system's goal of providing an efficient and approachable solution for managing healthcare appointments.

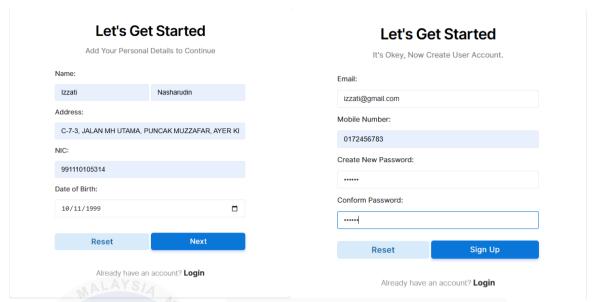


Figure 4.2 Details and credentials to sign up

This image shows a user registration interface divided into two steps. On the left, the form asks for personal details such as name, address, National Identity Card (NIC) number, and date of birth. Once these details are filled in, the user can proceed to the next step by clicking the "Next" button. On the right, the second form prompts the user to create an account by entering an email address, mobile number, and a secure password, which must be confirmed. Both forms include options to reset the entered data or log in if the user already has an account. The design is straightforward, aiming to simplify the account creation process.

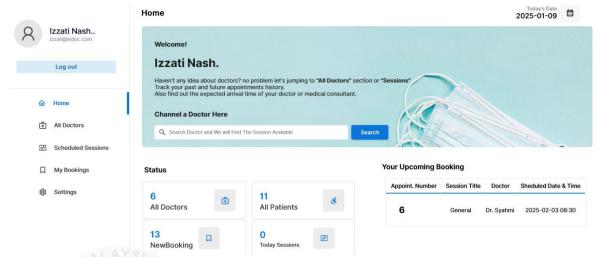
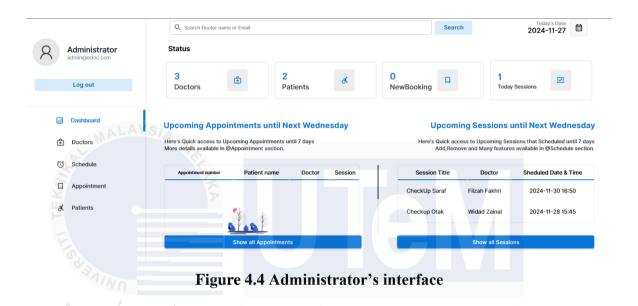


Figure 4.3 Patient's interface after signing up

Figure 4.3 shows the home page of the eDoc web-based e-healthcare system. It is personalized for the user "Izzati Nash" and acts as a dashboard to manage appointments and access system features. A search bar is also provided to help users quickly find doctors or sessions. The "Status" section on the dashboard provides an overview of key metrics in the system. It shows that there are currently 6 registered doctors available in the system, and the total number of 11 patients registered so far. It also highlights that there are 13 new bookings made, although there are 0 sessions scheduled for today. This section helps users quickly understand the system's activity and availability at a glance.

The "Your Upcoming Booking" section in the figure provides details about the user's next scheduled appointment. It shows that the user's booking number is 6, and the doctor booked for this session is Dr. Syahmi. The session is titled General and is scheduled to take place on 3rd February 2025 at 8:30 AM. This section helps the user keep track of their upcoming appointments easily.

The layout is simple and user-friendly, making it easy for users to find important information and navigate the system. It helps users manage their appointments and access healthcare services quickly and efficiently.



It displays a list of patients with key details such as their name, NIC (National Identification Card) number, telephone number, email address, and date of birth. Each patient entry includes a "View" button, which likely allows the administrator to see more details or manage the patient's profile.

The page has a search bar at the top for quickly finding patients by name or email. On the left, a menu provides navigation options like "Dashboard," "Doctors," "Schedule," "Appointment," and "Patients," making it easy to switch between different sections. The layout is simple and user-friendly, helping the administrator manage patient information effectively.

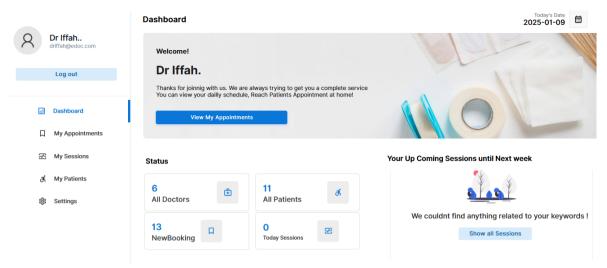


Figure 4.5 Doctor's main page

Figure 4.5 shows the dashboard for Dr Iffah in the system. Same as in the patients' dashboard, in the Status section, it shows that there are 6 doctors registered in the system, 11 patients in total, and 13 new bookings. However, there are no sessions scheduled for today. On the right side, under Your Upcoming Sessions until Next Week, it mentions that no sessions are planned for the coming week, but the doctor can click "Show all Sessions" to view more. This dashboard helps the doctor stay updated and organized.

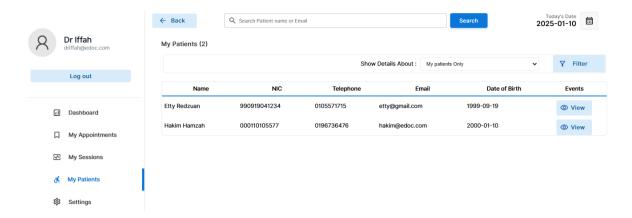


Figure 4.6 Doctors can view their patients for the day

Figure 4.6 showcases the "My Patients" page from a doctor's perspective within the online healthcare platform. This section provides an organized list of patients under the doctor's care, displaying essential details such as the patient's name, national identification card (NIC) number, phone number, email address, and date of birth. It also includes a "View" button under the "Events" column, which allows the doctor to access more detailed information or manage patient-related activities. This feature simplifies the process of keeping track of patients and their information, ensuring that the doctor can efficiently manage their appointments and communication. It reflects the platform's focus on improving accessibility and enhancing the efficiency of patient management for healthcare professionals.

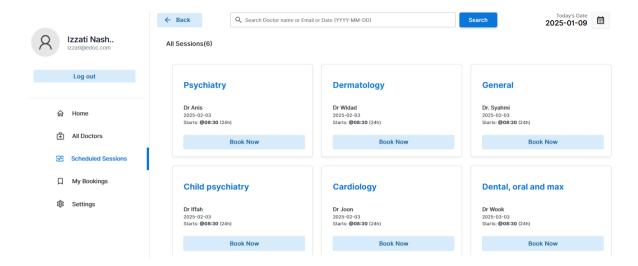


Figure 4.7 Different types of appointments and doctors available

Figure 4.7 showcases the "Scheduled Sessions" page, which displays the available appointments for different doctors in various specializations. The interface is user-friendly, allowing patients to view key information such as the doctor's name, field of expertise, and the session start time. The page features the categories available to book such as Psychiatry, Dermatology, General Medicine, Child Psychiatry, Cardiology, and Dental, Oral, and Maxillofacial services as shown in the figure. Each category provides a "Book Now" button, making it easy for users to schedule their desired appointments. The system simplifies the process of finding and booking sessions, ensuring accessibility and convenience for patients while also improving appointment organization for healthcare providers.

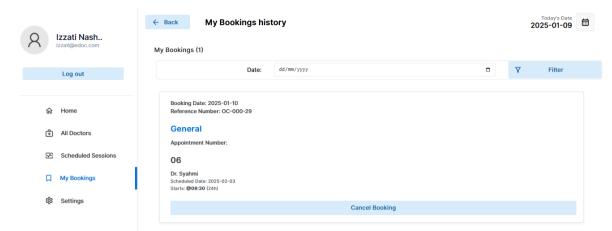


Figure 4.8 Patient selecting their booking appointment

Figure 4.8 shows the patient's interface in the system. It displays a section titled "My Bookings History," where a user can view the details of their past and upcoming appointments. The booking shown in the example includes essential information such as the booking date, appointment number, appointment category and the doctor assigned.

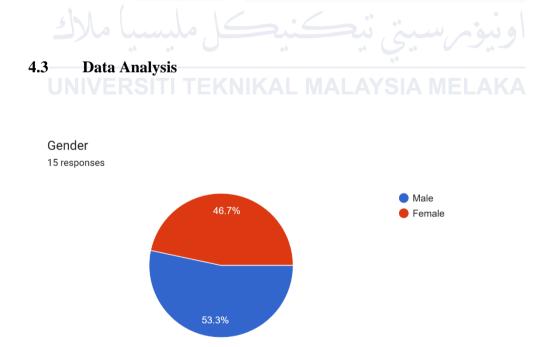


Figure 4.9 Respondents gender on answering the survey

The gender distribution of the survey respondents is shown in Figure 4.9 above. Out of a total of 15 participants, 53.3% identified as male, while 46.7% identified as female. This

indicates a balanced representation of both genders, with a slight majority of male respondents. The balanced gender ratio helps ensure that the feedback and data collected reflect diverse perspectives, making the findings more inclusive and reliable for analysis.

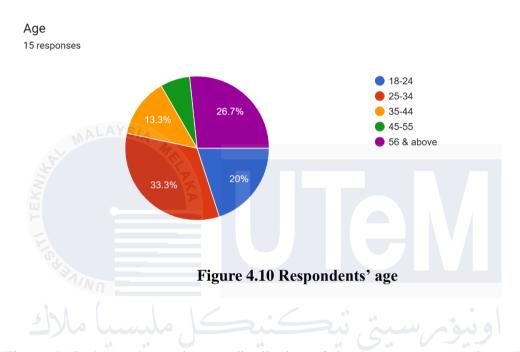


Figure 4.10 above shows the age distribution of the 15 survey respondents. The largest group, 33.3%, falls within the 25–34 age range, followed by 26.7% who are 56 and above. Participants aged 18–24 make up 20% of the total, while 13.3% belong to both the 35–44 and 45–55 age groups. This diverse range of ages ensures that the feedback collected represents perspectives from different stages of life, providing a more balanced and inclusive analysis.

1. Which system do you prefer overall for booking appointments? 15 responses

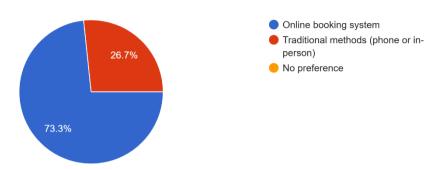


Figure 4.11 Survey on the preferable type of booking appointments

This chart represents the responses to the preferable type of booking an appointment. A total of 15 participants provided their feedback. The majority, 73.3%, indicated that they prefer using an online booking system. Meanwhile, 26.7% of participants still preferred traditional methods, such as booking over the phone or in person, possibly due to familiarity or comfort with these methods. Interestingly, no respondents chose "No preference," which suggests that participants have clear opinions about their preferred method of booking. This data highlights the growing acceptance and preference for online systems over traditional approaches.

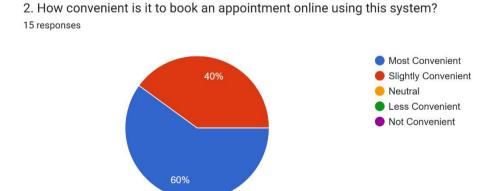


Figure 4.12 Survey on the convenience of using this system

This chart shows the responses to convenience of using the system. Out of 15 participants, the majority, 60%, found the system to be "Most Convenient," reflecting its ease of use and efficiency. Another 40% of participants rated it as "Slightly Convenient," indicating that while they found the system helpful, there may still be areas for improvement. None of the participants selected "Neutral," "Less Convenient," or "Not Convenient," which suggests that the system is generally well-received and effective in meeting users' expectations for convenience. This highlights the success of the online booking system in making the appointment process simpler for most users.

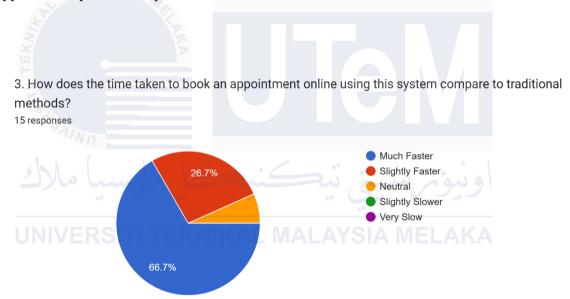


Figure 4.13 Survey on the time taken using this system

This chart reflects the participants' views on how the time taken to book an appointment online compares to the traditional methods. Out of 15 responses, 66.7% indicated that the online system is "Much Faster," showing that many users experience significant time savings. Another 26.7% found the system "Slightly Faster," meaning it still outperforms traditional methods but with less dramatic improvement. Only 6.7% chose "Neutral," indicating they felt the time taken was comparable to traditional methods. No one selected

"Slightly Slower" or "Very Slow," highlighting the effectiveness of the online system in providing a quicker and more efficient appointment booking experience for most users.

4. How easy is it to select an appointment time online using this system compared to discussing availability over the phone or in person 15 responses

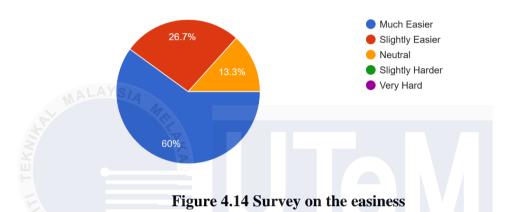


Figure 4.14 illustrates users' opinions on how easy it is to select an appointment online compared to arranging availability over the phone or in person. Out of 15 respondents, the majority (60%) found the online system to be "Much Easier." Another 26.7% rated it as "Slightly Easier," showing that a significant proportion of users appreciated the convenience of the online method. Meanwhile, 13.3% remained neutral, suggesting no clear preference. Importantly, no respondents rated the system as "Slightly Harder" or "Very Hard," indicating overall positive feedback regarding the ease of use. This suggests that the system is effective in simplifying appointment scheduling.

5. How flexible is it to reschedule or cancel an appointment online using this system compared to traditional methods?

15 responses

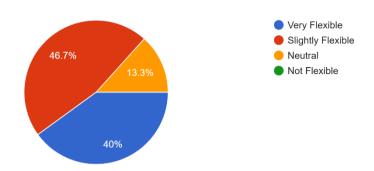


Figure 4.15 Survey on the flexibility of using this system

Figure 4.15 shows positive results regarding the online appointment system. Most users found it flexible, with 40% rating it "Very Flexible" and 46.7% rating it "Slightly Flexible." Only 13.3% were neutral, and nobody found it difficult to use. This suggests the system works well for most people who need to change their appointments.

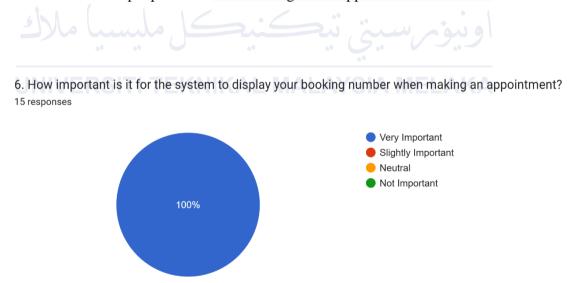


Figure 4.16 Survey on the importance of showing booking number

Figure 4.16 shows a response from all 15 participants. Every single respondent (100%) considered it "Very Important" for the system to show their booking number when making

an appointment. This clear consensus suggests that users strongly value having a reference number for their bookings, likely for tracking and confirmation purposes.

7. Do you feel more satisfied using this online booking system (eDoc) compared to traditional methods or other booking systems?

15 responses

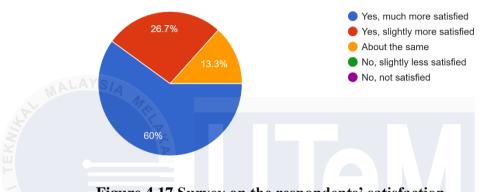


Figure 4.17 Survey on the respondents' satisfaction

The survey of 15 users reveals strong satisfaction with the eDoc online booking system compared to traditional methods. Most users (60%) reported being "much more satisfied" with eDoc, while 26.7% were "slightly more satisfied." Only 13.3% found it "about the same" as traditional booking methods. Notably, no users reported being less satisfied or dissatisfied with the system, suggesting that eDoc represents a clear improvement over traditional booking approach.

8. Did the online booking system (eDoc) meet your expectations in terms of user experience? 15 responses

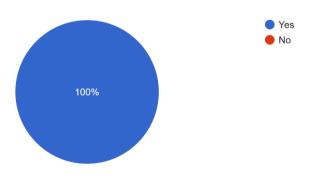


Figure 4.18 Survey on respondents' expectations

Figure 4.18 shows the result regarding user experience expectations where all 15 participants (100%) indicated that the eDoc online booking system met their expectations for user experience. This perfect satisfaction rate suggests that the system was well-designed to fulfill users' needs and requirements for a booking platform.

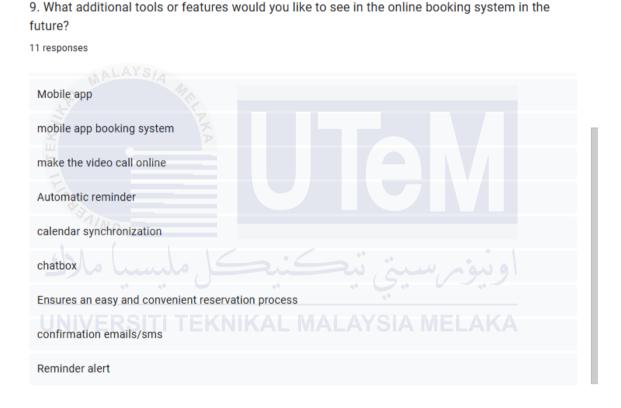


Figure 4.19 Survey on additional tools in the future

To users expressed interest in several key enhancements, with mobile functionality being a prominent request - specifically wanting a dedicated mobile app for bookings. Other suggested features included online video call capabilities, automatic reminders and alerts, calendar synchronization, and a chat box for communication. Users also emphasized the importance of having confirmation notifications through email or SMS, highlighting their desire for a more connected and automated booking experience. These suggestions point out

that users want a more comprehensive and integrated system that offers greater convenience and accessibility.

10. Do you have any specific suggestions or feedback to improve the overall experience of the online booking system?

11 responses



Figure 4.20 Survey on feedback to improve

The feedback from 11 respondents about the online booking system was largely positive. Most users praised the system as being easy to understand and user-friendly, with several describing it as "great" and "simple." While generally satisfied, users did offer some constructive suggestions for improvement. One notable recommendation was to make the system more accessible for senior citizens. Another user suggested enhancing the notification system to provide more updates about bookings. These comments indicate that while the current system is working well, there are opportunities to make it even more inclusive and informative for all users.

### 4.4 Summary

In conclusion, the Development of a Web-Based E-Healthcare System Using PHP built with PHP, MySQL (using phpMyAdmin), and CSS successfully makes booking and managing appointments easier. The system provides a simple and user-friendly platform for patients to register, search for doctors, and book appointments. It also helps healthcare providers keep track of their sessions and schedules.

With a secure database to store information, the system works efficiently and is easy to use. This project shows how technology can make healthcare services faster and more convenient. In the future, features like real-time notifications, video consultations, and stronger data security could make the system even better. Overall, this project helps improve access to medical services and saves time for both patients and doctors.

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#### **CHAPTER 5**

#### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

This online booking platform for medical consultations makes it easier for patients to book appointments with doctors and manage their schedules. By using tools like XAMPP for local development, MySQL for storing data securely, and PHP for managing the backend, the platform ensures everything works smoothly. The clean design, created with CSS, makes it simple and easy for users to find and book available consultation slots. Every feature was carefully planned and built to make sure the system is reliable, easy to use, and secure for both patients and doctors.

This project shows how technology can make healthcare services more convenient. The platform helps save time for both patients and doctors by removing the hassle of manual scheduling. It's built to grow and adapt to future needs, ensuring it stays useful over time. By continuing to improve the system based on user feedback, this platform will remain a simple and effective way for patients to book consultations, making healthcare more accessible and efficient.

#### **5.2** Potential for Commercialization

The project's online consultation website offers a great deal of commercialization potential in the healthcare sector. Long wait times and clogged clinics are among the main problems that the website solves by offering a platform that simplifies patient-doctor interactions.

Busy professionals and anyone looking for easy access to medical consultations will find this solution very tempting. Credibility and usefulness are increased by the option to get prescriptions and medical certifications online while retaining the requirement for in-person verification at clinics. This makes the solution extremely marketable since it allows healthcare providers to improve overall patient happiness, expand their patient base, and expand their service offerings.

#### **5.3** Future Works

This online booking platform offers significant potential for commercialization by addressing the growing need for efficient appointment management in healthcare. Many clinics, private practices, and healthcare providers struggle with scheduling systems that are either outdated or expensive. By providing an affordable, user-friendly, and adaptable solution, this platform could fill a gap in the market and attract medical professionals seeking to improve their patient booking processes.

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The platform's simplicity and flexibility make it appealing to a wide audience, ranging from small clinics to larger healthcare institutions. With features such as automated appointment scheduling, notifications, and patient information management, the system can streamline administrative tasks. Additionally, its use of PHP, MySQL, and CSS ensures low-cost development and maintenance, making it an accessible option for businesses with limited budgets.

Future enhancements, such as integrating online payments, multilingual support, mobile application integration or patient feedback systems, could further increase its value. By marketing the platform to healthcare providers and demonstrating its benefits through trials

or demos, the platform could attract more users. Its scalability also allows for potential expansion into other industries, such as wellness centers or therapy practices, making it a promising product for broader commercialization.



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## **APPENDICES**

# **Appendix A Gantt Chart PSM 1**

ACTIVITY	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
Confirmation														
project's title														
Chapter 1														
Chapter 2	The Registration													
Update	istr													
Logbook	egi	I AV	0.											
Research	e R	ALAI	OIA											
journals	Th													
(Literature	and			R										
review)				D										
Methodology	PSM Briefing													
(Chapter 3)	3rie										V			
Chapter 4	ΛE													
(Preliminary	SSI	20												
result analysis)	I													
Chapter 5	Ma			۵ ۱		3.		3	••	, ,,,	*			
Full report			*			••		••	S.,			'		
progress									••					
Presentation PSM 1	IIVE	RS	ITI "	ΓEK	NIK	AL	MA	LAY	SIA	ME	LAK	A		

## **Appendix B Gantt Chart PSM 2**

ACTIVITY	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10	W11	W12	W13	W14
PSM2 briefing														
Debugging & troubleshooting														
error														
Meeting &														
discussion with SV														
Update &														
submit logbook														
progress														
Chapter 4	M	ALAI	SIA											
Collecting data	ng													
& analysis	iefï			Y										
Making final	PSM Briefing			A						\				
changes and	M													
adjustments	PS			-										
PSM2 poster														
drafting &			_											
submission	~~	VN -												
PSM2	S A			1							•	1		
presentation	مالا		لىس	0 1		2		23	-	ر ,س	ويتوه			
Final thesis		••	44			44		00			-,, -			
submission —														

## **Appendix C HTML Main Page Interface**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="css/animations.css">
  <link rel="stylesheet" href="css/main.css">
  <link rel="stylesheet" href="css/index.css">
  <title>eDoc</title>
  <style>
   table{
     animation: transitionIn-Y-bottom 0.5s;
  </style>
</head>
<body>
  <div class="full-height">
    <center>
    <font class="edoc-logo">eDoc. </font>
         <font class="edoc-logo-sub"> DEVELOPMENT OF WEB-BASED E-
HEALTHCARE SYSTEM USING PHP</font>
       <a href="login.php" class="non-style-link"><p class="nav-
item">LOGIN</a>
       <a href="signup.php" class="non-style-link"><p class="nav-item"
style="padding-right: 10px;">REGISTER</a>
       Avoid Hassles & Delays.
       How is health today, Sounds like not good!<br>>Don't
worry. Find your doctor online. Book as you wish with eDoc. <br/>br>
```

```
Make your appointment now.
      <center>
        <a href="login.php" >
          <input type="button" value="Make Appointment" class="login-btn btn-
primary btn" style="padding-left: 25px;padding-right: 25px;padding-top: 10px;padding-
bottom: 10px;">
        </a>
      </center>
      Created by Izzati Nasharudin.
 </re>
 </div>
</body>
</html>
```

## Appendix D Appointment PHP Code

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta http-equiv="X-UA-Compatible" content="IE=edge">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <link rel="stylesheet" href="../css/animations.css">
  <link rel="stylesheet" href="../css/main.css">
  <link rel="stylesheet" href="../css/admin.css">
  <title>Appointments</title>
  <style>
    .popup{
       animation: transitionIn-Y-bottom 0.5s;
    .sub-table{
       animation: transitionIn-Y-bottom 0.5s;
</style>
</head>
<body>
  <?php
  session_start();
  if(isset($_SESSION["user"])){
    if(($_SESSION["user"])=="" or $_SESSION['usertype']!='p'){
      header("location: ../login.php");
    }else{
       $useremail=$_SESSION["user"];
  }else{
    header("location: ../login.php");
  //import database
  include("../connection.php");
  $sqlmain= "select * from patient where pemail=?";
  $stmt = $database->prepare($sqlmain);
  $stmt->bind_param("s",$useremail);
  $stmt->execute();
  $userrow = $stmt->get_result();
  $userfetch=$userrow->fetch_assoc();
  $userid= $userfetch["pid"];
```

```
$username=$userfetch["pname"];
 //echo $userid:
 //echo $username:
 //TODO
 $sqlmain= "select
appointment.appoid,schedule.scheduleid,schedule.title,doctor.docname,patient.pname,sc
hedule.scheduledate,schedule.scheduletime,appointment.apponum,appointment.appodate
from schedule inner join appointment on schedule.scheduleid=appointment.scheduleid
inner join patient on patient.pid=appointment.pid inner join doctor on
schedule.docid=doctor.docid where patient.pid=$userid";
 if($ POST){
   //print_r($_POST);
   if(!empty($ POST["sheduledate"])){
     $sheduledate=$_POST["sheduledate"];
     $sqlmain.=" and schedule.scheduledate='$sheduledate' ";
   //echo $sqlmain;
 $sqlmain.="order by appointment.appodate asc";
 $result= $database->query($sqlmain);
  <div class="container">
   <div class="menu">
   <img src="../img/user.png" alt="" width="100%" style="border-
radius:50%">
              <?php echo</pre>
substr($username,0,13) ?>..
                <?php echo</pre>
substr($useremail,0,22) ?>
```

```
<a href="../logout.php" ><input type="button" value="Log out"
class="logout-btn btn-primary-soft btn"></a>
           <a href="index.php" class="non-style-link-menu"><div><p
class="menu-text">Home</a></div></a>
       <a href="doctors.php" class="non-style-link-menu"><div><p
class="menu-text">All Doctors</a></div>
       <a href="schedule.php" class="non-style-link-menu"><div><p
class="menu-text">Scheduled Sessions</div></a>
        _______
       <td class="menu-btn menu-icon-appoinment menu-active menu-icon-
appoinment-active">
        <a href="appointment.php" class="non-style-link-menu non-style-link-
menu-active"><div>My Bookings</a></div>
       <a href="settings.php" class="non-style-link-menu"><div><p
class="menu-text">Settings</a></div>
       </div>
  <div class="dash-body">
    0;margin:0;padding:0;margin-top:25px; ">
```

```
<a href="appointment.php" >< button class="login-btn btn-primary-soft btn"
btn-icon-back" style="padding-top:11px;padding-bottom:11px;margin-
left:20px;width:125px"><font class="tn-in-text">Back</font></button></a>
         My
Bookings history
         0;text-align: right;">
            Today's Date
          date default timezone set('Asia/Kolkata');
          today = date('Y-m-d');
          echo $today;
          ?>
          <button class="btn-label" style="display: flex;justify-content:</pre>
center; align-items: center; "><img src="../img/calendar.svg" width="100%"></button>
         <!-- <tr>
        <div style="display: flex;margin-top: 40px;">
          <div class="heading-main12" style="margin-left: 45px;font-</pre>
size:20px;color:rgb(49, 49, 49);margin-top: 5px;">Schedule a Session</div>
          <a href="?action=add-session&id=none&error=0" class="non-style-
link"><button class="login-btn btn-primary btn button-icon" style="margin-
left:25px;background-image: url('../img/icons/add.svg');">Add a
Session</font></button>
          </a>
          </div>
          -->
```

```
size:18px;color:rgb(49, 49, 49)">My Bookings (<?php echo $result->num_rows;
?>)
       <center>
        Date:
        <form action="" method="post">
          <input type="date" name="sheduledate" id="date" class="input-text</pre>
filter-container-items" style="margin: 0; width: 95%;">
      ///n 
       <input type="submit" name="filter" value=" Filter" class=" btn-primary-
soft btn button-icon btn-filter" style="padding: 15px; margin:0;width:100%">
       R</form>TEKNIKAL MALAYSIA MELAKA
       </center>
       <center>
        <div class="abc scroll">
        <table width="93%" class="sub-table scrolldown" border="0"
style="border:none">
```

```
<?php
                if($result->num_rows==0){
                  echo '
                  <center>
                  <img src="../img/notfound.svg" width="25%">
                  size:20px;color:rgb(49, 49, 49)">We couldnt find anything related to your keywords
!
                  <a class="non-style-link"
href="appointment.php"><button class="login-btn btn-primary-soft
btn" style="display: flex;justify-content: center;align-items: center;margin-
left:20px;">  Show all Appointments  </font></button>
                  </a>
                  </center>
                  <br><br><br><br><br>
                  ':
                else{
                  for ( $x=0; $x<($result->num_rows);$x++){
                    echo "";
                    for(q=0;q<3;q++)
                      $row=$result->fetch_assoc();
                      if (!isset($row)){
                      break;
                      };
                      $scheduleid=$row["scheduleid"];
                      $title=$row["title"];
                      $docname=$row["docname"];
                      $scheduledate=$row["scheduledate"];
                      $scheduletime=$row["scheduletime"];
                      $apponum=$row["apponum"];
                      $appodate=$row["appodate"];
                      $appoid=$row["appoid"];
                      if($scheduleid==""){
                        break;
                      echo '
```

```
<div class="dashboard-items search-items" >
                               <div style="width:100%;">
                               <div class="h3-search">
                                      Booking Date: '.substr($appodate,0,30).'<br>
                                      Reference Number: OC-000-'.$appoid.'
                                    </div>
                                    <div class="h1-search">
                                      '.substr($title,0,21).'<br>
                                    </div>
                                    <div class="h3-search">
                                      Appointment Number:<div class="h1-
search">0'.$apponum.'</div>
                                    </div>
                                    <div class="h3-search">
                                      '.substr($docname,0,30).'
                                    </div>
                                    <div class="h4-search">
                                      Scheduled Date: '.$scheduledate.'<br>Starts:
<b>@'.substr($scheduletime,0,5).'</b> (24h)
                                    </div>
                                    <br>
                                    <a
href="?action=drop&id='.$appoid.'&title='.$title.'&doc='.$docname."
><button class="login-btn btn-primary-soft btn" style="padding-top:11px;padding-
bottom:11px;width:100%"><font class="tn-in-text">Cancel
Booking</font></button></a>
                               </div>
                             </div>
                           ';
                      echo "";
                 // for ( x=0; x<\frac{num_rows}{x++}
                      $row=$result->fetch_assoc();
                      $appoid=$row["appoid"];
                 //
                      $scheduleid=$row["scheduleid"];
                 //
                      $title=$row["title"];
                  //
                  //
                      $docname=$row["docname"];
                      $scheduledate=$row["scheduledate"];
                  //
                      $scheduletime=$row["scheduletime"];
                  //
                  //
                      $pname=$row["pname"];
                  //
                  //
                      echo '
```

```
  '.
               //
               //
                     substr($pname,0,25)
               //
                     .'
               //
                     <td style="text-align:center;font-size:23px;font-weight:500;
color: var(--btnnicetext);">
                     '.$apponum.'
               //
                     //
                     //
                     '.substr($title,0,15).'
               //
                     //
                     '.substr($scheduledate.0.10).'
               //
@'.substr($scheduletime,0,5).'
                     //
                     //
                       '.$appodate.'
               //
                     //
                     <div style="display:flex;justify-content: center;">
               //
                     <!--<a href="?action=view&id='.$appoid.'" class="non-style-
link"><button class="btn-primary-soft btn button-icon btn-view" style="padding-left:
40px;padding-top: 12px;padding-bottom: 12px;margin-top: 10px;"><font class="tn-in-
text">View</font></button></a>
                       -->
 UNIVERSIT/
href="?action=drop&id='.$appoid.'&name='.$pname.'&session='.$title.'&apponum='.$a
pponum." class="non-style-link"><button class="btn-primary-soft btn button-icon btn-
delete" style="padding-left: 40px;padding-top: 12px;padding-bottom: 12px;margin-top:
10px;"><font class="tn-in-text">Cancel</font></button></a>
                        </div>
               //
               //
                     //
                   ':
              ?>
              </div>
            </center>
```

```
</div>
  </div>
  <?php
  if($_GET){
    $id=$_GET["id"];
    $action=$_GET["action"];
    if($action=='booking-added'){
      echo '
      <div id="popup1" class="overlay">
           <div class="popup">
           <center>
           <br>><br>>
             <h2>Booking Successfully.</h2>
             <a class="close" href="appointment.php">&times;</a>
             <div class="content">
             Your Appointment number is '.$id.'.<br><br>>
          \sqrt{\text{div}}
             <div style="display: flex;justify-content: center;">
             <a href="appointment.php" class="non-style-link"><button class="btn-
primary btn" style="display: flex; justify-content: center; align-items:
center;margin:10px;padding:10px;"><font class="tn-in-
text">  OK  </font></button></a>
             <br><br><br><br><br><
             </div>
           </center>
      </div>
      </div>
    }elseif($action=='drop'){
      $title=$_GET["title"];
      $docname=$_GET["doc"];
      echo '
      <div id="popup1" class="overlay">
           <div class="popup">
           <center>
             <h2>Are you sure?</h2>
             <a class="close" href="appointment.php">&times;</a>
             <div class="content">
               Session Name:  <b>'.substr($title,0,40).'</b><br>
               Doctor name  : <b>'.substr($docname,0,40).'</b><br><br>
```

```
</div>
              <div style="display: flex;justify-content: center;">
              <a href="delete-appointment.php?id='.$id.'" class="non-style-
link"><button class="btn-primary btn" style="display: flex;justify-content:
center; align-items: center; margin: 10px; padding: 10px; "< font class="tn-in-
text"> Yes </font></button></a>&nbsp;&nbsp;&nbsp;
              <a href="appointment.php" class="non-style-link"><button class="btn-
primary btn" style="display: flex;justify-content: center;align-items:
center;margin:10px;padding:10px;"><font class="tn-in-
text">  No  </font></button></a>
              </div>
           </center>
       </div>
       </div>
     }elseif($action=='view'){
       $sqlmain= "select * from doctor where docid=?";
       $stmt = $database->prepare($sqlmain);
       $stmt->bind_param("i",$id);
       $stmt->execute();
       $result = $stmt->get_result();
       $row=$result->fetch assoc();
       $name=$row["docname"];
       $email=$row["docemail"];
       $spe=$row["specialties"];
      $sqlmain= "select sname from specialties where id=?";
       $stmt = $database->prepare($sqlmain);
       $stmt->bind param("s",$spe);
       $stmt->execute();
       $spcil_res = $stmt->get_result();
       $spcil array= $spcil res->fetch assoc();
       $spcil_name=$spcil_array["sname"];
       $nic=$row['docnic'];
       $tele=$row['doctel'];
       echo '
       <div id="popup1" class="overlay">
           <div class="popup">
           <center>
              <h2></h2>
              <a class="close" href="doctors.php">&times;</a>
              <div class="content">
                eDoc Web App<br>
              <div style="display: flex;justify-content: center;">
              <table width="80%" class="sub-table scrolldown add-doc-form-
container" border="0">
```

```
25px;font-weight: 500;">View Details.<br><br>
       <label for="name" class="form-label">Name: </label>
       '.$name.'<br><br>
       <label for="Email" class="form-label">Email: </label>
       '.$email.'<br><br>
       [
      <label for="nic" class="form-label">NIC: </label>
       '.$nic.'<br><br>
       <label for="Tele" class="form-label">Telephone: </label>
       '.$tele.'<br><br>
```

```
<label for="spec" class="form-label">Specialties: </label>
            '.$spcil_name.'<br><br>
           <a href="doctors.php"><input type="button" value="OK"
class="login-btn btn-primary-soft btn" ></a>
            Vn </div>
        </center>
        <br>><br>>
     </div>
     </div>
 ?>
 </div>
</body>
<u></h</u>tml>
```