DOCTOR APPOINTMENT BOOKING SYSTEM

A Mini Project Report

Submitted for the partial fulfillment of the requirements for the degree of

MASTER OF COMPUTER APPLICATIONS

UNIVERSITY OF MADRAS

By

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NOVEMBER - 2023

BONAFIDE CERTIFICATE

This is to certify that the project report titled "DOCTOR APPOINTMENT BOOKING SYSTEM" is a bonafide record of work carried out by **Mr. MUKESH MANNA S RegNo.812200133** during the final semester from June 2023 to November 2023, under my guidance, in partial fulfillment of the requirements for the degree of MASTER OF COMPUTER APPLICATIONS by UNIVERSITY OF MADRAS.

Head of the Dept

Dr. S. Jawahar, MCA, M.Phil, Ph.D

Project Guide

Mrs. V Janani, MCA, M.Phil, NET

Submitted for the viva-voce examination on_____

Examiners:

1.

2.

ACKNOWLEDGEMENT

I express my deep gratitude to the creator, who created and nurture me in this transitory world. I also express my gratitude to him for giving me an opportunity to successfully complete my III semester mini project as a partial requirement of the MCA program.

I express my deepest gratitude to our honorable Principal, **Dr. T.S. SANTHI, M.Com., M.Phil., B.Ed., M.B.A., Ph.D,** for his valuable support and guiding authority on all aspects.

I am grateful to our honorable Head Of the Department **Dr. S. Jawahar, MCA, M.Phil, Ph.D** for guiding me throughout my project.

I acknowledge my sincere gratitude to my honorable guide **Mrs. V Janani, MCA., M.Phil., NET.,** Associate Professor, whose kind and proper guidance made it possible to prepare this report. I am indebted to her, for her excellent supervision and guidance who has given me a chance to prepare my mini project "Doctor Appointment Booking System"

Finally, I would like to express my gratitude to all the people who helped me by providing their valuable assistance and time during this mini project preparation.

Your's truly,

MUKESH MANNA S

812200133

DECLARATION

I, **MUKESH MANNA S** hereby declare that this project report titled "**DOCTOR APPOINTMENT BOOKING SYSTEM**" submitted in partial fulfillment of the requirement for the degree of a MASTER OF COMPUTER APPLICATION, UNIVERSITY OF MADRAS is my original work and it has not formed the basis for the award of any other degree.

(Signature of the Student)

Place:

Date:

ABSTRACT

- The Doctor Appointment Booking System is designed to streamline the process of scheduling and managing appointments with healthcare professionals. In today's fast-paced world, the need for an efficient and user-friendly system to book doctor appointments is evident. This system provides a convenient solution for patients and healthcare providers alike.

- The core functionality of the system includes user registration, login, and profile management for patients and healthcare professionals. Patients can search for doctors based on their specialization, availability, or location. They can view doctor profiles, including their qualifications, reviews, and appointment slots. The system allows patients to schedule appointments at their preferred time slots, and they receive confirmation notifications.

- Healthcare professionals can login with their unique ID and password. Once logged in, they can manage various aspects, including viewing upcoming appointments, updating their profiles, and accessing patient details to facilitate contact.

- The Doctor Appointment Booking System enhances the efficiency of healthcare services, reduces waiting times, and improves patient satisfaction. This project demonstrates the potential for further development and implementation in real healthcare settings, contributing to a more accessible and patient-centric healthcare experience.

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CHAPTER 01

INTRODUCTION

INTRODUCTION

1.1. ABOUT THE PROJECT

A Doctor Appointment Booking System is a web-based application which is a crucial and efficient solution designed to simplify the process of scheduling appointments with healthcare providers. In today's fast-paced world, where healthcare is of paramount importance, this system plays a vital role in enhancing the patient experience and optimizing the operations of healthcare facilities.

This system leverages technology to facilitate the appointment booking process for patients, ensuring that they can access timely healthcare services while minimizing wait times. It provides a convenient platform where patients can easily book appointments with their preferred healthcare specialization providers, thus reducing the stress and hassle often associated with traditional appointment scheduling methods.

Patients can access comprehensive information about healthcare providers, including their specialization, availability, and appointment slots. Patients can select a convenient date and time for their appointment, avoiding the need for phone calls and long waiting times at the clinic. Moreover, it allows for better patient record-keeping, making it easier for medical professionals to access patient information during appointments and ensuring that the patient receives the best possible care.

Healthcare professionals can login with their unique ID and password. Once logged in, they can manage various aspects, including viewing upcoming appointments, updating their profiles, and accessing patient details to facilitate contact. It benefits both patients and healthcare providers by improving access, convenience, and efficiency while also reducing administrative overhead. The integration of digital tools features can further enhance the quality of healthcare services and patient experiences.

OBJECTIVES:

The primary objective of this Doctor Appointment booking System is to create a user-friendly, efficient, and secure system that allows patients to book appointments with doctors of their choice. The system also benefits healthcare providers by facilitating efficient patient management and reducing administrative overhead.

KEY GOALS AND OBJECTIVES:

- **Appointment Scheduling:** Enable patients to easily schedule appointments with their preferred specialization healthcare providers, specifying date and time preferences.

- **Accessibility:** Ensure accessibility through web application platforms, making it convenient for patients to book appointments anytime, anywhere.

- **User-Friendly Interface:** Create a simple and intuitive interface that accommodates users of all ages and technological literacy levels.

- **Cost Efficiency:** Streamline administrative tasks, reducing the workload and costs associated with appointment booking and management.

- **Patient Empowerment:** Empower patients with access to their medical information, appointment history, and the ability to reschedule or cancel appointments as needed.

- **Reduced Wait Times:** Minimize patient waiting times at the healthcare facility by optimizing scheduling.

PROJECT OVERVIEW:

A doctor's appointment booking system developed using PHP and MySQL is an essential digital tool that simplifies the process of scheduling appointments for both patients and healthcare providers. This project involves the creation of a user-friendly web-based platform where patients can easily access and browse available doctors, select a preferred time slot, and book their appointments.

The system securely stores all patient and appointment data in a MySQL database, ensuring the confidentiality and integrity of sensitive information. Healthcare providers, in turn, can manage their schedules efficiently, update their availability, and access patient appointment details with ease.

Through this project, the aim is to enhance the accessibility of healthcare services, reduce administrative overhead, and improve the overall patient experience by providing a streamlined and efficient appointment booking process. PHP and MySQL's robust combination ensures the reliability and scalability of the system, making it a valuable asset for both patients and healthcare professionals.

MODULES:

The site will contain the following features:

- Home Page
- About Us
- User Login – Doctor/Patient Login
- Doctor Login
- Doctor Profile Detail
- View Appointments (Doctor)
- Patient Login/Registration
- Patient Profile Detail
- Search For Doctors
- Book Appointment
- View/Cancel Appointment (Patient)

Home Page:

The objective of this web application is to provide users with an online platform where they can view the main functional page in detail.

About Us:

The website typically serves as a descriptive component that provides information about the organization, its history, mission, and key personnel. It often includes details about the company's background, its products or services, and may also contain relevant legal or regulatory information, such as terms and conditions, privacy policies, and contact information.

User Login:

The user login page contains two categories, allowing doctors and patients to choose their respective categories for redirection to the login page.

Doctor Login:

The doctors need to login in to get access to their individual home page.

Doctor Profile Detail:

Doctor profile page is use to view the doctor information and it can be modified and update the detail as per their convenient.

View Appointment (Doctor):

This module is to access and review their scheduled appointments. This feature typically provides information about the appointment, including the date, time, location, purpose, and any additional relevant details.

Patient Login/Registration:

Registration- The user needs to be registered in order to login.

Login- The users need to login in to get access to their respective home page.

Patient Profile Detail:

Patient profile page is use to view the patient information and it can be modified and update the detail as per the user convenient.

Search For Doctors:

The patient can search doctors by specialization after which the system will evaluate to give the patient the best search result.

Booking appointment:

This module is the process of scheduling the appointment for patients to easily schedule with their preferred specialization healthcare providers, specifying date and time preferences.

View/Cancel Appointment:

This module is to access and review their scheduled appointments. This feature typically provides information about the appointment, including the date, time, location, purpose, and any additional relevant details. Patient can be able to cancel if the patient wants to cancel it with their convenient.

PROJECT SCOPE:

This project focuses on the development of the core features of the Doctor Appointment Booking System. It does not cover extensive integration with electronic health records or advanced telemedicine features, which may be considered for future enhancements.

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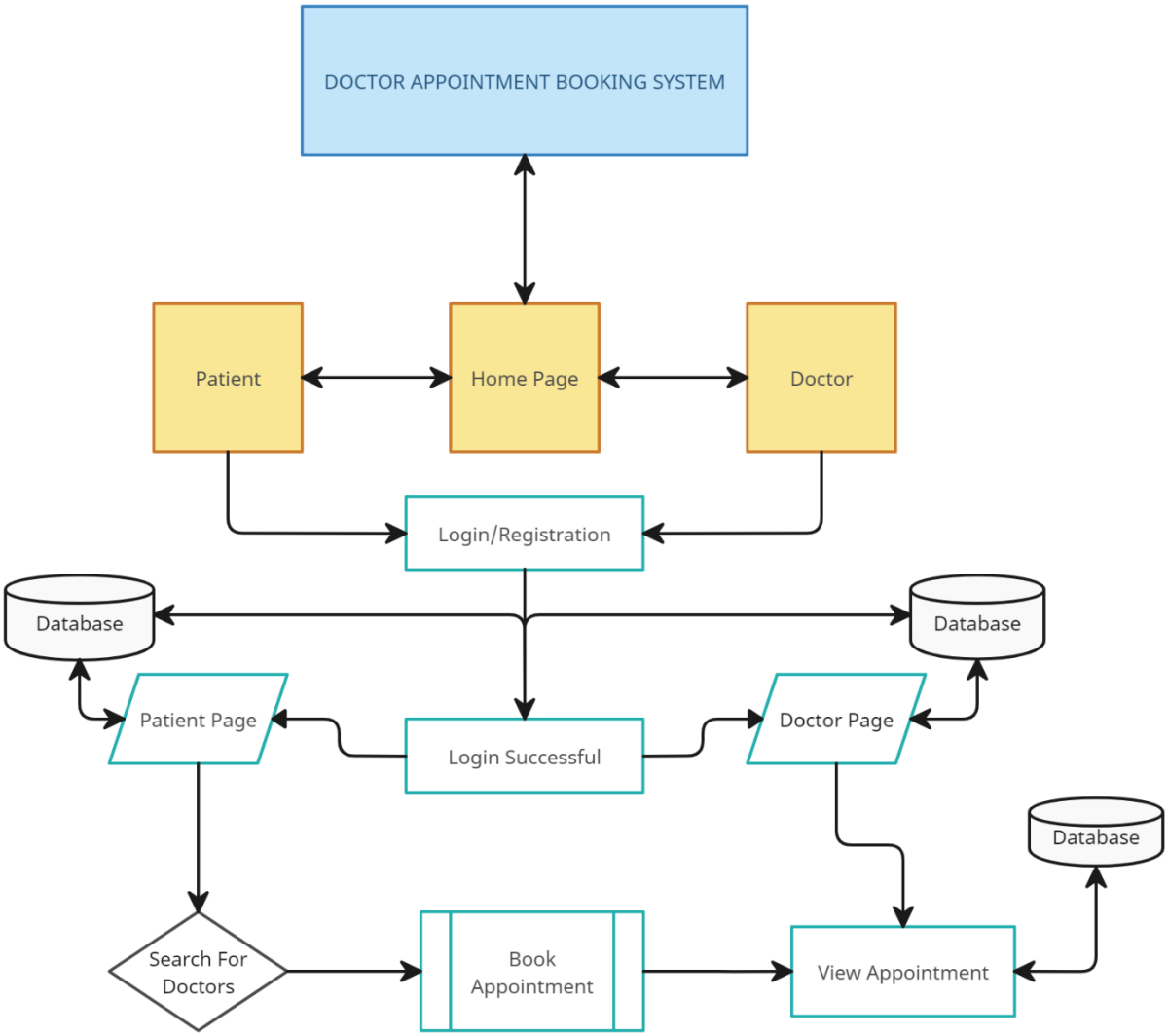

DOCTOR APPOINTMENT BOOKING SYSTEM
Patient
Home Page
Doctor
Login/Registration
Database
Database
Patient Page
Login Successful
Doctor Page
Database
Search For Doctors
Book Appointment
View Appointment

CHAPTER 02

REQUIREMENT SPECIFICATION

REQUIREMENT SPECIFICATION:

2.1. HARDWARE SPECIFICATION:

System	: Laptop
Processor	: Intel core i5 @2.50GHz
Hard Disk	: 512GB
RAM	: 8 GB

2.2. SOFTWARE SPECIFICATION:

Operating System	: Windows 11
Front End	: HTML, CSS, JAVASCRIPT
Back End	: PHP, SQL
Server	: Apache server
Database	: MYSQL
Browser	: Google chrome, Internet explorer
Software	: Visual studio code, XAMPP version-v3.3.0

2.3. ABOUT THE SOFTWARE:

FRONT END

2.3.1. HTML (Hyper Text Markup Language)

HTML stands for Hyper Text Markup Language, is the standard language used to create web pages on the internet. It's a set of instructions that tells web browsers how to structure and display content on a webpage.

2.3.2. CSS (Cascading Style Sheets)

CSS stands for Cascading Style Sheets, CSS describes how HTML elements are to be displayed on screen, paper, or in other media CSS saves a lot of work. It can control the layout of multiple web pages all at once external stylesheets are stored in CSS files

2.3.3. JS (Java Script)

JavaScript, is a programming language that adds interactivity and dynamic behavior to websites. It allows web developers to create features like responsive forms, interactive buttons, and animations that respond to user actions. JavaScript works within web browsers, making web pages more than just static text and images; it enables them to react and adapt to user input, making websites more engaging and functional. In essence, JavaScript brings websites to life by enabling them to do things like validate forms, display pop-up messages, and update content without needing to reload the entire page. It's a fundamental technology for creating interactive and user-friendly web applications.

BACK END

2.3.4. MySQL

MySQL is an open-source relational database management system (RDBMS). It is a software application that allows you to create, manage, and manipulate databases. Databases are used to store and organize structured data, such as customer information, product details, or any other type of data that needs to be stored and retrieved efficiently.

MySQL is known for its speed, reliability, and ease of use, making it a popular choice for many web applications and software projects. It uses a structured query language (SQL) to interact with and manage the data in the database. MySQL is widely used in web development, content management systems, e-commerce platforms, and various other applications where data storage and retrieval are essential. It's a fundamental component of many dynamic websites and software systems.

2.3.5. PHP (Hypertext Preprocessor)

PHP, which stands for "Hypertext Preprocessor," is a widely-used and open-source scripting language primarily designed for web development. It is often embedded within HTML to create dynamic web pages. PHP allows developers to execute code on the web server, generating HTML content that is then sent to the client's web browser.

PHP is used to build interactive and dynamic web applications. It enables you to do things like process forms, connect to databases, and create web pages that can change in real-time. Many popular websites and web applications, including content management systems like WordPress and e-commerce platforms like WooCommerce, use PHP for their backend development. It is a versatile language that plays a crucial role in server-side web development, allowing developers to create interactive and feature-rich web applications.

VISUAL STUDIO CODE:

Visual Studio Code (VS Code) is a free, open-source code editor developed by Microsoft. It is widely used by developers for writing, editing, and debugging code in various programming languages. VS Code is available on Windows, macOS, and Linux, making it a versatile choice for developers across different platforms.

Key features of Visual Studio Code include:

Extensibility:

VS Code is highly customizable and supports a wide range of extensions and plugins, allowing developers to add features and support for different programming languages and tools.

Intelligent Code Editing:

It offers features like autocompletion, code navigation, and syntax highlighting to improve code writing and understanding.

Integrated Terminal: VS Code has an integrated terminal, which means you can execute command-line operations within the editor.

Debugging:

It provides built-in debugging tools for various languages, making it easier to identify and resolve issues in your code.

Version Control:

Integration with popular version control systems like Git is available, helping developers manage code changes and collaborate with others.

Cross-Platform:

It works seamlessly on Windows, macOS, and Linux, making it accessible to a wide range of developers.

Themes and Customization:

VS Code offers a variety of themes and customization options, so you can personalize the editor to suit your preferences.

Support for Various Languages:

While it has excellent support for JavaScript, TypeScript, and web development technologies, developers can find extensions for nearly all major programming languages.

Visual Studio Code is a highly versatile, lightweight, and feature-rich code editor that caters to the needs of a wide range of developers and programming scenarios. It has gained popularity for its ease of use, extensive extension support, and active developer community.

XAMPP:

XAMPP is a popular open-source software package that provides a web server, a database server, and several other web development tools and technologies. The name "XAMPP" is an acronym that stands for:

X: Cross-platform (available on various operating systems)

A: Apache (the web server software)

M: MySQL (the database management system)

P: PHP (a server-side scripting language)

In addition to Apache, MySQL, and PHP, XAMPP also includes other components like phpMyAdmin (a web-based tool for managing MySQL databases), Perl, and FileZilla (an FTP server).

XAMPP is designed to make it easy for developers to set up a local web development environment on their computer. It's particularly useful for testing and developing websites or web applications before deploying them to a live web server. XAMPP is available for Windows, macOS, and Linux, making it a cross-platform solution for local web development.

Overall, XAMPP simplifies the process of installing and configuring the necessary software components for web development, allowing developers to work on their projects locally without the need for a live web server or internet connection.

APACHE SERVER:

The Apache HTTP Server, commonly referred to as Apache, is a widely used and open-source web server software. It's one of the most popular web servers globally and has a long history of reliability and performance. Apache is typically used to serve web pages, websites, and web applications over the internet.

Apache is commonly used in combination with other software components like PHP and MySQL to create a complete web development and hosting environment. It's often referred to as the "LAMP stack," where LAMP stands for Linux (the operating system), Apache (the web server), MySQL (the database management system), and PHP (a server-side scripting language). This stack is frequently used for hosting dynamic web applications and websites.

CHAPTER 03

SYSTEM ANALYSIS

3. SYSTEM ANALYSIS

System analysis is a problem solving activity that requires intensive communication between the system users and system developers. System analysis is highly relevant to the development and improvement of a doctor appointment booking system.

Problem areas and potential bottlenecks are identified, and feasibility studies assess the practicality of proposed solutions. Cost-benefit analyses help decision-makers understand the financial implications of system changes. Collaboration with end-users is vital to align the system with their needs and expectations. System analysis is often an iterative process, fostering continuous improvement and adaptation to changing requirements, ensuring that the resulting system is efficient, effective, and in harmony with its intended purpose.

3.1. FEASIBILITY SYSTEM

Feasibility analysis is a critical step in the development of a doctor appointment booking system. This process assesses the practicality and viability of implementing such a system within a healthcare environment. The feasibility study considers various aspects, including technical, operational, economic, and legal factors.

From a technical perspective, the feasibility study evaluates the available technology infrastructure. It assesses whether the existing hardware and software can support the appointment booking system or if new technology investments are required. Compatibility with electronic health records (EHR) and other healthcare systems is also examined to ensure seamless integration.

Operationally, the feasibility study addresses how the system will fit into the daily workflow of the healthcare practice. It considers the impact on staff, patients, and administrative processes. Questions about training, user adoption, and change management are explored to ensure a smooth transition.

The economic feasibility is a crucial aspect. It involves analysing the costs associated with the development, implementation, and maintenance of the appointment booking system. This includes hardware and software costs, as well as ongoing operational expenses. The study also calculates potential benefits, such as improved efficiency, reduced administrative overhead, and increased patient satisfaction, to determine the return on investment.

Legal and regulatory factors are also considered in the feasibility analysis. Compliance with healthcare regulations, data privacy laws, and other legal requirements is imperative, and the study examines whether the proposed system meets these standards.

Ultimately, the feasibility study provides decision-makers with the information needed to determine whether developing a doctor appointment booking system is a sound and practical investment for the healthcare practice. It guides the project in a direction that maximizes the potential benefits while minimizing risks and challenges, making it an essential phase in the system's development lifecycle.

3.2. EXISTING SYSTEM

The existing doctor appointment booking system is the current method or process through which patients schedule appointments with healthcare providers. In many cases, it relies on traditional methods such as phone calls or in-person visits to book appointments. While this system may have served its purpose for many years, it often presents several limitations. It can be time-consuming and may lead to long waiting times for patients trying to schedule appointments. Additionally, manual data entry and record-keeping can result in errors and administrative inefficiencies.

Moreover, the existing system may lack features that modern patients expect, such as online appointment scheduling, real-time availability checks, and automated reminders. As a result, the patient experience can be less convenient and less in line with the technology-driven expectations of today's healthcare consumers.

In terms of healthcare provider perspectives, the existing system may pose challenges in terms of managing appointments, coordinating schedules, and ensuring that appointments are evenly distributed. This may require a significant administrative workload, leading to inefficiencies in the practice.

In light of these limitations and evolving patient expectations, there is a growing need to transition from the existing manual or less efficient appointment booking systems to more technologically advanced and user-friendly solutions, such as online appointment booking systems or specialized software designed to streamline the scheduling process. Such transitions can improve the patient experience, enhance healthcare provider efficiency, and ensure better overall healthcare service delivery.

3.3. PROPOSED SYSTEM

The proposed doctor appointment booking system represents a modern and technologically advanced solution designed to address the limitations of the existing appointment booking methods. It leverages the power of digital technology and the internet to offer patients a convenient and user-friendly platform for scheduling appointments with healthcare providers. In this system, patients can access a dedicated website or mobile app to view real-time availability of doctors, select their preferred time slots, and book appointments at their convenience. This approach reduces the need for time-consuming phone calls or in-person visits, making the appointment scheduling process more efficient and accessible.

The proposed system also incorporates features like automated appointment reminders via email or SMS, reducing the likelihood of no-shows and improving overall appointment adherence. This not only benefits patients but also enhances the management of healthcare provider schedules, ensuring a more balanced distribution of appointments and reducing administrative burdens.

Moreover, the proposed system offers opportunities for electronic health record integration, enabling healthcare providers to access patient information quickly and efficiently, enhancing

the quality of care. It can also facilitate the tracking of patient data, feedback, and preferences, contributing to a more personalized and patient-centric healthcare experience.

By embracing this proposed system, healthcare practices can modernize their appointment booking processes, streamline administrative tasks, and improve the patient experience. Overall, the proposed system aims to make the appointment booking process more efficient, convenient, and responsive to the needs and expectations of both patients and healthcare providers.

CHAPTER 04

SYSTEM DESIGN

4. SYSTEM DESIGN

System design is a critical phase in the software development or engineering process. It involves the detailed planning and specification of a system's architecture, components, modules, interfaces, and data. The goal of system design is to create a blueprint for the construction and implementation of a system that meets the specified requirements and objectives.

Types of System Design:

- Logical design
- Physical design

Logical design pertains to an abstract representation of the data flow, inputs, and outputs of the system. It describes the inputs (sources), outputs (destinations), databases (data stores), procedures (data flows) all in a format that meets the user requirements.

Physical design relates to the actual input and output processes of the system. It focuses on how data is entered into a system, verified, processed, and displayed as output.

During logical design phase the analyst describes inputs, outputs, databases and procedures all in a format that meets the user requirements. The analyst also specifies the needs of the user at a level that virtually determines the information flow in and out of the system and the data resources. Here the logical design is done through data flow diagrams and database design. The physical design is followed by physical design or coding. Physical design produces the working system by defining the design specifications, which specify exactly what the candidate system must do. The programmers write the necessary programs that accept input from the user, perform necessary processing on accepted data and produce the required report on a hard copy or display it on the screen.

4.1. NORMALIZATION

- Normalization is the process of organizing the data in the database.
- Normalization is used to minimize the redundancy from a relation or set of relations. It is also used to eliminate undesirable characteristics like Insertion, Update, and Deletion Anomalies.
- Normalization divides the larger table into smaller and links them using relationships.
- Normalization can introduce some complexity to maintain data integrity. In highly normalized databases, enforcing constraints like foreign keys, unique constraints, and referential integrity can require more effort and processing.
- Normalization is typically well-suited for read-heavy operations, where data retrieval is more common than data modification. In write-heavy scenarios, such as frequently updating data, the overhead of maintaining referential integrity can impact performance.

Constraints in creating table:

• **Primary Key:**

A primary key is a unique identifier for a record in a table. It ensures that each record in the table can be uniquely identified.

• **Candidate Key:**

A candidate key is a combination of one or more columns, the value of which uniquely identifies each row of a table.

• **Foreign Key:**

A foreign key is a column or set of columns in a table that references the primary key of another table.

• **CHECK Constraint:**

Many columns must have that are within a certain range or that satisfy certain conditions, with a CHECK constraint, we can specify an expression that must always be true for every row in the table.

Rules of Data Normalization:

I. 1NF : Eliminating Repeating Groups

a. Make a separate table for each set of related attributes and give each table a primary key.

II. 2NF : Eliminate Redundant Data

a. If an attribute depends on only part of multi-valued key, remove it to a separate table.

III. 3NF : Eliminate Columns not Dependent on Key

a. If attributes do not contribute to a description of the key, remove them to a separate table.

IV. BCNF : Boyce Codd Normal Form

a. If there are non-trivial dependencies between candidate key attributes, separate them out into distinct tables.

V. 4NF : Isolate Independent Multiple Relationships

a. No table may contain one or more 1 : n or n : m relationships that are not directly related.

4.2. TABLE DESIGN / DATA DICTIONARY

Patients Table:

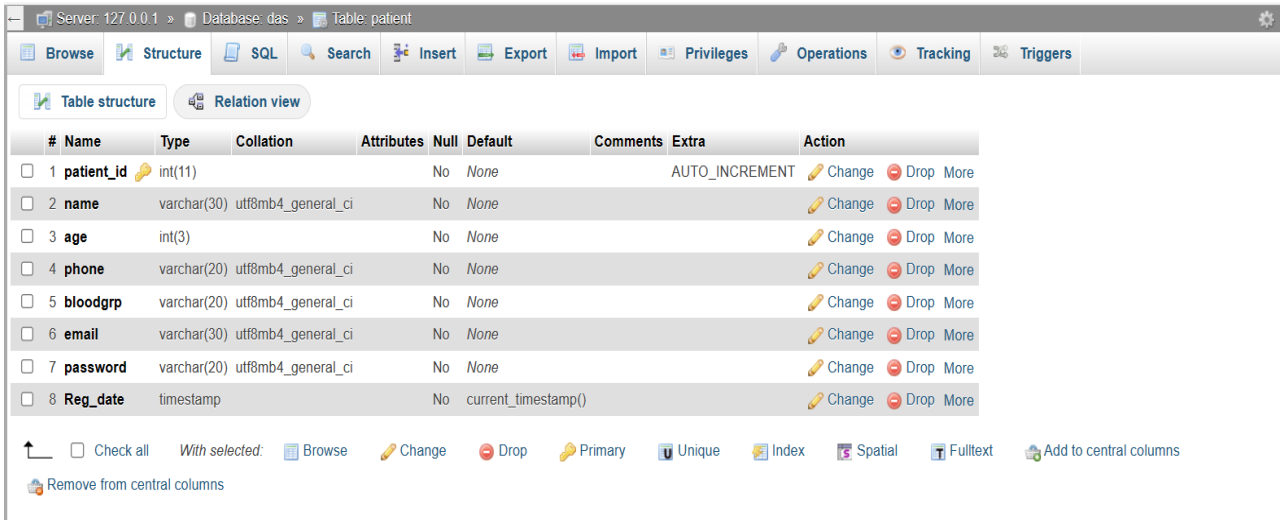


Table 1: Patients Table

Doctors Table:

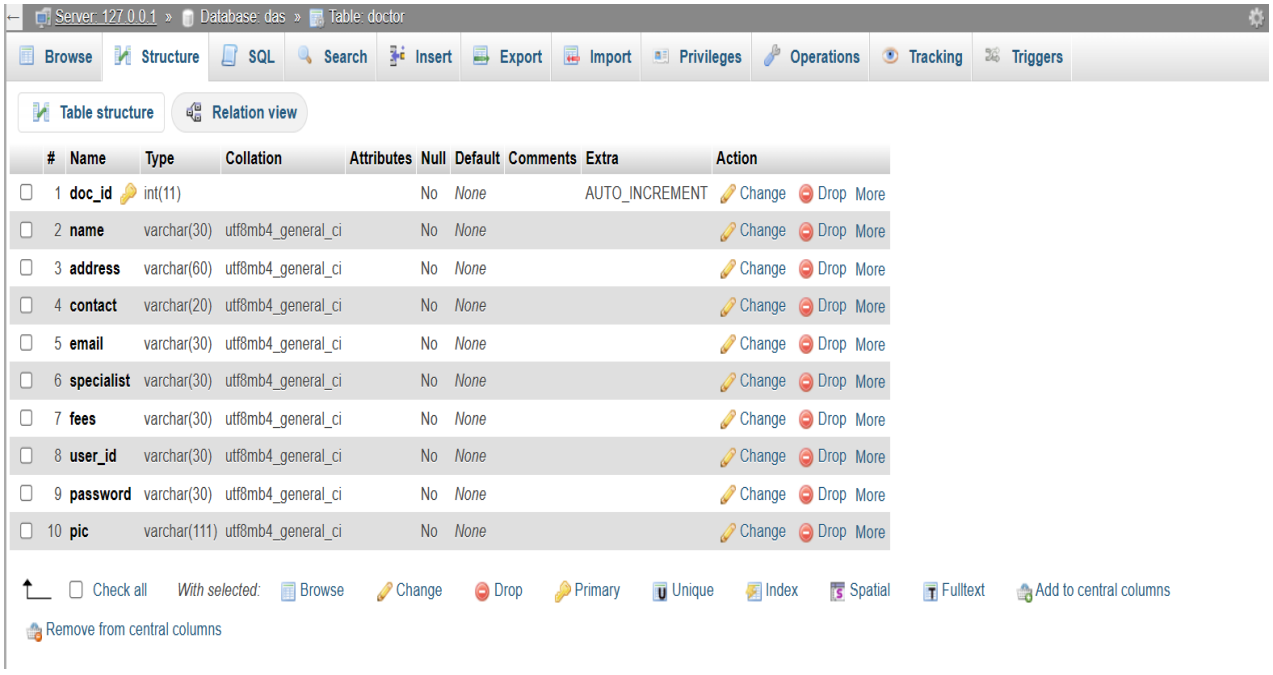


Table 2: Doctors Table

Booking Table:

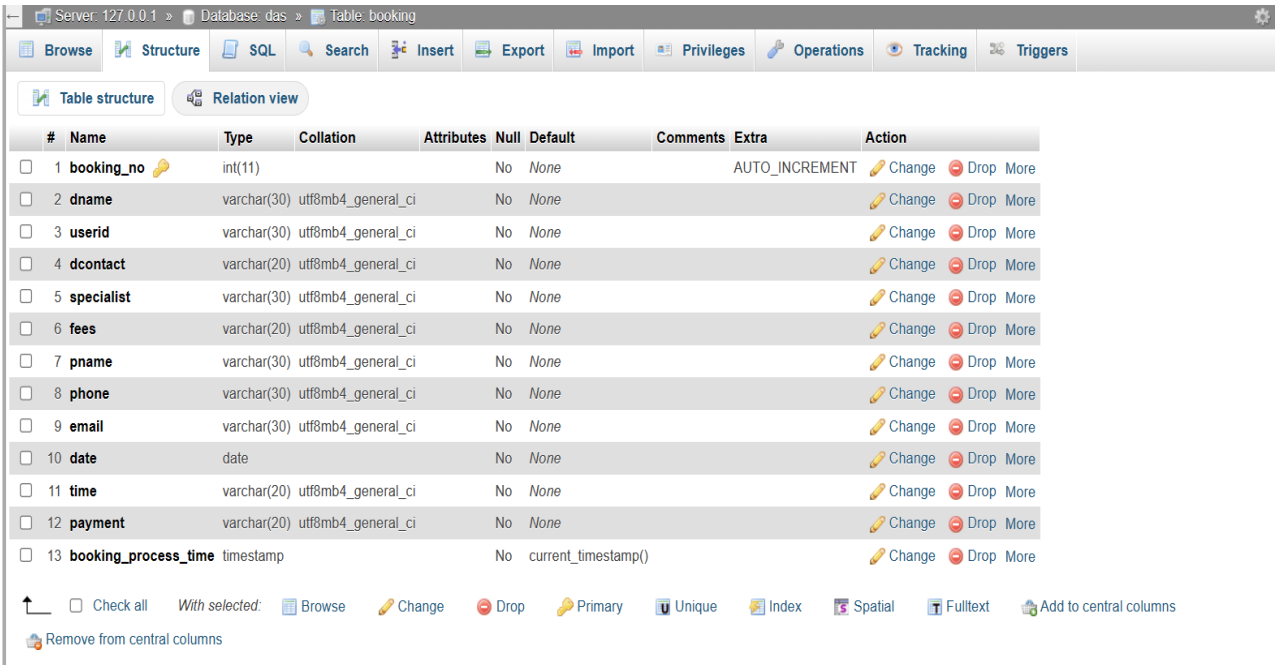


Table 3: Booking Table

4.3. INPUT DESIGN

The input design is the link between the information system and the user. It comprises the developing specification and procedures for data preparation and those steps are necessary to put transaction data in to a usable form for processing can be achieved by inspecting the computer to read data from a written or printed document or it can occur by having people keying the data directly into the system. The design of input focuses on controlling the amount of input required, controlling the errors, avoiding delay, avoiding extra steps and keeping the process simple. The input is designed in such a way so that it provides security and ease of use with retaining the privacy.

Input designs consider the following things:

- What data should be given as input?
- How the data should be arranged or coded?
- The dialog to guide the operating personnel in providing input.
- Method for preparing input validations and steps to follow when error occur.

OBJECTIVES

Input design is the process of converting a user-oriented description of the input into a computer-based system. This design is important to avoid errors in the data input process and show the correct direction to the management for getting correct information from the computerized system. It is achieved by creating user-friendly screens for the data entry to handle large volume of data. The data goal of designing input is to make data entry easier and to be free from errors. The data entry screen is designed in such a way that all the data manipulates can be performed. It also provides record viewing facilities.

When the data is entered it will check for its validity. Data can be entered with the help of screens. Appropriate messages provided as when needed so that the user will not be in maize of instant. Thus the objective of input design is to create an input layout that is easy to follow.

OUTPUT DESIGN

A quality output is one, which meets the requirements of the end user and presents the information clearly. In any system results of processing are communicated to the user and to other system through outputs. In output design it is determined how the information is to be displaced for immediate need and also the hard copy output. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationship to help user decision making.

- Designing computer output should proceed in an organized, well thought out manner; the right output must be developed while ensuring that each output element is designed so that people will find the system can use easily and effectively. When analyses design computer output, they should identify the specific output that is needed to meet the requirements.
- Select methods for presenting information.
- Create document, report or other formats that contain information produced by the system. The output form of an information system should accomplish one or more of the following objectives.
- Convey information about past activities, current status or projections of the future.
- Signal important events, opportunities, problems or warnings.

- Trigger an action.
- Confirm an action.

4.4. DATA FLOW DIAGRAM & CFD

DATA FLOW DIAGRAM

A Data Flow Diagram (DFD) is a graphical representation of how data flows within a system. It is a visual tool used in system analysis and design to model the processes, data stores, data sources, and data destinations in a system, as well as the data flows connecting them. DFDs are particularly useful for understanding the flow of information in a system and are a fundamental component of structured analysis.

key elements and symbols used in a DFD:

Processes (rectangles): Processes represent actions, operations, or transformations that occur within the system. They receive input data, perform some processing, and produce output data. Each process is assigned a unique identifier (usually a number).

Data Stores (parallel lines): Data stores represent places where data is stored within the system. This can include databases, files, or other data repositories.

Data Flows (arrows): Data flows represent the movement of data between processes, data stores, data sources, and data destinations. They show the direction of data transfer and may be labeled to indicate the data's content.

Data Sources (rounded rectangles): Data sources represent the origins of data that enter the system, such as external entities, sensors, or other systems that provide data to the system.

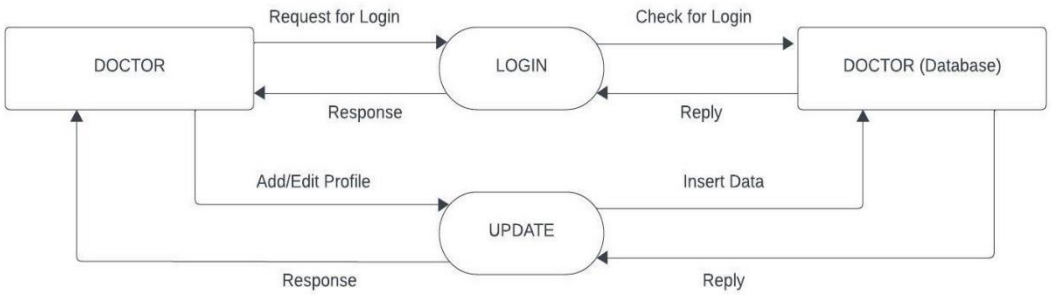
Data Destinations (rounded rectangles): Data destinations represent the final recipients or endpoints of data leaving the system, which could be external entities, other systems, or users.

The primary purpose of creating a DFD is to provide a clear and structured visualization of how data moves through a system. It helps analysts and designers understand the system's data flow and identify potential bottlenecks, redundancies, and inefficiencies. DFDs also serve as a foundation for other system modelling techniques, such as entity-relationship diagrams and system flowcharts.

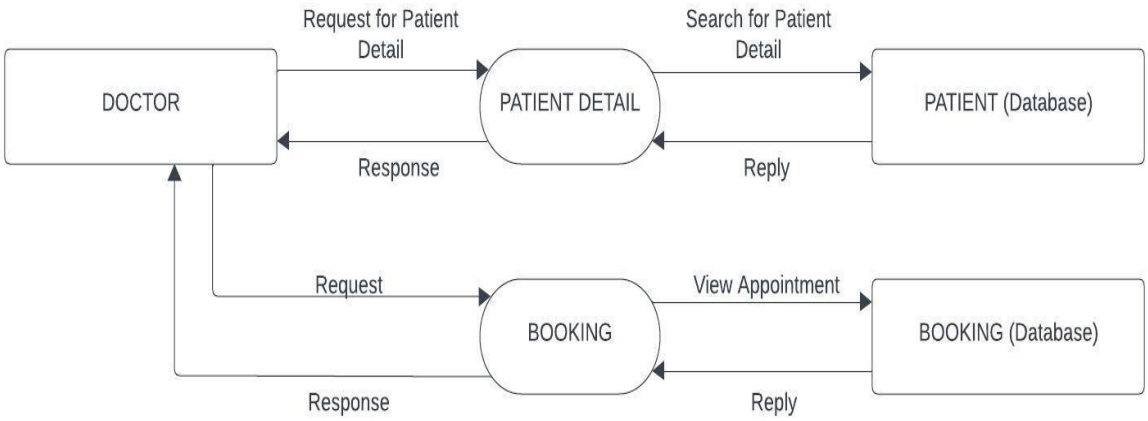
DFD DIAGRAMS

0 – LEVEL DFD

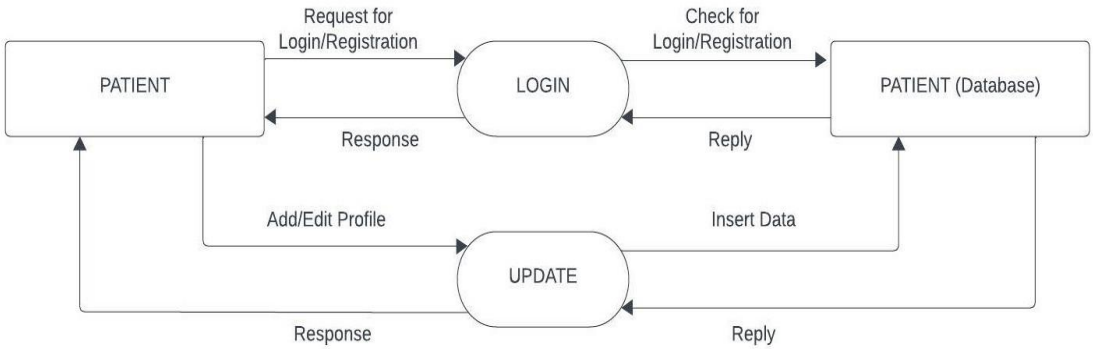
1 – LEVEL DFD (DOCTOR SIDE)



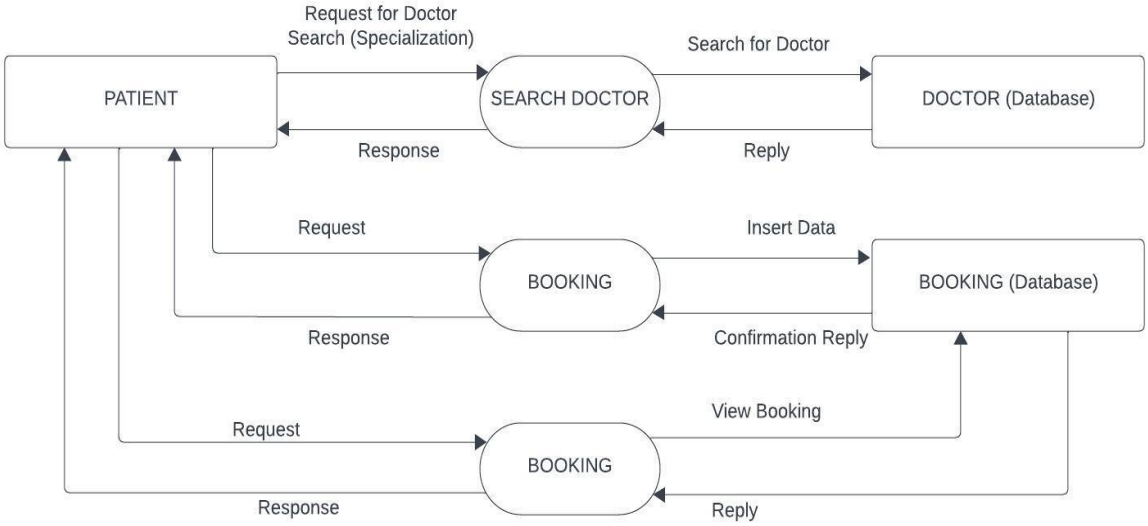
2 – LEVEL DFD (DOCTOR SIDE)



1 – LEVEL DFD (PATIENT SIDE)



2 – LEVEL DFD (PATIENT SIDE)



CHAPTER 05

SYSTEM DESCRIPTION

5. SYSTEM DESCRIPTION

GENERAL DESCRIPTION

Product Description:

The system consists of two parts. A web application which can provide the doctor appointment booking service and an web application for the patient to access the web service from their browser. Web application should be able to help the patient for getting their individual specialized healthcare doctors to help in their convenient day and time.

Problem Statement:

The current doctors' appointment booking system faces numerous challenges that hinder its effectiveness and accessibility. Manual scheduling processes often lead to inefficiencies, resulting in long waiting times and resource misallocation. Additionally, limited access to technology, language barriers, and disabilities create disparities in healthcare access, excluding some patients from the scheduling process. Frequent patient no-shows disrupt the workflow of healthcare providers, resulting in wasted resources and time. Furthermore, hospitals and clinics struggle with suboptimal resource allocation, affecting cost efficiency. To address these issues, a new appointment booking system must be developed with a focus on efficient scheduling, accessibility, patient engagement, resource optimization, security, and scalability. Such a system will not only enhance the patient experience but also improve healthcare provider efficiency and contribute to better overall healthcare outcomes.

MODULES:

The modules involved are:

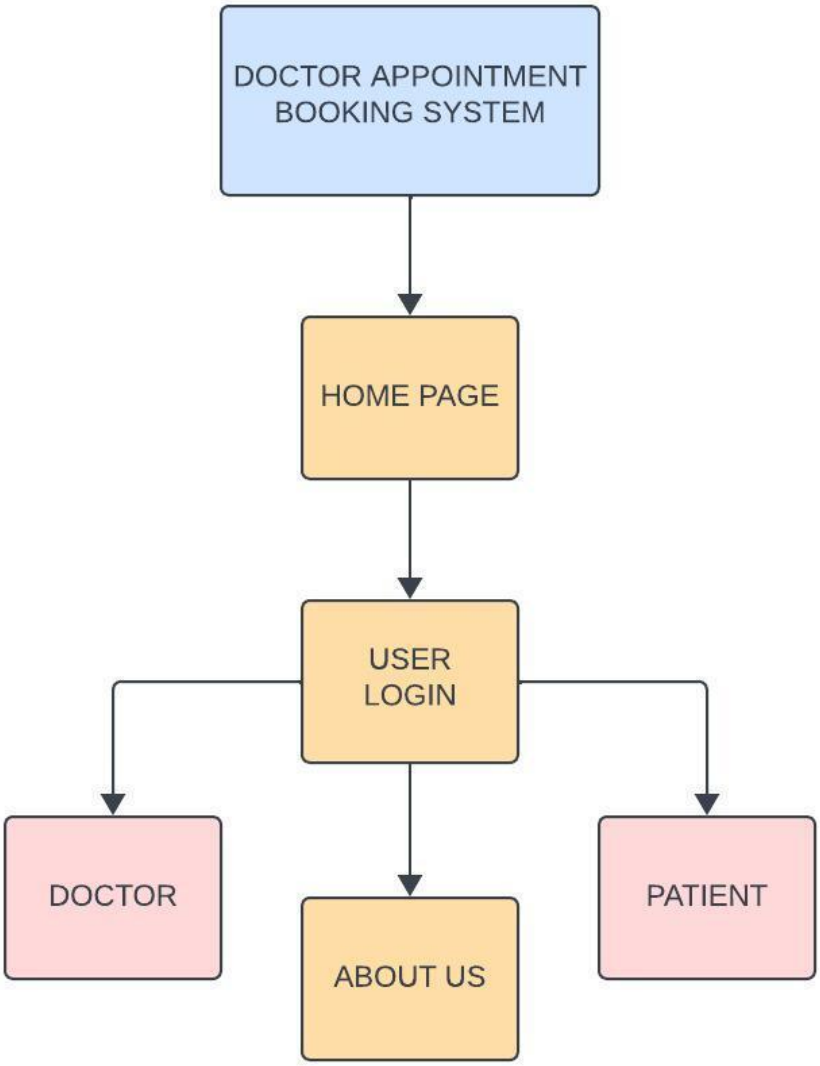
- Home Page
- Doctor
- Patient

1. HOME PAGE:

The objective of this web application is to provide users with an online platform where they can view the main functional page in detail. The web page consists of various aspects for user convenient of their choice and it contains information about doctor appointment booking system.

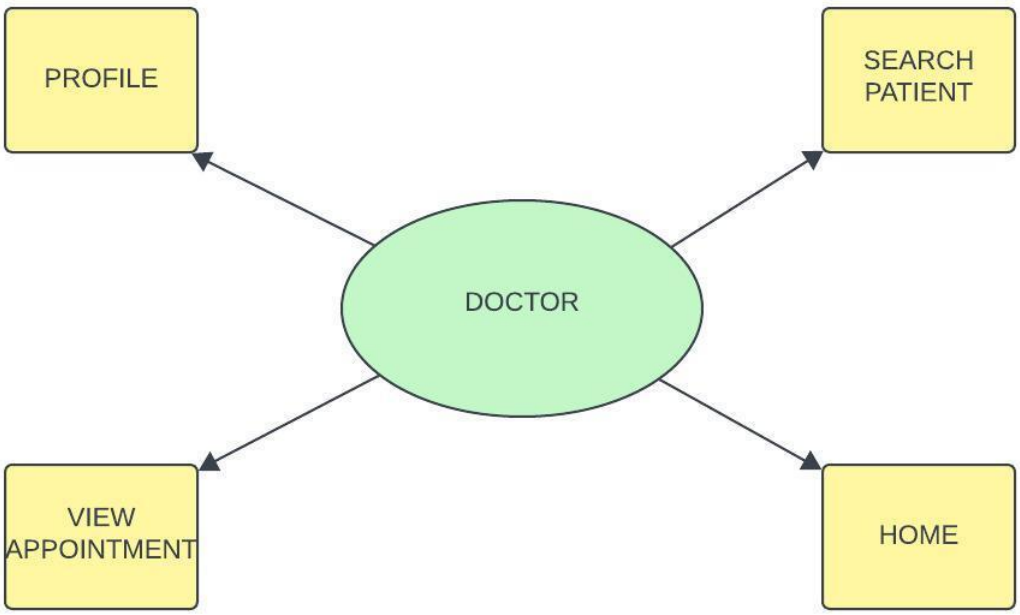
This module is divided into different sub-modules.

- User Login – Doctor/Patient Login
- About Us



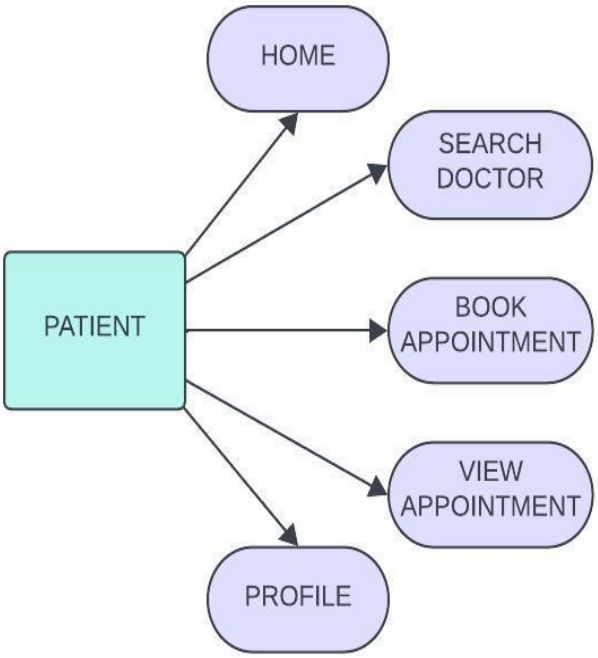
2. DOCTOR

The doctors need to login in to get access to their individual home page. Doctor profile page is use to view the doctor information and it can be modified and update the detail as per their convenient. This module is to access and review their scheduled appointments. This feature typically provides information about the appointment, including the date, time, location, purpose, and any additional relevant details.



3. PATIENT

Patient profile page is use to view the patient information and it can be modified and update the detail as per the user convenient. The patient can search doctors by specialization after which the system will evaluate to give the patient the best search result. This module is the process of scheduling the appointment for patients to easily schedule with their preferred specialization healthcare providers, specifying date and time preferences. This module is to access and review their scheduled appointments. This feature typically provides information about the appointment, including the date, time, location, purpose, and any additional relevant details. Patient can be able to cancel if the patient wants to cancel it with their convenient.


HOME
SEARCH DOCTOR
PATIENT
BOOK APPOINTMENT
VIEW APPOINTMENT
PROFILE

CHAPTER 06

TESTING AND IMPLEMENTATION

6. TESTING AND IMPLEMENTAION

Testing:

Testing and implementation are critical phases in the software development lifecycle. Testing involves systematically evaluating a software application to identify and rectify any defects or issues that may affect its functionality, security, or performance. It encompasses a range of techniques, including unit testing, integration testing, system testing, and user acceptance testing. Testing helps ensure that the software meets its intended requirements and functions as expected.

Implementation, on the other hand, is the process of deploying the software into a production environment, making it available to end-users. This phase involves the installation of the software, data migration, configuration, and any necessary training for users and administrators. It's the final step in delivering the software to the target audience.

XAMPP, which stands for "Cross-Platform (X), Apache (A), MariaDB (M), PHP (P), and Perl (P)," is a widely used open-source software stack for local web development and testing. It provides a convenient environment for developers to create and test web applications before deploying them to live servers.

Testing and implementation in the context of a doctor appointment booking system are crucial to ensure that the software operates efficiently and effectively.

Unit Testing: Individual components of the system, such as the user interface, appointment scheduling algorithms, and user authentication, are tested in isolation. This ensures that each component works correctly.

Integration Testing: Different modules of the appointment booking system, like user registration, scheduling, notifications, and payment processing, are tested together to verify their interaction and data flow.

Functional Testing: The appointment booking system's functions, including user registration, appointment creation, modification, and cancellation, as well as notifications to patients and doctors, are tested to ensure they meet the specified requirements.

User Acceptance Testing (UAT): End-users, which may include patients, doctors participate in UAT. They verify that the system meets their needs, is user-friendly, and functions as expected. They may also ensure that the booking system integrates with their existing workflows.

Performance Testing: The system should be tested to handle a substantial number of concurrent users booking appointments. Load testing is performed to ensure the platform can accommodate peak demand without performance degradation.

Security Testing: Given the sensitive nature of healthcare data, security testing is vital. It includes penetration testing to identify vulnerabilities and ensure that patient data is secure.

Compatibility Testing: The system needs to work on various platforms (web, mobile), browsers, and devices to cater to a diverse user base. Compatibility testing ensures that the system functions properly in different environments.

Accessibility Testing: Ensuring the system complies with accessibility standards is important to accommodate individuals with disabilities who may need to book appointments.

Implementation:

Installation and Configuration: The appointment booking system is deployed to a production environment. This phase involves setting up the software, configuring it according to the

specific healthcare facility's requirements, and ensuring it integrates with existing systems, such as Electronic Health Records (EHR) systems.

Data Migration: If migrating from an older system, patient data, doctor schedules, and appointment history need to be transferred seamlessly to the new system without loss or corruption.

User Support: Post-implementation, ongoing user support and maintenance are essential to address any issues, provide assistance, and keep the system up to date with evolving healthcare needs and technology updates.

doctor appointment booking system, seamless testing and implementation are vital to ensure that patients can easily book appointments, healthcare providers can manage their schedules efficiently, and sensitive health data remains secure. A well-executed testing and implementation process ultimately leads to a reliable and user-friendly system, benefiting both patients and healthcare professionals.

CHAPTER 07

APPENDICES

7.1 SAMPLE CODE

HOME PAGE:

```
<?php include('header.php'); ?>
        <div>
                <article>
                        <p>Human health, defined as the complete state of physical, social, and mental well-being and not merely the absence of illness, disease, or infirmity, is as vital a resource as water, food, or energy.
                        </p>
                </article>
</div>
<div class="imgsize">
<h3>Finds Doctors from anywhere anytime!</h3>
</div>
        <h3>Doctors Appoinment...?</h3>
        <p>
        It is an arrangement to meet the doctor and patient at a particular time in the clinic. For successful life human being needs good health but illness is a part of life. The crowd in the hospitals, long waiting of doctor appointments makes the patients more disturb.
        </p>
        <?php include('footer.php'); ?>
</body>
</html>
```

USER LOGIN:

```
<?php include('header.php'); ?>
        <div style="background-color:#fff;">
                <h1 style="color:black; text-align: center;">User Login</h1>
            <center>
        <div class="box">
        <a class="a" href="patientlog.php">Patient login</a>
                <br><br>
        <a class="a"  href="doctorlog.php">Doctor login</a>
          </div>
            </center>
    </div>
 <?php include('footer.php'); ?>
</body>
</html>
```

DOCTOR:

```
<?php
include 'config.php';
session_start();
$user_id = $_SESSION['user_id'];

if(!isset($user_id)){
   header('location:../doctorlog.php');
```

```
};
if(isset($_GET['logout'])){
  unset($user_id);
  session_destroy();
  header('location:../doctorlog.php');
};
?>
<?php include('header.php'); ?>
<!DOCTYPE html>
<html>
  <head>
  <link rel="stylesheet" href="../css/styles.css">
</head>
   <body>
       <?php
          $select_user = mysqli_query($conn, "SELECT * FROM `doctor` WHERE user_id = '$user_id'") or die('query failed');
          if(mysqli_num_rows($select_user) > 0){
            $fetch_user = mysqli_fetch_assoc($select_user);
          };
       ?>
  <div class="imgsize3">
       <center>
          <br>
       </p>Welcome<br><span><?php echo $fetch_user['name']; ?></span></p>
```

```
        <a class="a" href="doctor_page.php?logout=<?php echo $user_id; ?>" onclick="return confirm('Are your sure you want to logout?');" class="">Logout</a>
        </center>
  </div>
  <?php include('footer.php'); ?>
   </body>
   </html>
```

PATIENT:

```
<?php
include 'config.php';
session_start();
$user_id = $_SESSION['user_id'];
$email = $_SESSION['email'];

if(!isset($user_id)){
  header('location:../patientlog.php');
};

if(isset($_GET['logout'])){
  unset($user_id);
  session_destroy();
  header('location:../patientlog.php');
};
?>
```

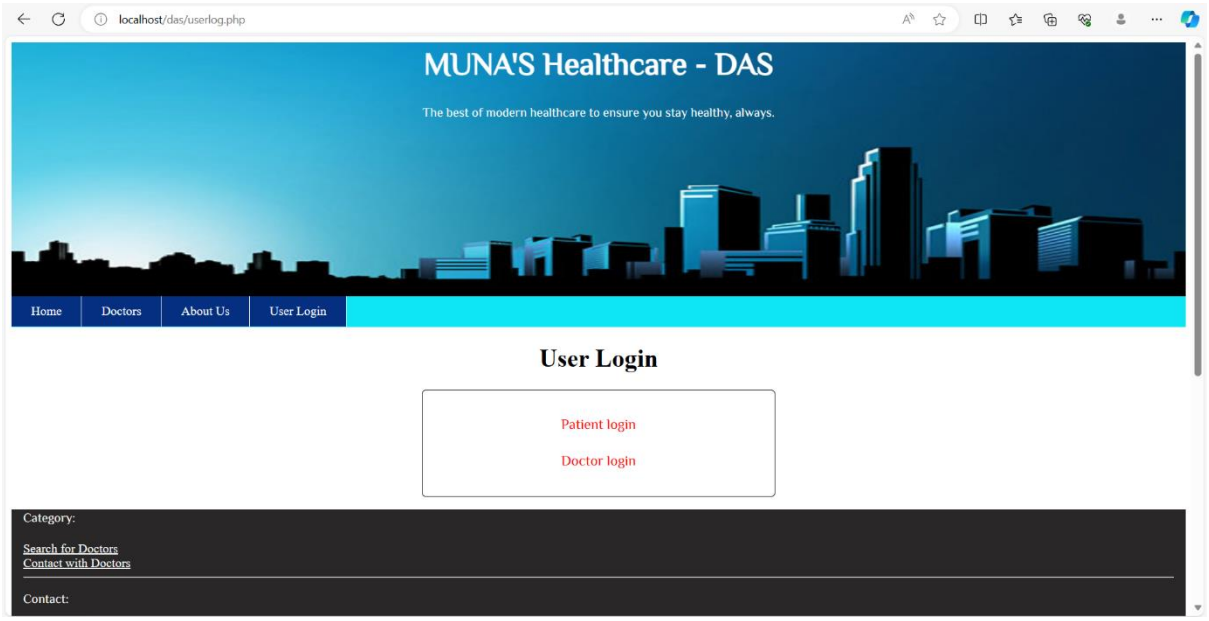
```
<?php include('header.php'); ?>
<!DOCTYPE html>
<html>
  <head>
  <link rel="stylesheet" href="../css/styles.css">
</head>
   <body>
       <?php
          $select_user = mysqli_query($conn, "SELECT * FROM `patient` WHERE patient_id = '$user_id'") or die('query failed');
          if(mysqli_num_rows($select_user) > 0){
            $fetch_user = mysqli_fetch_assoc($select_user);
          };
       ?>
  <session class="imgsize3">
       <center>
       <p>Welcome to MUNA'S Healthcare
          <br><span><?php echo $fetch_user['name']; ?></span></p>
       <a class="a" href="patient_page.php?logout=<?php echo $user_id; ?>" onclick="return confirm('Are your sure you want to logout?');" class="">Logout</a>
       </center>
  </session>
  <?php include('footer.php'); ?>
   </body>
   </html>
```

7.2 FORMS AND REPORTS

Home Page:

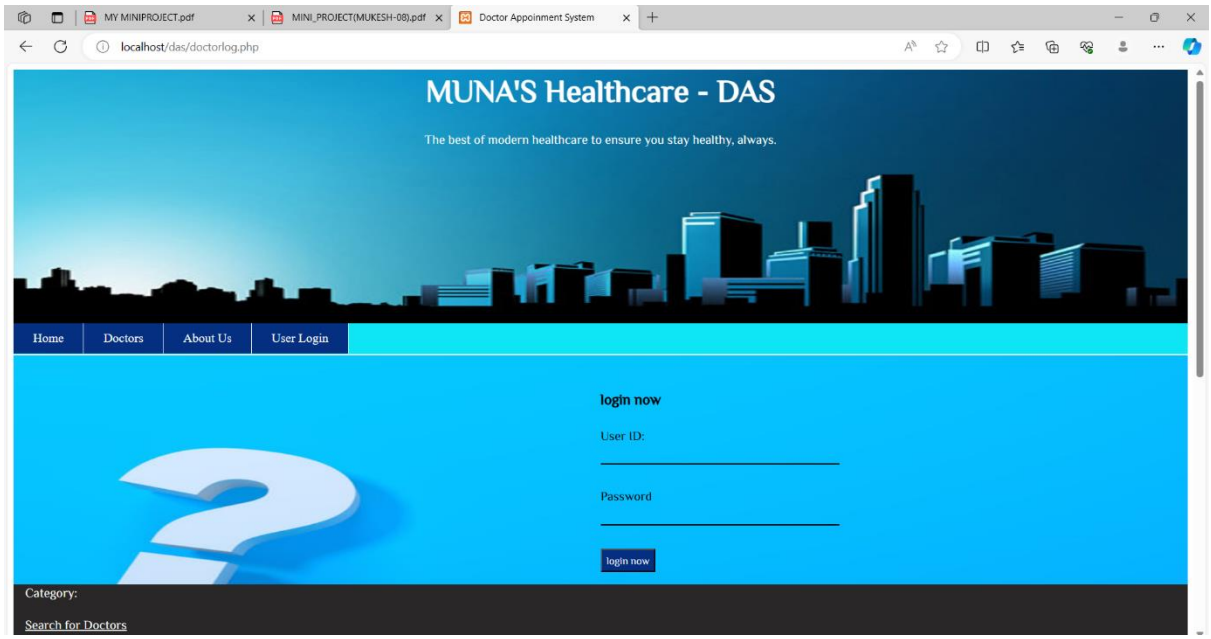
The home page in a doctor appointment system serves as the virtual front door to the entire platform, playing a pivotal role in facilitating user engagement and interaction. It provides a welcoming and intuitive interface for users, offering essential navigation, information, and functionality. From the home page, users can effortlessly navigate through the system, search for healthcare providers, schedule appointments, and access crucial information. This module also serves as an informational hub, showcasing updates, promotions, and announcements. It creates a secure space for user registration and login, enabling users to manage their appointments effectively. In essence, the home page is the central hub that sets the stage for a seamless and user-friendly experience, guiding individuals towards accessing the healthcare services they need while ensuring that their journey starts with convenience and confidence.

User Login:



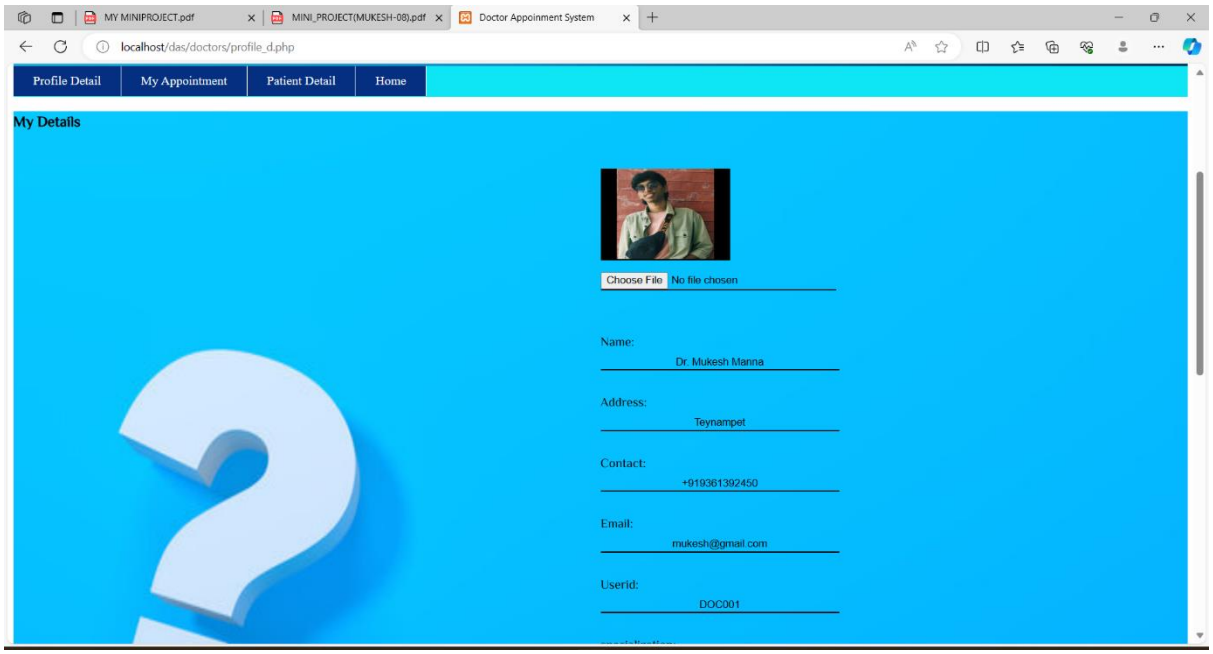
The user login is a core component of online systems, including doctor appointment platforms, designed to authenticate and grant users access to their accounts and personalized features. Its primary function is to verify the user's identity through a combination of a username or email and a password, ensuring that only authorized individuals can log in.

Doctor Login:



The doctor login is a component of a healthcare system that allows registered doctors to access their accounts securely. Doctors enter their credentials, usually a username and password, to authenticate their identity. This module ensures that only authorized medical professionals can log in and access features such as patient records, appointment schedules, and communication tools.

Doctor Profile:

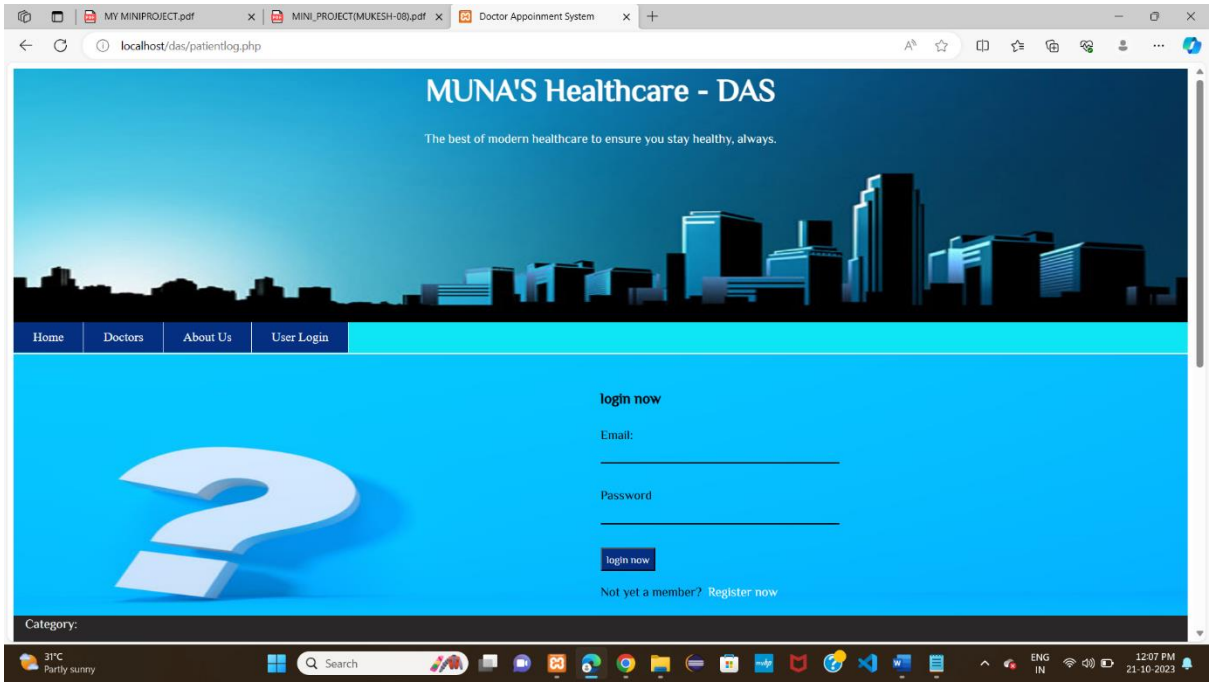


Doctor profile page is use to view the doctor information and it can be modified and update the detail as per their convenient. The doctor profile is a section within a healthcare system where doctors can create and manage their personal profiles. In this module, doctors can provide important information about themselves, such as their credentials, contact details, and office hours. They can also upload a profile picture. This profile is essential for patients and the healthcare system to find and learn more about the doctor's qualifications and availability, helping patients make informed decisions when booking appointments. It plays a vital role in enhancing the transparency and credibility of healthcare providers within the system.

View Appointment (Doctor):

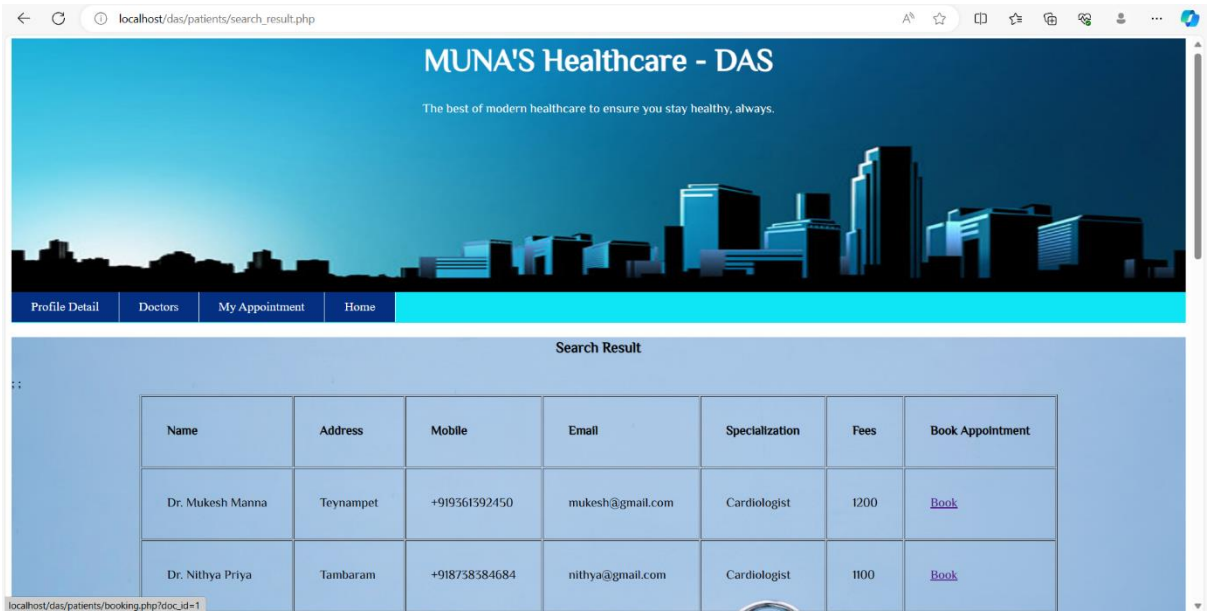
Through this module, doctors can view upcoming appointments, patient details, appointment times, and any relevant medical notes. It enables healthcare providers to stay organized, plan their day, and ensure they are well-prepared for patient consultations.

Patient Login:



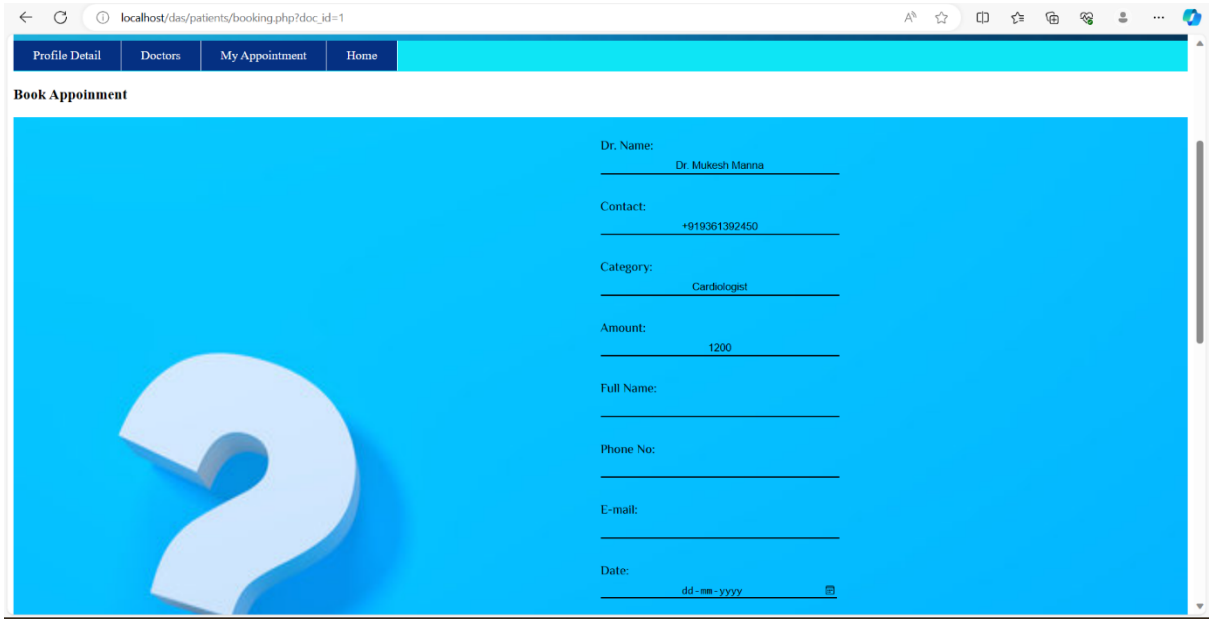
The Patient login is a core component of online systems that permits registered users to access their accounts securely. Users input their unique credentials, typically a username or email and a password, to confirm their identity. This module ensures that only authorized individuals can log in, providing a secure gateway to personalized features and data. After successful login, users can access and manage their profiles, perform actions like appointment booking, and interact with various system functionalities. The user login module serves as a fundamental access point, offering a safe and personalized experience for individuals within the online platform.

Search for doctor:



The patient can search doctors by specialization after which the system will evaluate to give the patient the best search result.

Book Appointment:

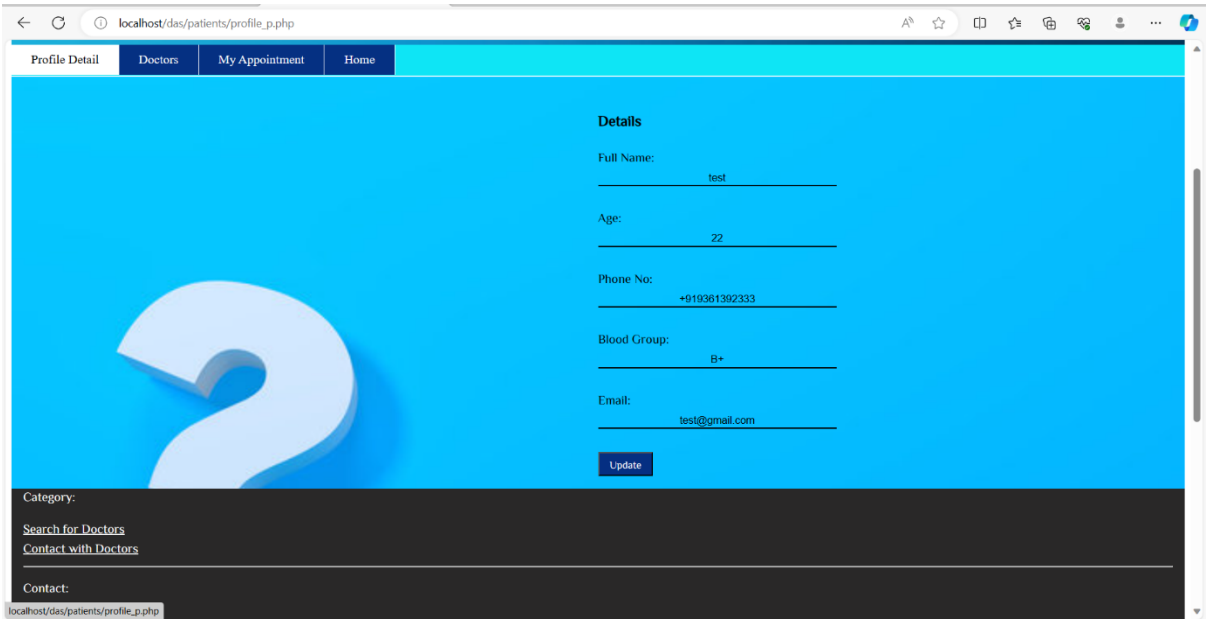


This is the process of scheduling the appointment for patients to easily schedule with their preferred specialization healthcare providers, specifying their information, date and time preferences. It typically allows users to search for doctors by specialty, location, or availability, browse through the profiles of healthcare professionals, and select a suitable time slot for their appointment.

View Appointment (Patient):

This page is to access and review their scheduled appointments. This feature typically provides information about the appointment, including the date, time, location, purpose, and any additional relevant details. Patient can be able to cancel if the patient wants to cancel it with their convenient.

Patient Profile:



Patient profile page is use to view the patient information and it can be modified and update the detail as per the user convenient. They can also view and update their appointment schedules, access their medical records, and communicate with healthcare providers. By maintaining an up-to-date patient profile.

CHAPTER 08

CONCLUSION AND FUTURE SCOPE

8. CONCLUSION AND FUTURE SCOPE

CONCLUSION

A doctor appointment booking system is a crucial tool in modern healthcare that enhances the accessibility and efficiency of healthcare services. By integrating various modules, such as user login, appointment booking, and patient profiles, these systems empower both patients and healthcare providers. Patients can easily find, schedule, and manage their appointments, while healthcare professional benefit from organized schedules and access to critical patient information.

Furthermore, these systems not only optimize the scheduling process but also improve patient engagement and healthcare outcomes. They allow patients to take an active role in managing their health and accessing medical care, all in a secure and user-friendly digital environment. Overall, doctor appointment booking systems contribute to a more patient-centric and effective healthcare ecosystem, reducing administrative burdens, enhancing communication, and ultimately ensuring that individuals receive the care they need in a timely and convenient manner.

FUTURE ENHANCEMENTS

The future scope and enhancement of a doctor appointment booking system developed using PHP and MySQL are promising, offering opportunities to make the system even more efficient and user-friendly.

- The integration of telemedicine features holds great potential. Enabling video consultations and remote monitoring within the system would extend healthcare access to a wider audience and improve the patient experience. Incorporating telehealth capabilities could revolutionize the way patients and doctors interact, making healthcare services more flexible and accessible, especially in situations like the COVID-19 pandemic.

- Leveraging data analytics and machine learning in the system can lead to more personalized and predictive healthcare. By analysing historical data from appointments, patient records, and outcomes, the system can provide insights to healthcare providers. This data-driven approach can help doctors make informed decisions, improve resource allocation, and predict appointment demand more accurately, ultimately enhancing patient care and resource management.

- Enhancing the user experience and accessibility is crucial. Developing a user-friendly mobile app alongside the web-based system can improve convenience and engagement for both patients and doctors. Additionally, multi-language support and accessibility features can ensure that a diverse range of users can benefit from the system. These enhancements will make the doctor appointment booking system more inclusive and valuable to a wider range of users.

- The future of a doctor appointment booking system developed using PHP and MySQL involves integrating telemedicine, harnessing data analytics and machine learning, and prioritizing user experience and accessibility. These enhancements will contribute to a more patient-centric, data-driven, and accessible healthcare system.

CHAPTER 09

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9. BIBLIOGRAPHY

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