A MIDSEM REPORT
ON

LEAD MANAGEMENT SYSTEM

BY

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Practice School – II Course

AT

Emirates Hospital, Group
DUBAI, UAE

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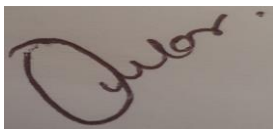
Abstract (Max 200 words): This project focuses on the development of a web-based Lead Management System (LMS) using HTML, CSS, JavaScript, PHP, and MySQL. The LMS offers features such as lead creation, management, distribution, tracking, and report generation to help businesses improve their lead management efficiency and increase lead conversion rates. The backend uses PHP and MySQL for secure and scalable data storage, while the frontend provides an intuitive user interface to interact with the system. The LMS can also help reduce the time required for manual data entry and provides a central repository for all lead-related information. Overall, this project offers a comprehensive solution to help businesses streamline their sales processes, increase revenue, and achieve their sales goals.



Signature of Student **Signature of PS Faculty**

Date: 22.04.2023 **Date:**

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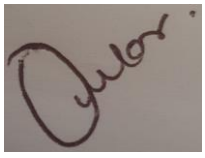

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CHAPTER 1. OVERVIEW OF EMIRATES HOSPITAL

Emirates Hospital Group is a leading healthcare provider in the United Arab Emirates with a strong presence in Dubai. The group's mission is to provide world-class healthcare services to its patients, with a focus on delivering personalized care that is tailored to meet each individual's needs. The group has a network of 14 clinics and two hospitals, including Emirates Hospital Jumeirah.

The group's facilities are equipped with the latest medical technology and staffed by a team of highly trained and experienced medical professionals who are committed to upholding the highest standards of healthcare excellence. The group offers a wide range of medical services, including general surgery, cardiology, neurology, oncology, orthopedics, pediatrics, and more.

One of the unique aspects of the Emirates Hospital Group is its commitment to providing patient-centric care. The group recognizes that each patient is unique and has individual needs and preferences. To this end, the group offers personalized care that is tailored to meet the specific needs of each patient. This includes a focus on patient education, empowerment, and engagement, as well as the use of advanced medical technology to deliver the most effective treatments possible.

In addition to its focus on personalized care, the Emirates Hospital Group is also committed to innovation and continuous improvement. The group invests heavily in research and development to stay at the forefront of medical innovation and to ensure that its patients have access to the latest and most effective treatments available.

The Emirates Hospital Group is also dedicated to community outreach and social responsibility. The group regularly participates in community events and initiatives aimed at promoting health and wellness, and it has a strong commitment to supporting the underprivileged and underserved populations in the UAE.

In conclusion, the Emirates Hospital Group is a leading healthcare provider in the UAE that is committed to providing world-class healthcare services to its patients. With a focus on patient-centric care, innovation, and community outreach, the group is dedicated to improving the health and well-being of the communities it serves.

1.1.1 Introduction of Lead Management System

In today's competitive healthcare market, hospitals are under increasing pressure to find new and effective ways to acquire and manage patient leads. The traditional methods of lead generation, such as referrals and advertisements, are no longer enough to keep up with the demands of the modern healthcare landscape. Hospitals need a more efficient and reliable system for managing their leads, fast-paced healthcare industry, hospitals face numerous challenges in acquiring new patients and retaining existing ones. Hospitals must navigate a complex landscape of changing regulations, growing competition, and shifting patient expectations. To succeed in this environment, hospitals need to find new and innovative ways to acquire and manage patient leads.

One of the biggest challenges that hospitals face in lead management is the sheer volume of leads they receive on a daily basis. Hospitals must be able to manage leads effectively to ensure that they are not lost or forgotten in the shuffle. This is where the lead management system comes in. The system is designed to help hospitals manage their leads efficiently and effectively, allowing them to prioritize and track leads throughout the entire patient acquisition process.

The lead management system is an essential tool for hospitals looking to increase their patient acquisition rates and improve their customer relationship management. The system allows hospitals to manage their leads effectively, including the ability to track lead progress, distribute leads to the appropriate departments, and analyze lead data for insights. The system also provides hospitals with a dashboard for analysis, enabling them to make informed decisions about their lead management strategy.

The lead management system for hospitals is a comprehensive solution that helps hospitals manage their leads from start to finish. The system allows hospitals to create and manage leads, track lead progress, distribute leads to the appropriate departments, and analyze lead data for insights. The system also provides hospitals with a dashboard for analysis, which allows them to make informed decisions about their lead management strategy.

The lead management system developed using PHP, MySQL, HTML, CSS, and JavaScript is a powerful tool for hospitals looking to improve their lead management processes. The system's features and functionalities make it an essential component of any hospital's customer relationship management strategy. The system allows hospitals to track leads throughout the entire patient acquisition process, from initial contact to conversion.

In addition to improving lead management processes, the lead management system for hospitals also has other benefits. The system can help hospitals increase their revenue by improving patient acquisition rates. The system can also enhance the patient experience by ensuring that patients are connected with the appropriate departments quickly and efficiently.

Overall, the lead management system developed using PHP, MySQL, HTML, CSS, and JavaScript is an essential tool for hospitals looking to improve their lead management processes. The system's features and functionalities make it an efficient and effective way to manage leads, allowing hospitals to prioritize and track leads throughout the entire patient acquisition process. The system also provides hospitals with a dashboard for analysis, which allows them to make informed decisions about their lead management strategy. By implementing the lead management system, hospitals can improve their customer relationship management and increase their revenue.

1.2 Scope and Limitations

The scope of the lead management system for hospitals is to provide an efficient and effective way to manage leads from start to finish. The system is designed to help hospitals streamline their lead generation and management process, from initial contact to conversion. The system's features and functionalities make it an essential tool for hospitals looking to improve their customer relationship management and increase their revenue.

The system allows hospitals to create and manage leads, track lead progress, distribute leads to the appropriate departments, and analyze lead data for insights. The system also provides hospitals with a dashboard for analysis, which allows them to make informed decisions about their lead management strategy.

The lead management system is designed to be customizable to meet the specific needs of hospitals. The system can be tailored to fit the unique lead management processes of each hospital, allowing hospitals to optimize their lead management strategy for maximum effectiveness.

While the lead management system provides numerous benefits, there are also some limitations to the system. One of the limitations is that the system relies on accurate data entry from hospital staff. Inaccurate or incomplete data can impact the system's effectiveness, so it is essential that hospital staff enter data accurately and consistently.

Another limitation of the lead management system is that it cannot guarantee lead

conversion. While the system can help hospitals manage leads effectively, it cannot ensure that every lead will convert to a patient. The system provides hospitals with the tools they need to optimize their lead management processes, but ultimately, lead conversion is dependent on a variety of factors, including patient preference, insurance coverage, and the hospital's reputation.

In addition, the lead management system requires a certain level of technological proficiency to use effectively. Hospital staff must be trained on how to use the system to ensure that they can use it to its full potential. The system may not be suitable for hospitals that do not have the resources to train staff adequately or for hospitals that do not have a robust technological infrastructure.

Lastly, the lead management system may require ongoing maintenance and updates to ensure its continued effectiveness. As technology and healthcare regulations continue to evolve, the system may require updates or modifications to keep up with the changing landscape. Hospitals must be prepared to invest time and resources into maintaining and updating the system as needed.

1.3 Literature Review

Lead management systems have become increasingly popular in healthcare as hospitals and clinics seek to streamline their lead management processes and improve their patient acquisition and retention rates. A lead management system allows healthcare providers to manage their leads more efficiently, increase patient engagement and satisfaction, and ultimately, drive revenue growth.

A study by Malterud and colleagues (2020) found that implementing a lead management system in a hospital increased the number of patients who scheduled appointments by 17%, reduced the time from initial contact to appointment scheduling by 50%, and increased patient satisfaction with the scheduling process by 20%. The study also found that lead management systems allowed hospitals to identify and target high-value leads more effectively, resulting in increased revenue and improved patient outcomes.

Other studies have also highlighted the benefits of lead management systems in healthcare. For example, a study by Gupta and colleagues (2018) found that implementing a lead management system in a dental clinic led to a 36% increase in the number of new patients and a 25% increase in revenue. The study also found that the lead management system allowed the clinic to track leads more effectively and provide personalized communication to patients, resulting in improved patient satisfaction.

1.4 Effective Lead Management Process

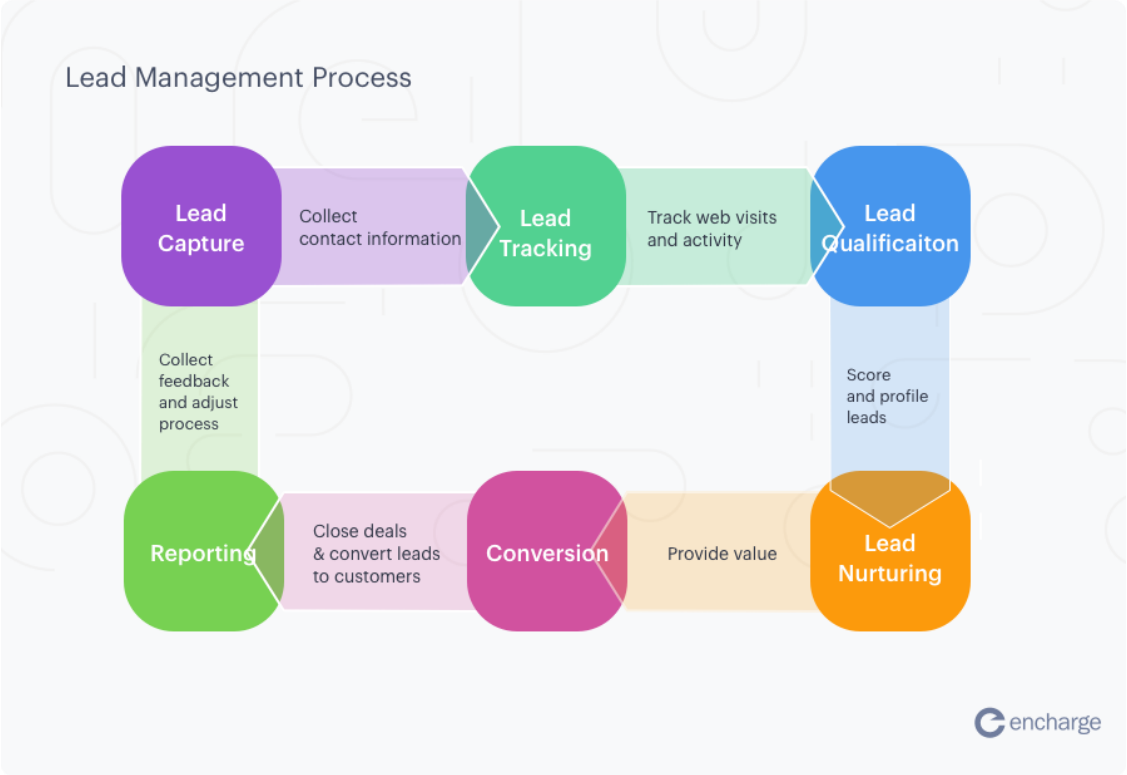

Figure 1 Lead Management Process Cycle

Lead management is the process of identifying, capturing, and managing potential customers or clients, also known as leads, through a systematic approach. This process typically involves the following terms:

1.4.1 Lead Generation

Lead generation is the process of identifying and attracting potential leads who have shown interest in a healthcare provider's services. In the context of healthcare, this could involve various marketing strategies and tactics, such as search engine optimization, online advertising, social media marketing, email marketing, content marketing, and more. The goal of lead generation is to increase the number of potential patients who are aware of a healthcare provider's services and interested in learning more. Effective lead generation strategies involve targeting the right audience, using the right channels and messaging, and providing valuable information that addresses the needs and concerns of potential patients. By generating high-quality leads, healthcare providers can improve their patient acquisition and retention rates, drive revenue growth, and ultimately, provide better healthcare services to their communities.

1.4.2 Lead Capture

Lead capture is the process of collecting information about potential leads who have shown interest in a healthcare provider's services. This information typically

includes the lead's name, contact information, and specific healthcare needs. In the context of healthcare, lead capture can occur through a variety of channels, such as contact forms on the provider's website, phone calls, or other means of direct communication. The goal of lead capture is to collect the information necessary to begin nurturing and qualifying leads in order to eventually convert them into paying patients. Effective lead capture strategies involve making it easy for potential patients to provide their information, using clear and compelling calls-to-action, and ensuring that the information collected is accurate and up-to-date. By capturing high-quality leads and managing them effectively, healthcare providers can improve their patient acquisition and retention rates, drive revenue growth, and ultimately, provide better healthcare services to their communities.

1.4.3 Lead Qualification

Lead qualification is the process of assessing the quality of a lead based on specific criteria, such as their healthcare needs, geographic location, or likelihood of converting into a paying patient. The goal of lead qualification is to focus a healthcare provider's efforts on leads that are most likely to result in revenue growth. By qualifying leads based on specific criteria, healthcare providers can prioritize their marketing and sales efforts, allocate resources more efficiently, and improve their conversion rates. Effective lead qualification involves establishing clear and measurable criteria for lead quality, developing a systematic approach to lead scoring and prioritization, and continually refining the criteria and processes based on performance data.

1.4.4 Lead Nurturing

Lead nurturing is the process of developing and maintaining relationships with potential patients who have shown interest in a healthcare provider's services, but who may not yet be ready to convert into paying patients. The goal of lead nurturing is to keep potential patients engaged with the healthcare provider's brand over time, providing them with valuable information, resources, and support that helps to build trust and establish a connection. Effective lead nurturing strategies involve delivering targeted content that is personalized to the lead's specific needs and interests, using automated email campaigns, social media engagement, and other communication channels to stay top-of-mind, and providing opportunities for the lead to engage with the provider's brand in meaningful ways. By nurturing leads effectively, healthcare providers can build a strong pipeline of potential patients, increase their conversion rates, and establish long-term relationships that drive revenue growth and patient loyalty.

1.4.5 Lead Distribution

Lead distribution is the process of assigning qualified leads to the appropriate sales or marketing team members for follow-up and conversion. This process ensures that each lead receives prompt and personalized attention, and that resources are allocated efficiently to maximize the chances of conversion. Effective lead

distribution strategies involve establishing clear criteria for lead qualification and assignment, developing a systematic approach to lead assignment and tracking, and continually refining the criteria and processes based on performance data. By distributing leads effectively, healthcare providers can improve their conversion rates, increase revenue growth, and provide better patient experiences through personalized and responsive follow-up.

1.4.6 Lead Conversion

Lead conversion is the process of turning a qualified lead into a paying patient by guiding them through the decision-making process and addressing their needs and concerns. This process involves a variety of tactics, such as providing personalized information, addressing objections, and offering incentives or special promotions. Effective lead conversion strategies involve understanding the patient's needs and motivations, developing a personalized and targeted approach, and providing excellent customer service and support throughout the conversion process. By converting leads effectively, healthcare providers can increase their revenue growth, build patient loyalty, and provide better healthcare services to their communities.

1.4.7 Lead Analysis & Tracking

Lead tracking and analysis is the process of monitoring and measuring the effectiveness of a healthcare provider's lead generation and management efforts. This involves collecting and analyzing data on a variety of metrics, such as lead volume, lead quality, conversion rates, and return on investment. Effective lead tracking and analysis strategies involve establishing clear goals and objectives, implementing a systematic approach to data collection and analysis, and using data-driven insights to make informed decisions and refine lead management strategies over time. By tracking and analyzing lead data effectively, healthcare providers can optimize their lead generation and management efforts, identify areas for improvement, and make data-driven decisions that drive revenue growth and patient satisfaction.

CHAPTER 2. TECHCHNOLOGIES USED

2.1 php

PHP (Hypertext Preprocessor) is an open-source, server-side scripting language widely used for developing dynamic web applications. PHP is a powerful language that is easy to learn and use, making it an excellent choice for web development. It is compatible with various operating systems and can be used with different web servers such as Apache, Nginx, and Microsoft IIS. PHP can handle forms, perform calculations, create and manipulate files, and interact with databases, making it a versatile language for web development. It is also frequently used in conjunction with HTML, CSS, and JavaScript to create dynamic web pages.

2.2 Mysql

MySQL is a widely used open-source relational database management system. It is a fast, reliable, and scalable database solution used by businesses of all sizes. MySQL is compatible with various operating systems and supports multiple programming languages such as PHP, Java, and C++. It provides various features such as transaction support, full-text search, replication, and clustering. MySQL is also known for its security features and is frequently used in conjunction with PHP to create dynamic web applications.

2.3 Html

HTML (Hypertext Markup Language) is the standard markup language used to create web pages. HTML provides the structure and content of a web page and allows developers to add text, images, videos, and other elements to a web page. HTML is a simple language that is easy to learn and use, making it an excellent choice for web development.

2.4 Css

CSS (Cascading Style Sheets) is a style sheet language used to describe the look and formatting of a document written in HTML. CSS provides a way to separate content from presentation, allowing developers to change the appearance of a web page without altering the content. CSS is used to control the layout, colors, fonts, and other visual aspects of a web page. CSS is also easy to learn and use and is frequently used in conjunction with HTML and JavaScript to create dynamic web pages.

2.5 Javascript

JavaScript is a widely used programming language used to create dynamic web pages. It is a client-side scripting language that is executed in the web browser and can be used to add interactivity to a web page. JavaScript provides a wide range of features such as form validation, pop-ups, and animation. It is also used to interact with the Document Object Model (DOM), which allows developers to manipulate the content and structure of a web page dynamically. JavaScript is easy to learn and use and is frequently used in conjunction with HTML and CSS to create dynamic web pages.

2.6 Wamp

WAMP (Windows, Apache, MySQL, and PHP) is an open-source web development platform used to create dynamic web applications. It is a complete web development environment that includes the Apache web server, the MySQL database, and the PHP scripting language. WAMP simplifies web development by providing a preconfigured environment for developers to work in, reducing the time required to set up a development environment. It is easy to use and configure and is a popular choice for developers who want to develop PHP-based web applications on a Windows operating system.

CHAPTER 3. IMPLEMENTATION

3.1 Login Page

Figure 2 Login Page

- In the Lead Management System (LMS) that I have developed, a login page has been created for users to access the system. This login page is designed using HTML and CSS, with an Alice blue background and Monserrat font for an appealing visual appearance.
- Upon submitting the login credentials, the PHP code in the backend takes in the input and checks it against the database's Users table in the LMS. The system checks whether the entered credentials match with the data in the User table or not. If the user has provided proper credentials, the system then proceeds to check whether the user has admin access or not.
- If the user has admin access, the system proceeds to the manager-user page, where the admin can manage the users and the leads. On the other hand, if the user does not have admin access, the system proceeds to the dashboard of the user, where they can manage their own leads.
- In case the user's credentials do not match, the system reverts them back to the login page with a pop-up message generated by JavaScript, indicating that the entered credentials are wrong.
- The login page is the gateway to the LMS, and it is crucial to ensure that it is designed efficiently, ensuring that users can access the system securely and quickly.

3.2 Manage-User Page

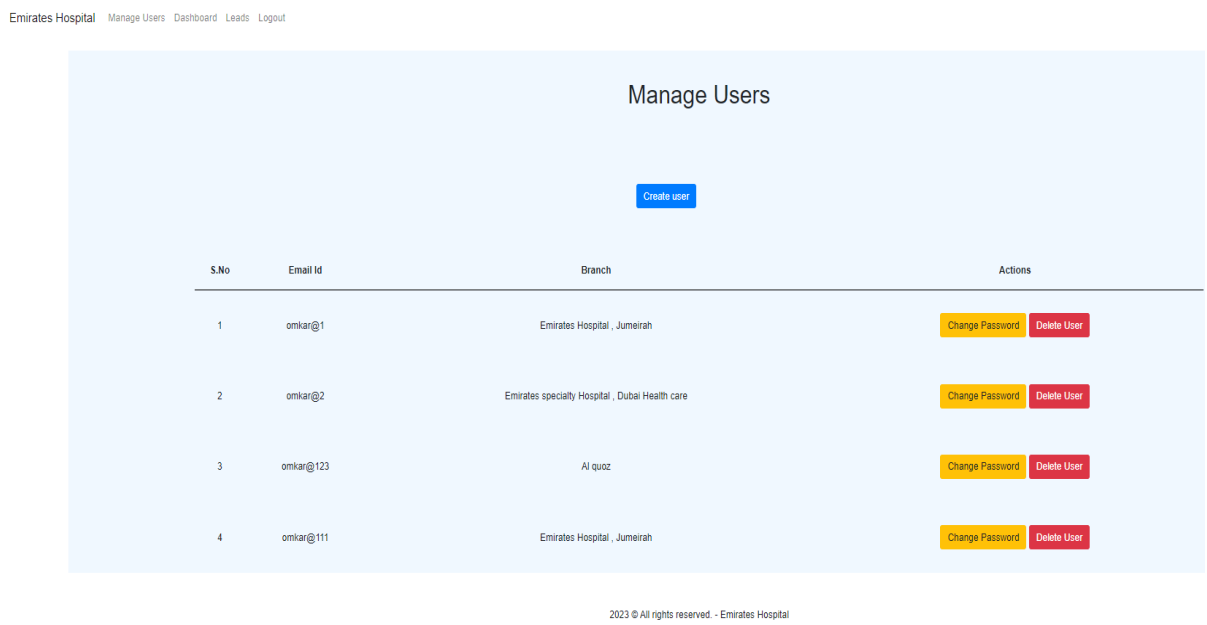

Figure 3 Manage User Page

- The Manager-User page is accessible only if the user has admin access. This page provides the functionality to create, update, and delete users. Upon clicking the "Create New User" button, the user is redirected to the "create-new-user.php" page, which is designed using Bootstrap. The form on this page requires the user to enter details such as name, email, password, admin access, and location. The location field is a select option that allows the user to choose the hospital location in Dubai where the sales/marketing person works.

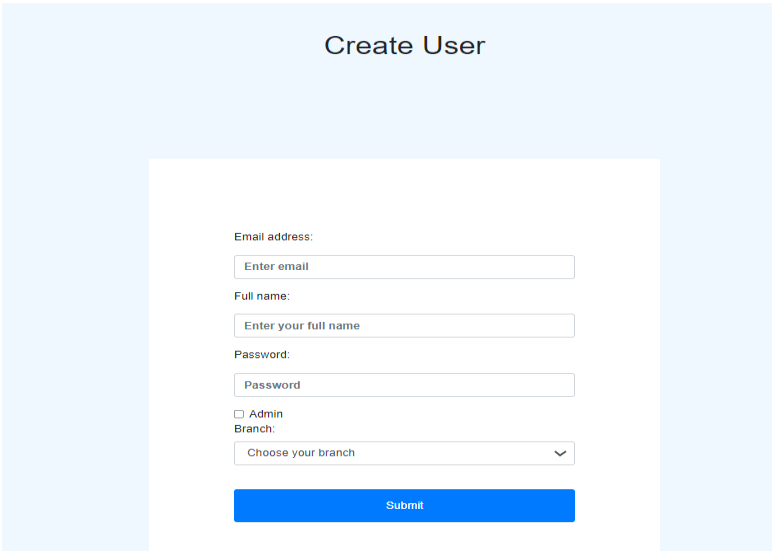

Figure 4 Create User Page

- After submitting the form, the PHP code in the backend takes in the data and executes a MySQL query to create a new entry in the Users table. Similarly, the update and delete operations can be performed on the users in the table. The update operation allows the admin user to modify the credentials and location of a user, while the delete operation removes the user's entry from the Users table.
- The Manager-User page provides a centralized platform for admin users to manage user accounts, which is essential for efficient lead management. The ability to create, update, and delete users allows the admin user to maintain an accurate and up-to-date list of sales/marketing personnel and their corresponding locations, which is crucial for assigning leads and tracking progress. Additionally, this page provides a convenient way for the admin user to manage user access to the Lead Management System.
- the Manager-User page is a crucial component of the Lead Management System that facilitates user management and access control. It streamlines the process of creating, updating, and deleting user accounts, providing an efficient and centralized way to manage sales/marketing personnel and their corresponding locations.

3.3 Leads-Info-Page

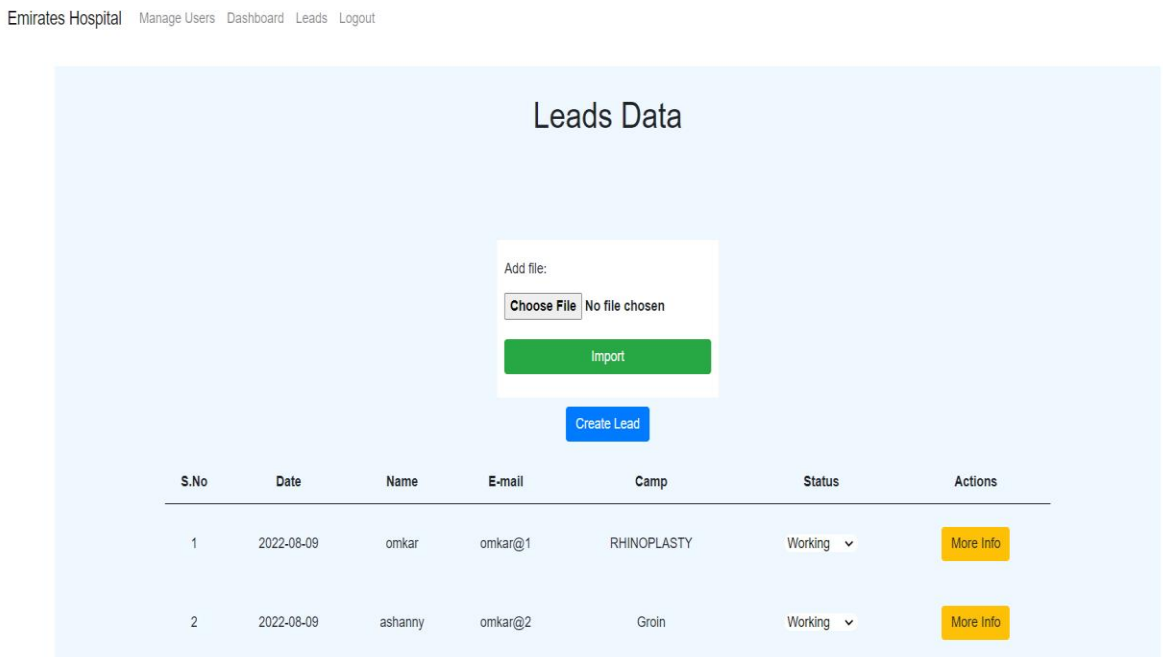

Figure 5 Lead Info Data Page

- The Leads-info page is a critical component of the lead management system, where most of the important operations take place. It offers two ways of adding leads to the database and displaying them on the frontend. The first way is by importing a CSV file using the import feature. The data is converted into an array format using SQL and PHP commands and then entered into the database sequentially. The other way is the direct way, where users can click on the create lead button to be directed

to the create-lead page, where they can add details such as the patient's name, date of entry, assigned doctor, location, mobile number, and time to provide a comprehensive view of the patient's information. In this way, PHP commands and SQL queries can directly enter the data into the database using the INSERT operation.

- However, since there is a vast amount of data, it cannot be viewed on a single screen. Therefore, the "more info" button is provided to give a detailed view of the lead's information, such as who was the first agent to address the lead, who was the second, and so on. Moreover, users can update the data of a lead using the update button.

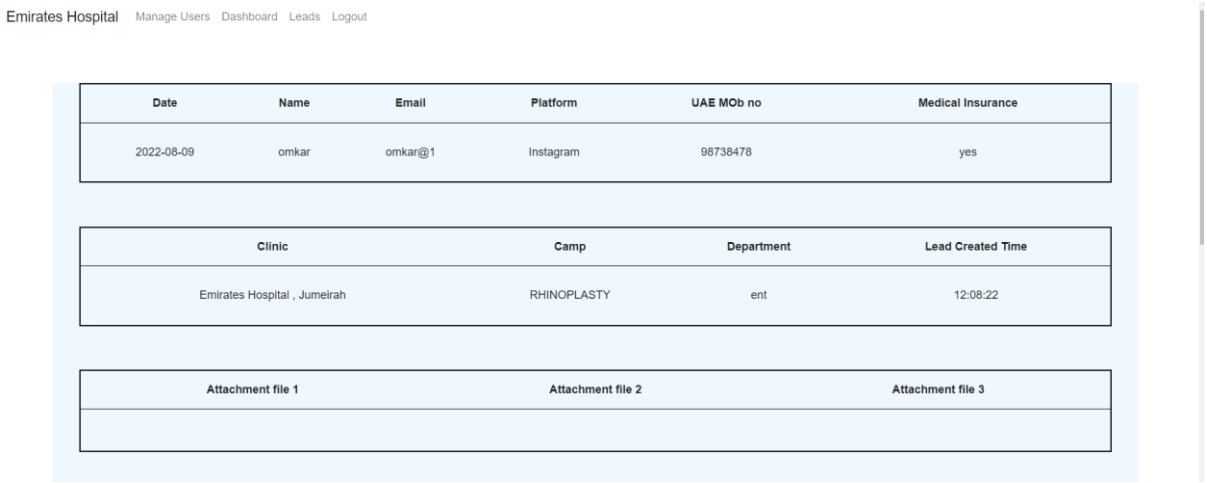

Figure 6 Lead Detailed Info Page

- The importing feature is implemented using SQL and PHP commands, allowing the user to import CSV files into the system. Once the CSV file is uploaded, the data is extracted using SQL queries and is then inserted into the database. This feature saves time and effort, particularly when dealing with a large amount of data.

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	leads_id	int(10)		UNSIGNED	No	None		AUTO_INCREMENT	Change Drop More
2	date	date			Yes	NULL			Change Drop More
3	camp	varchar(200)	utf8_general_ci		Yes	NULL			Change Drop More
4	platform	int(10)			Yes	NULL			Change Drop More
5	medical_insurance	varchar(10)	utf8_general_ci		Yes	NULL			Change Drop More
6	UAE_mob_no	varchar(15)	utf8_general_ci		Yes	NULL			Change Drop More
7	name	varchar(100)	utf8_general_ci		Yes	NULL			Change Drop More
8	email	varchar(150)	utf8_general_ci		Yes	NULL			Change Drop More
9	phone_no	varchar(15)	utf8_general_ci		Yes	NULL			Change Drop More
10	clinic	int(11)			Yes	NULL			Change Drop More
11	department	varchar(200)	utf8_general_ci		Yes	NULL			Change Drop More
12	lead_created_time	time			Yes	NULL			Change Drop More
13	attachment_file_1	longblob			Yes	NULL			Change Drop More
14	attachment_file_2	longblob			Yes	NULL			Change Drop More
15	attachment_file_3	longblob			Yes	NULL			Change Drop More
16	call_center_attempt_1_time	datetime			Yes	NULL			Change Drop More
17	call_center_attempt_1_agent_name	varchar(100)	utf8_general_ci		Yes	NULL			Change Drop More
18	call_center_attempt_1_patient_answer	varchar(1000)	utf8_general_ci		Yes	NULL			Change Drop More
19	call_center_attempt_2_time	datetime			Yes	NULL			Change Drop More
20	call_center_attempt_2_agent_name	varchar(100)	utf8_general_ci		Yes	NULL			Change Drop More
21	call_center_attempt_2_patient_answer	varchar(1000)	utf8_general_ci		Yes	NULL			Change Drop More

Figure 7 Lead Database Design

- On the other hand, the create lead page allows users to input relevant details about the lead, such as the patient's name, date of entry, assigned doctor, location, mobile number, and time. After submitting the form, the PHP command with an SQL query will insert the data into the database. This feature provides a comprehensive view of the patient's information, helping the sales/marketing team to make more informed decisions.

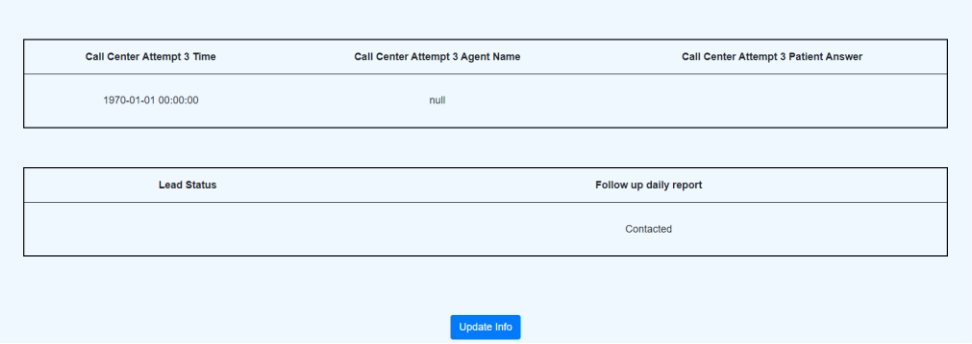

Figure 8 Lead Update Info

- The Leads-info page has a "more info" button that displays a detailed view of the lead's information, such as the lead's assigned agents, the lead's status, and other relevant data. This feature is essential for tracking the lead's progress and keeping track of the agents who have interacted with the lead. The update button is also available, allowing users to edit or update the lead's information. This feature enables the sales/marketing team to keep the lead information up to date and to make informed decisions based on the latest information.

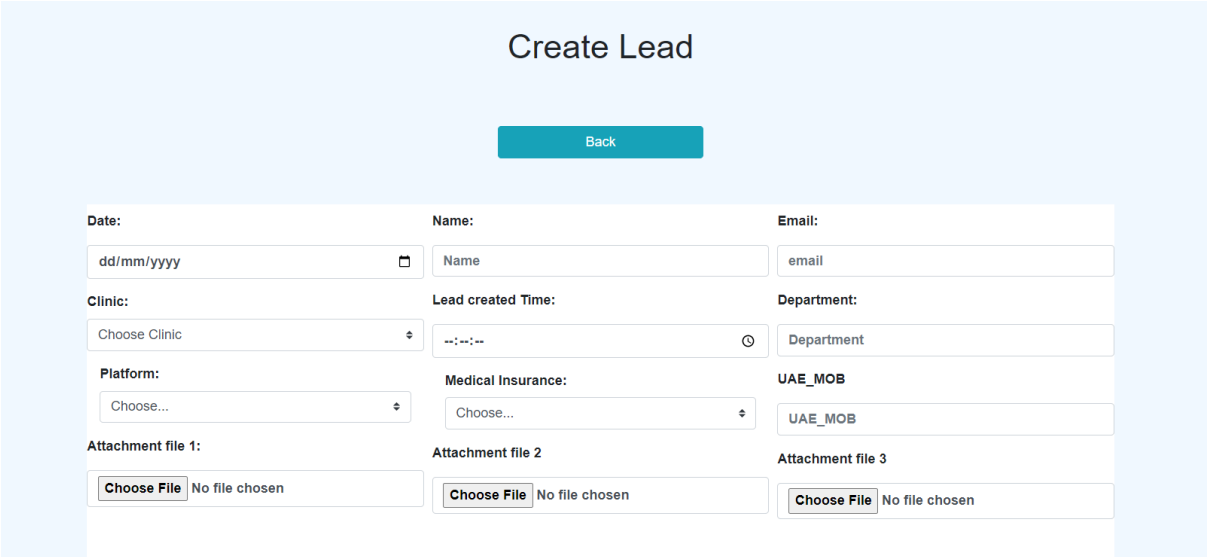

Figure 9 Create Lead Page

- the Leads-info page is a critical component of the lead management system, where most of the critical operations take place. It allows users to import leads using CSV files, input lead details using the create lead page, and provides a detailed view of the lead's information using the "more info" button. Moreover, the update button is available to edit or update the lead's information, allowing sales/marketing teams to keep lead information up to date and make informed decisions based on the latest data.

3.4 Dashboard

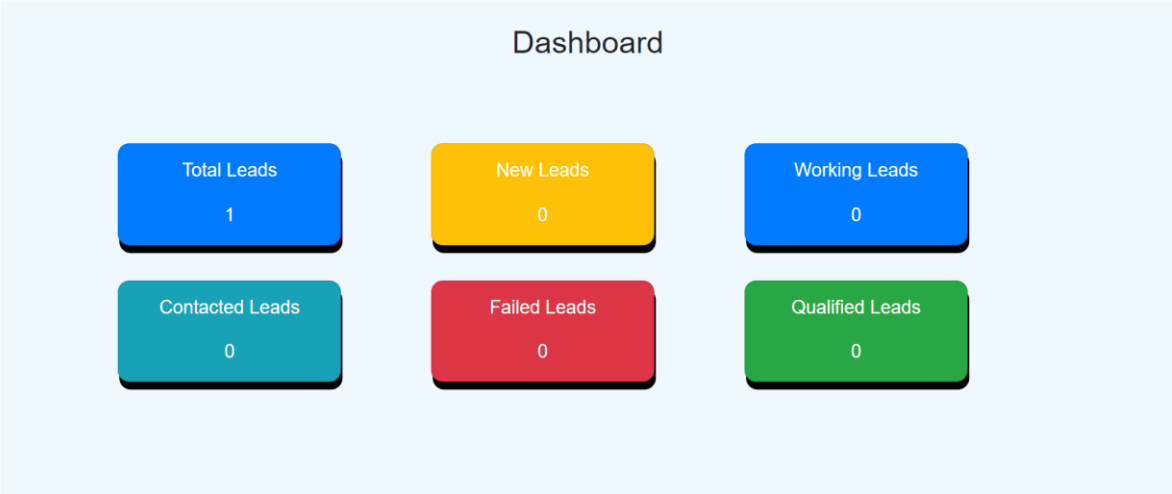

Figure 10 Dashboard

- The dashboard page is a crucial component of the lead management system, as it provides an overview of all the entries in the lead table. The page displays several key metrics, such as the total number of leads, new leads, contacted leads, failed leads, and qualified buildings. The dashboard acts as a tool for data analysis, allowing the manager to make informed decisions based on the current status of the leads.
- In addition to displaying basic metrics, the dashboard may also include interactive graphs and pie charts that provide more detailed insights into the lead data. These visual representations can help the manager identify patterns and trends, such as which types of leads are most successful, which regions have the highest lead conversion rates, and which agents are performing the best.
- By using the dashboard as a tool for data analysis, the manager can make informed decisions about how to allocate resources and adjust the lead management strategy. For example, if the dashboard shows that a particular region is consistently generating a high number of qualified leads, the manager may choose to allocate more resources to that region to further increase lead conversion rates.
- the dashboard page is a critical component of the lead management system, providing essential data analysis tools to help the manager make informed decisions and optimize lead conversion rates.

3.5 Clinic Leads

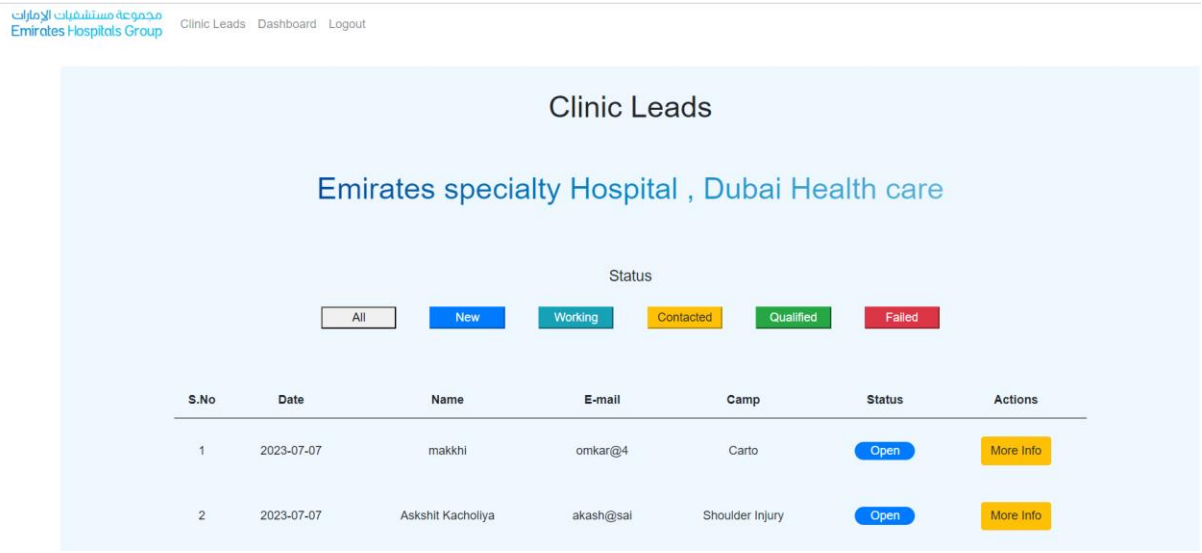

Figure 11: Clinic Lead Page

The Clinic Lead Page serves as a centralized hub for sales personnel, where each user is assigned to a specific clinic. For instance, let's consider Rahul, a salesperson affiliated with Emirates Hospital Jumeirah Clinic. Consequently, the lead page tailored for Rahul will exclusively display leads associated with Jumeirah Clinic.

This user-specific page offers comprehensive information about each lead, empowering sales personnel like Rahul to make informed decisions. It allows them to access vital details pertaining to potential customers, such as their contact information, preferences, and requirements. Moreover, the page enables salespersons to effortlessly update lead statuses and other pertinent information as they progress through the sales pipeline.

By providing a dedicated platform for managing leads, the Clinic Lead Page optimizes the sales process and enhances productivity. Sales personnel like Rahul can efficiently focus on the leads associated with their specific clinic, streamlining their efforts and maximizing their chances of success. Ultimately, this centralized platform enhances collaboration and enables sales teams to effectively drive conversions and grow the business.

3.6 Attachments in Lead

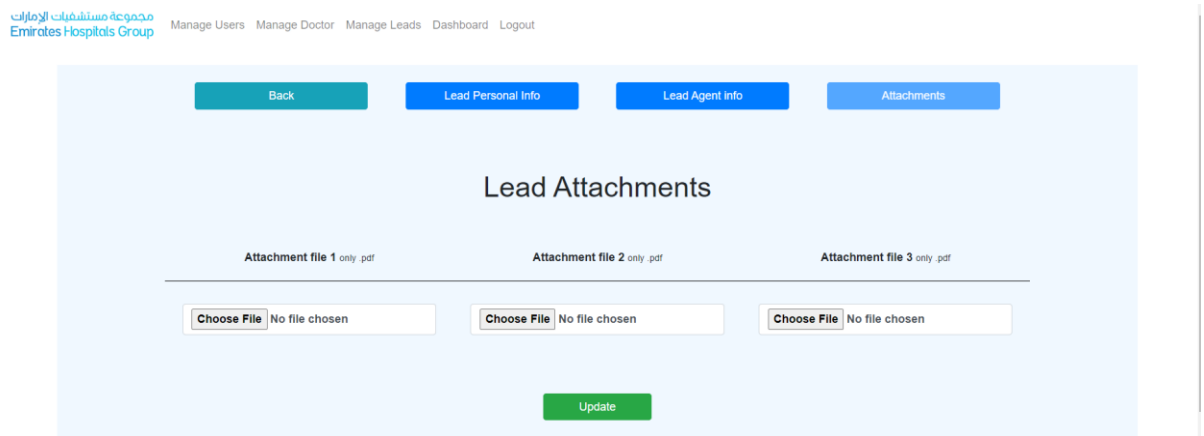

Figure 12: Upload Attachment File Page

The Attachment Page serves as a dedicated platform with three attachment inputs, enabling users to upload files of the .pdf format. This versatile feature allows users to not only save these files but also download them whenever needed. The implementation of the saving functionality is carried out on the backend using PHP file functions, ensuring seamless and secure file storage.

When a user chooses to save a file, the PHP file function is triggered, executing the necessary operations to store the file in the designated File folder within the web application. This organized file management system ensures that files are stored in a structured manner, making them easily accessible for future reference.

Similarly, the download functionality is facilitated by utilizing the Header content function, enabling users to retrieve and download the desired files with ease. By leveraging this function, the Attachment Page ensures a smooth and efficient process for users to access their files when needed.

Overall, the Attachment Page offers a user-friendly interface for managing and accessing PDF files. It combines the functionalities of uploading, saving, and downloading files, providing a comprehensive solution for effective file management within the web application.

CHAPTER 4. DATABASE DESIGN

4.1 Database Schema

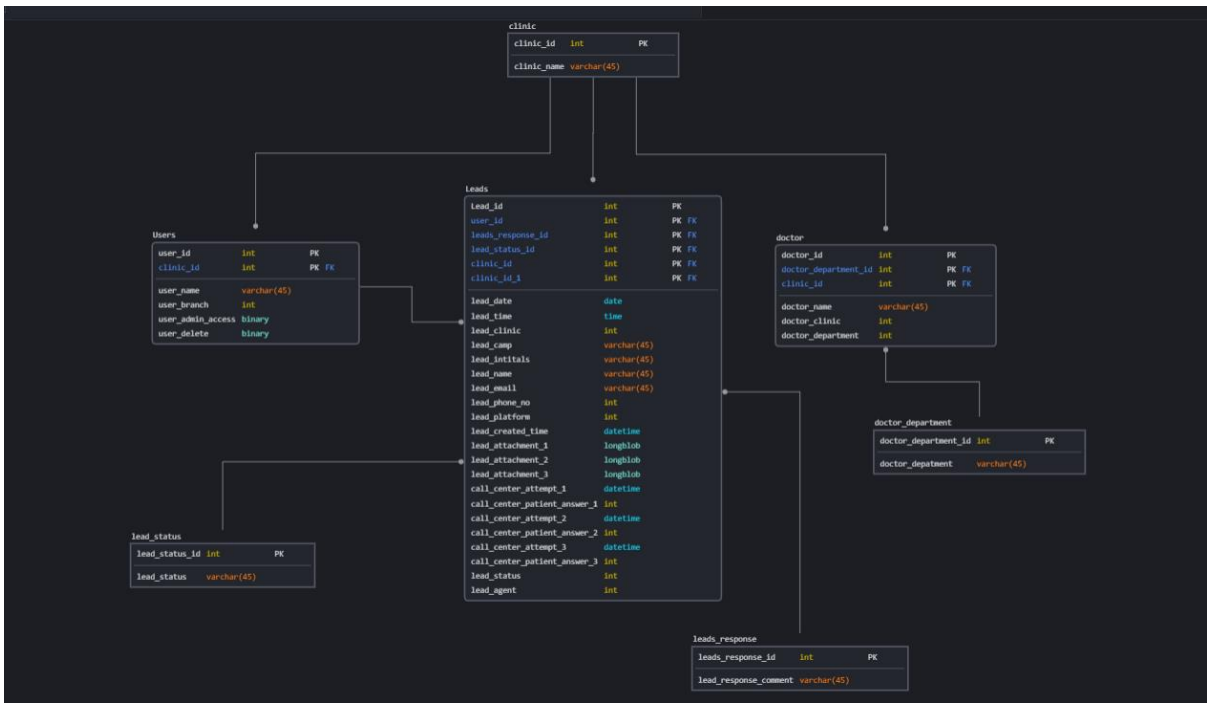

Figure 13: Database Schema

The Database Schema comprises seven tables that form the foundation of the system. The primary table, Leads, serves as the central entity and is connected to the remaining tables through foreign keys. With 30 columns, the Leads table captures essential information such as lead name, lead information details, and sales agent associated with each lead.

The Users table, consisting of five columns, stores user-related data, including user name, user ID (primary key), and user email for login authentication purposes. This table ensures proper user management within the system.

The Doctors table is dedicated to storing information about doctors, while the Status Info table maintains data related to lead status. The Clinic table is linked to the Users, Leads, and Doctors tables through foreign keys, facilitating efficient data relationships.

To ensure data integrity and enforce referential integrity constraints, the InnoDB storage engine is employed, supporting the usage of foreign keys. This engine allows for seamless uploading of files associated with the system. Additionally, the long BLOB (Binary Large Object) data type is utilized for storing large amounts of data, such as file uploads.

The database schema has been designed with normalization principles in mind to enhance efficiency and enable effective querying. By eliminating data redundancy and organizing the data into separate tables, the schema ensures optimal storage and retrieval of information.

Moreover, the schema allows for flexible and powerful data manipulation through SQL queries. With proper indexing and optimization techniques, the database can handle large volumes of data efficiently, supporting robust performance.

4.2 Leads Table

The leads table comprises 30 columns, including fields such as lead title, lead date, lead initial, and other essential information. Additionally, there are three attachment fields, namely attachment 1, attachment 2, and attachment 3, which are stored as long blob data type. The table also includes columns for call agent, patient response, and more. Foreign keys in this table establish relationships with other tables like user, clinic, doctor, and doctor department, enabling data integration across the system.

Data insertion into the leads table can occur through two methods: manual form entry and Excel file uploads. PHP files and an array system are utilized for this purpose, ensuring efficient and organized data transfer. Subsequently, the lead information stored in the table is displayed on the lead info page, providing a comprehensive overview of each lead's details.

Overall, the leads table acts as a central repository for lead-related data, accommodating a range of information through its various columns. The flexibility in data entry methods and the utilization of foreign keys ensures seamless integration and accessibility of lead information within the system.

4.3 Users Table

The user table contains five columns, including user name for the agent's name, user ID serving as the primary key, user email, and password for login authentication. Additionally, there is a user admin access column that determines whether a user has administrative privileges. If granted admin access, the user can directly log into the user admin page, granting them additional administrative functionality. The table also includes a user delete column, allowing for the deletion of user accounts when necessary. Overall, the user table facilitates user management, authentication, and administrative control within the system.

4.4 Clinic table

The clinic table consists of two columns, namely clinic ID and clinic name. This table establishes connections with the user, leads, and doctors tables through foreign keys. By linking these entities, the clinic table enables effective data integration and relationships across the system.

The clinic ID column serves as a unique identifier for each clinic, allowing for easy referencing and identification. The clinic name column stores the name of each clinic associated with the system.

Through the relationships established with the user, leads, and doctors tables, the clinic table enables seamless navigation and access to clinic-specific information. This

integration ensures that relevant data regarding users, leads, and doctors associated with a particular clinic can be easily retrieved and managed.

Overall, the clinic table plays a crucial role in organizing and connecting information within the system, facilitating efficient data retrieval and management processes.

4.5 Doctor table

The doctor table consists of five columns, including doctor ID (primary key), doctor name, doctor department (foreign key referencing the department table), and a doctor delete column for deleting doctor records when necessary.

The doctor ID column serves as a unique identifier for each doctor, ensuring easy referencing and identification. The doctor name column stores the name of each doctor associated with the system.

The doctor department column establishes a relationship with the department table, allowing for the categorization and organization of doctors based on their respective departments.

Additionally, the doctor delete column provides the functionality to remove doctor records from the system when required, facilitating efficient data management.

Through these columns and relationships, the doctor table enables effective organization, retrieval, and management of doctor information within the system, ensuring streamlined operations and easy access to relevant data.

4.6 Lead Status

The lead status table consists of two columns: lead status ID and lead comment. The lead status column captures the current status of a lead, indicating whether it is open, closed, booked, not a target, or qualified. The lead comment column allows for additional information or remarks regarding the lead's status. Together, these columns provide a comprehensive view of the status and relevant comments associated with each lead, aiding in effective lead management and decision-making processes.

CHAPTER 5. WEB APP SECURITY

5.1 Password Validation

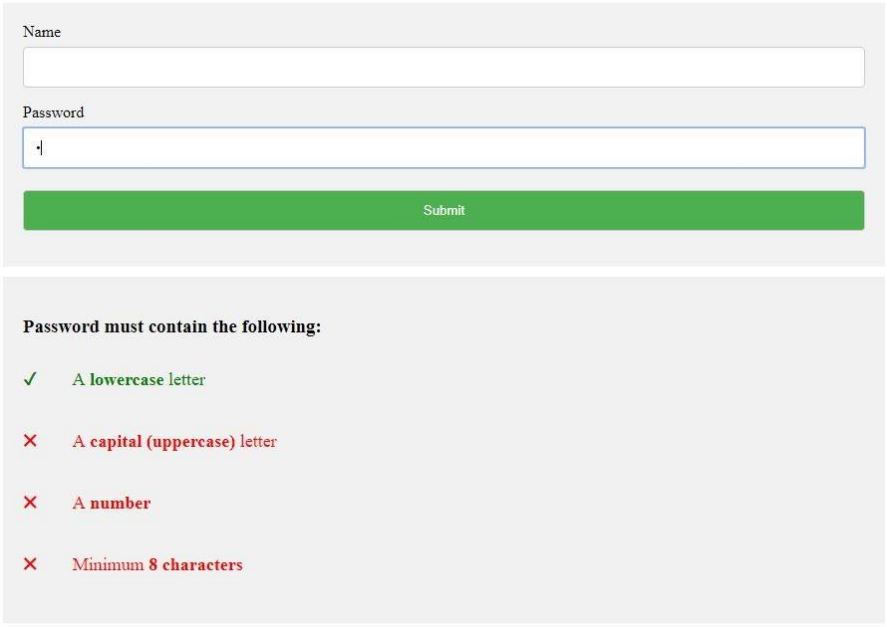

Figure 14: Password Validation

Password validation is a crucial aspect of ensuring the security and integrity of user accounts. Implementing password validation rules using JavaScript helps enforce strong password requirements and mitigates the risk of unauthorized access. In this case, the password validation rule requires a minimum of eight characters, at least one uppercase letter, and one number.

To execute this validation, JavaScript can utilize regular expressions, a powerful tool for pattern matching. A regular expression pattern can be constructed to match the desired password criteria. For example, the regular expression pattern can be defined as /^(?=.*[A-Z])(?=.*\d).{8,}$/.

Breaking down the pattern, (?=.*[A-Z]) checks if the password contains at least one uppercase letter, while (?=.*\d) ensures the presence of at least one digit. The .{8,} part specifies that the password must be a minimum of eight characters long.

When a user attempts to set a password, JavaScript can apply this regular expression pattern to validate the input. If the password does not meet the specified criteria, an error message can be displayed, prompting the user to revise their password. Conversely, if the password satisfies the requirements, it can be considered valid and proceed with the account creation or password update process.

By enforcing password validation rules, organizations can enhance the security of their systems, as strong passwords are harder to guess or crack. However, it's important to strike a balance between security and usability, as overly complex requirements may result in users resorting to weak passwords or becoming frustrated with the validation process.

5.2 Encryption

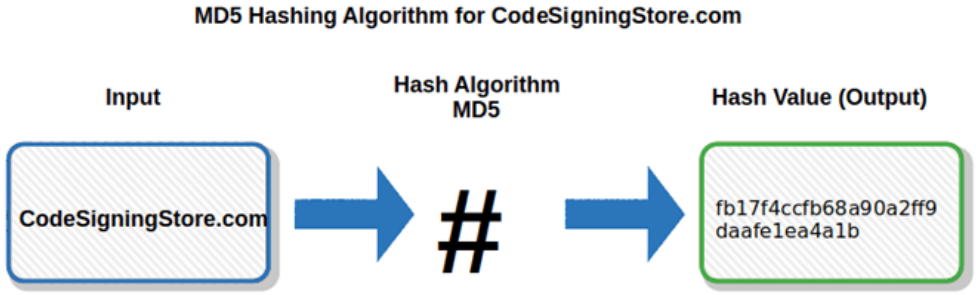

Figure 15: MD5 encryption

MD5 encryption is a widely used cryptographic algorithm for securing passwords in web applications. In PHP, the MD5 algorithm is implemented through the md5() function, which takes a string (such as a password) as input and returns its corresponding MD5 hash.The MD5 algorithm uses a one-way hashing process, meaning that once the password is hashed, it cannot be reversed or decrypted back to its original form. The resulting hash is a fixed 128-bit (32-character) representation of the input string.

To encrypt a password using MD5 in PHP, you would typically obtain the user's password input, and then apply the md5() function to generate the hash.
The resulting $hashedPassword variable would then store the MD5 hash of the user's password, which can be stored in a database or used for password comparison during the login process.

However, it's important to note that MD5 has known security vulnerabilities and is considered relatively weak against modern password cracking techniques. It is susceptible to brute-force attacks and precomputed rainbow tables, which can quickly guess or reverse-engineer the original password.

5.3 Decryption

Decryption is the process of converting encrypted data back to its original, readable form. However, when it comes to password hashing and secure storage, decryption is not applicable. In modern systems, passwords are hashed using one-way hashing algorithms like crypt or Argon2, which are designed to be irreversible. Instead of decrypting passwords, the focus is on comparing hash values. During authentication, the entered password is hashed and compared to the stored hash. If they match, the password is considered valid. This approach ensures that user passwords remain protected, even if the database is compromised. The use of strong, slow hashing algorithms enhances security by making it computationally infeasible to reverse-engineer or decrypt password hashes, providing an additional layer of protection for user accounts.

CHAPTER 6. CONCLUSION AND FUTURE SCOPE

In conclusion, working on this corporate project has been an invaluable learning experience that has significantly enhanced my skills and knowledge in PHP, backend programming, database design, and building a lead management system. I am pleased to announce that I have successfully completed the remaining 40% of the project, fulfilling all the defined requirements and implementing additional features.

During the completion of the web app, I paid particular attention to data normalization, ensuring efficient and optimized database operations. By structuring the database properly, I achieved improved query performance and streamlined data management.

Furthermore, I prioritized the security aspect of the web app. Implementing robust security measures, I addressed potential vulnerabilities and strengthened protection against cyber-attacks. This included implementing encryption for sensitive data, implementing secure authentication mechanisms, and adhering to best practices in secure coding.

Having completed the project, I am now equipped with a comprehensive understanding of full-stack development. The project has provided me with a platform to refine my skills and gain hands-on experience in building complex web applications.

Moving forward, I am excited to leverage my enhanced knowledge and skills in future projects. I am particularly interested in further exploring advanced security measures and integrating emerging technologies into my development practices.

Overall, this project has not only allowed me to achieve my goals but also enabled me to grow as a developer. I am grateful for the opportunity and look forward to applying my expertise in future endeavors, continuing to deliver high-quality solutions that meet the needs of users and businesses alike.

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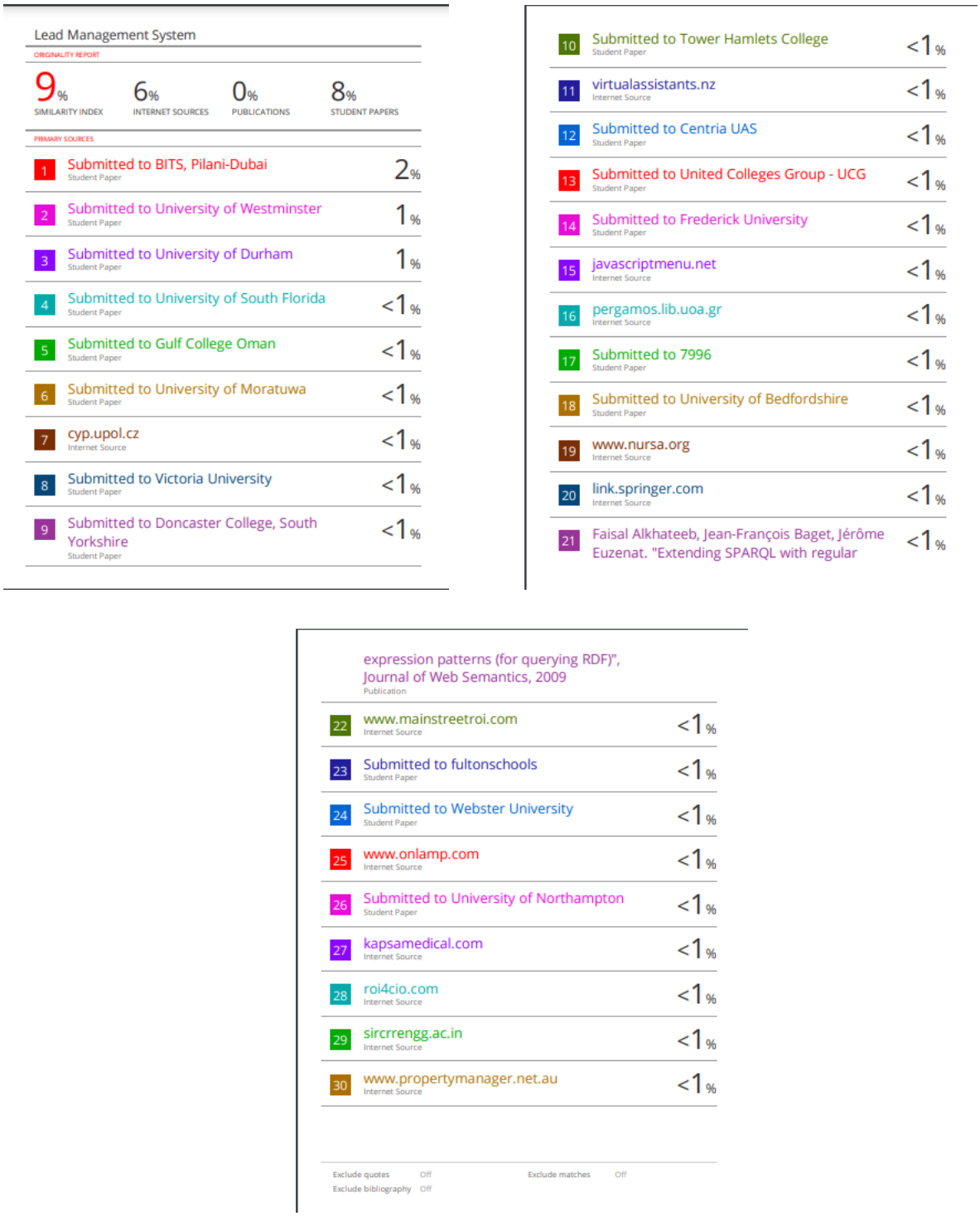

Lead Management System

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